THE DETERMINANTS OF ENVIRONMENTAL DISCLOSURES IN THAILAND

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DEPARTMENT OF ACCOUNTING

INTERNATIONAL PROGRAM

FACULTY OF ECONOMICS

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THE DETERMINANTS OF ENVIRONMENTAL DISCLOSURES IN THAILAND

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Presented as a partial Fulfillment of the Requirements

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ADVISORS' APPROVAL

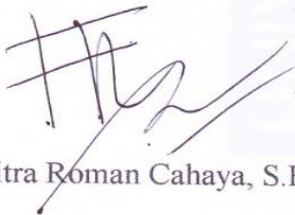## THE DETERMINANTS OF ENVIRONMENTAL DISCLOSURES IN THAILAND

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THE DETERMINANTS OF ENVIRONMENTAL DISCLOSURES IN THAILAND

A BACHELOR DEGREE THESIS

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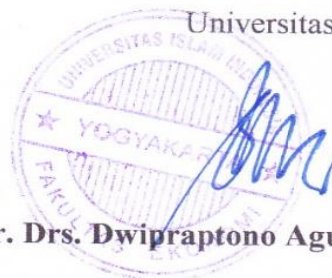
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Yogyakarta, July 2nd, 2018

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DECLARATION OF AUTHENTICITY

Herein I declare to the originality of this thesis: I have not presented someone's work to obtain my university degree, nor I have presented someone's words, ideas, or expression without acknowledgement. All quotation is cited in listed in the bibliography of the thesis. If in the future this statement is proven to be false. I am willing to accept any sanctions complying with the determined regulations or its consequences.

Yogyakarta, May 24th, 2018

Iqro Asmi Muttaqien

Motto and Dedication

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اَقْرَأْ بِاَسْمِ رَبِّكَ الَّذِى خَلَقَ ۝ خَلَقَ الْاِنْسَـٰنَ مِنْ عَلَقٍ ۝ اَقْرَأْ وَرَبُّكَ الْاَكْرَمُ ۝ الَّذِى عَلَّمَ بِالْقَلَمِ ۝ عَلَّمَ الْاِنْسَـٰنَ مَا لَمْ يَعْلَمْ ۝

</div>

Recite in the name of your Lord who created. Created man from a clinging substance. Recite, and your Lord is the most Generous. Who taught by the pen. Taught man that which he knew not.

(Q.S AL-'ALAQ: 1-5)

I dedicate this thesis to my parents whom always give me supports and their endless love, also for my beloved sister and brother.

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بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

Assalamualaikum Wr. Wb.

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This thesis as a partial requirement to obtain the bachelor degree in Accounting Department, International Program, Faculty of Economics, Universitas Islam Indonesia was finally finished. Hopefully, this thesis can bring benefits for the upcoming studies.

My sincere appreciation and gratitude are dedicated to everyone who has contributed in this thesis. Though this occasion, I would like to address my regards to:

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Wassalamu'alaikum Wr. Wb.

Yogyakarta, May 24th, 2018

Iqro Asmi Muttaqien

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ABSTRACT

Nowadays, environmental issues become very important issues in the world there are a lot of environmental damage caused by companies, such as pollution, natural resource depletion, waste disposal, loss of biodiversity, deforestation, ozone layer depletion, and water pollution. Therefore, this leads to the importance of environmental disclosure as a major issue in accounting.

The purposes of this research are to examine the tendency of listed companies in SET to disclose environmental information and to examine the extent of environmental disclosure. The methodology employed two regression analyses namely logistic regression and multiple regression. The data were obtained from SET website and companies' websites. The findings in this research revealed that there is no explanatory variables that is positively significant to environmental disclosure. However international operation is found to be significant but in negative direction. Moreover, the second regression found that there are two out of seven independent variables that were significant to the extent of environmental disclosure in positive direction, and industry type as control variable found to be positively significant to the extent of environmental disclosure.

Thus, the managerial branch of stakeholder theory was failed to explain the relationship between the dependent variable and independent variables. Meanwhile, the managerial branch of stakeholder theory partially explained the variability of environmental disclosure practice or listed companies in SET.

Keywords: environmental disclosure, environment, and stakeholders.

ABSTRAK

Saat ini, isu lingkungan menjadi isu yang sangat penting di dunia ada banyak kerusakan lingkungan yang disebabkan oleh perusahaan, seperti polusi, penipisan sumber daya alam, pembuangan limbah, hilangnya keanekaragaman hayati, penggundulan hutan, penipisan lapisan ozon, dan polusi air. Oleh karena itu, ini mengarah pada pentingnya pengungkapan lingkungan sebagai masalah utama dalam akuntansi.

Tujuan dari penelitian ini adalah untuk menguji kecenderungan perusahaan yang terdaftar di SET untuk mengungkapkan informasi lingkungan dan untuk memeriksa sejauh mana pengungkapan lingkungan. Metodologi yang digunakan dua analisis regresi yaitu regresi logistik dan regresi berganda. Data diperoleh dari situs web SET dan situs web perusahaan. Temuan dalam penelitian ini mengungkapkan bahwa tidak ada independen variabel yang positif signifikan terhadap pengungkapan lingkungan. Namun operasi internasional ditemukan menjadi signifikan tetapi dalam arah negatif. Selain itu, regresi berganda menemukan bahwa ada dua dari tujuh variabel independen yang signifikan terhadap perluasan pengungkapan lingkungan dalam arah positif, dan jenis industri sebagai variabel kontrol ditemukan menjadi signifikan positif terhadap perluasan pengungkapan lingkungan.

Dengan demikian, manajerial teori stakeholder gagal menjelaskan hubungan antara variabel dependen dan variabel independen. Sementara itu, manajerial teori stakeholder secara parsial menjelaskan variabilitas praktik pengungkapan lingkungan atau perusahaan yang terdaftar di SET.

Kata kunci: pengungkapan lingkungan, lingkungan, dan pemangku kepentingan

CHAPTER I

INTRODUCTION

1.1. Study Background

Nowadays, the environmental disclosure constitutes a major issue in accounting. Environmental issues become very important issues in the world because there are a lot of environmental damage caused by companies' operations such as pollution, natural resource depletion, waste disposal, loss of biodiversity, deforestation, ozone layer depletion, and water pollution (Conserve Energy Future, 2018). On the other hand companies create wealth and job opportunities for the public. At the same time, they destroyed environment and ecology insanely, and this affected on human health and bio-diversity in the world (Rouf, 2011). In this case, companies require to control the pollution and guarantee that there will be no effect on both internal and external stakeholders (Chaiwong & Ussahawanitchakit, 2016). The achievements of companies counted not only on its economic performance but also on how the companies fulfill their responsibilities towards the environment and social sides (Chandok, 2017). Therefore, companies should take care of the environment. If companies are not responsible for their use of natural resources, it would lead to misuse of natural resources to harm the society (Villiers., 2003).

In consequence of the fact that industries harm the natural resources and society, companies must do a number of environmental performance to restore the environmental and strengthen trust of society that companies are responsible for

their actions (Branco, Euge´nio, & Ribeiro, 2008; Islam & Islam, 2011). According to Islam and Islam (2011), they stated that influences in relation to this problem has negative implications on the companies' side and it leads to particular strategies, along with disclosure strategy.

Environmental disclosure has been emerging as an important part of corporate disclosure, companies are insisted to disclose their environmental performance. Environmental disclosure can be an instrument to reduce information asymmetry between company management and its shareholder (Cormier, Ledoux, & Magnan, 2011). Environmental disclosure is a well-known procedure among listed companies related to renewable energy business operations and takes the role in economy towards developing the ethical investment and accountability of companies toward its stakeholders (Bakar, et al., 2017). The environmental disclosure is a tool for companies to communicate of environmental effects to shareholder apart from the financial side (Ahmadi & Bouri, 2017; Ensslin, Ensslin, Lunkes, & Rosa, 2012). The stakeholders are groups or individuals that may affect or be affected by the success of the mission of the organization (Chaiwong & Ussahawanitchakit, 2016). Therefore, the mission of the organization and the stakeholders must be congruent. Companies also have to disclose the environmental activities that have been done by companies in the annual report or separately known as the sustainability report.

In developing countries environmental disclosure is inadequacy. It is affected by lack of knowledge of environmental disclosure and it is generally unregulated and discretionary or voluntarily (Arussi, Hanefah, & Selamat, 2009;

Djajadikerta & Trireksani, 2012; Staden & Villiers, 2012; & Ahmad & Mousa, 2010). Eljayash (2017) stated that it is very hard to define the behavior of organization in developing country. Hence, there are massive demands from public for company to responsible for their actions to the environment (Islam & Islam, 2011).

Kraisornsuthasinee and Swierczek (2009) found that companies in Thailand were doubtful on committing social responsibility, it was caused by insufficient incentives for companies to initiate fully committed social responsibility. As argued by Wuttichindanon (2017), Securities and Exchange Commission (SEC) of Thailand has commanded all the listed companies in Stock Exchange Thailand (SET) to disclose company's social and environmental disclosure in their annual report or a separate report known as a sustainability report. Thailand Business Council for Sustainable Development (TBCSD) is an organization affiliated with the World Business Council for Sustainable Development (WBCSD) that rewards all companies' members which perform sustainable activities. From the explanation above the researcher can conclude that the emergence of environmental disclosure becomes crucial for companies and environmental disclosure commits to be a strategic decision for the companies. Therefore, this research is entitled **"The Determinants of Environmental Disclosures in Thailand".** From this title, Thailand as one of the developing countries in Asia can give descriptions on how environmental disclosure runs in the developing country. The researcher decided to use all companies listed that perform renewable energy business in Stock Exchange Thailand to simplify data collection.

1.2. Problem Formulation

Nowadays, in the worldwide especially in developing countries, there has been changing in the concept of "Profit Maximizing" to "social responsible" concept (Rouf, 2011). Companies in particular types of industries may experience various degree of constraint to disclose specific types of information because of competitive motivations (Ghazali, 2007). Companies that engage in circumstantial countries intend to endure an economic and cultural environment, moral judgment, political systems, and civil systems, specific to that country (Djajadikerta & Trireksani, 2012). Government's interventions may insist companies to add information because the government is a body trusted by the public (Haron, Said, & Zainuddin, 2009). According to Waluyo (2017), he stated that companies with good social and environmental disclosure will be positively acknowledged by investors. Therefore, environmental disclosure turns into companies' responsibility towards their stakeholders. Based on the formulation above, the problem formulation in this research will be divided into two main research questions, as it is formulated in the following research questions:

A. The first main problem formulations are the propensity of listed companies to disclose environmental information in their annual report and or sustainability report. The first main research questions are as follows:

1a. Does the government ownership have a relationship to propensity to disclose environmental information?

2a. Does the company age have a relationship to propensity to disclose environmental information?

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3a. Does the company size have a relationship to propensity to disclose environmental information?

4a. Does the profitability have a relationship to propensity to disclose environmental information?

5a. Does the leverage have a relationship to propensity to disclose environmental information?

6a. Does the international operation have a relationship to propensity to disclose environmental information?

7a. Does the environmental performance have a relationship to propensity to disclose environmental information?

B. The second main problem formulations are related to the extent of environmental disclosure. The second main research questions are as follows:

1b. Does the government ownership have a significant relationship to the extent of environmental disclosure?

2b. Does the company age have a significant relationship to the extent of environmental disclosure?

3b. Does the company size have a significant relationship to the extent of environmental disclosure?

4b. Does the profitability have a significant relationship to the extent of environmental disclosure?

5b. Does the leverage have a significant relationship to the extent of environmental disclosure?

6b. Does the international operation have a significant relationship to the extent of environmental disclosure?

7b. Does the environmental performance have a significant relationship to the extent of environmental disclosure?

1.3. Research Objectives

There are two main objectives of this research which are to find how the independent variables (Government ownership, company age, company size, profitability, leverage, international operation, and environmental performance) relate to the dependent variable (environmental disclosure) and to find whether the independent variables have significant effects toward the extent of environmental disclosure (dependent variable). Hence, the following specific objectives of this research can be seen below:

1a. To examine whether the government ownership has a possible relationship to the tendency of listed companies to disclose environmental information.

2a. To examine whether the company age has a possible relationship to the tendency of listed companies to disclose environmental information.

3a. To examine whether the company size has a possible relationship to the tendency of listed companies to disclose environmental information.

4a. To examine whether the profitability has a possible relationship to the tendency of listed companies to disclose environmental information.

5a. To examine whether the leverage has a possible relationship to the tendency of listed companies to disclose environmental information.

6a. To examine whether the international operation has a possible relationship to the tendency of listed companies to disclose environmental information.

7a. To examine whether the environmental performance has a possible relationship to the tendency of listed companies to disclose environmental information.

In addition, the following research objectives are for the extent of environmental disclosure, namely:

1b. To examine the possible relationship of government ownership toward the extent of environmental disclosure.

2b. To examine the possible relationship of company age toward the extent of environmental disclosure.

3b. To examine the possible relationship of company size toward the extent of environmental disclosure.

4b. To examine the possible relationship of profitability toward the extent of environmental disclosure.

5b. To examine the possible relationship of leverage toward the extent of environmental disclosure.

6b. To examine the possible relationship of international operation toward the extent of environmental disclosure.

7b. To examine the possible relationship of environmental performance toward the extent of environmental disclosure.

1.4. Research Contribution

These are the following contributions of this research:

1. For Researcher

    The results of this research increase the knowledge and experiences of researcher about the relationship and effects of environmental disclosure in developing countries in Asia, especially in Thailand.

2. For Scholars

    The results of this research give contributions for scholars as a reference and additional information about environmental disclosures in Thailand as main object country.

3. For Government Institution

    Hopefully, this study becomes a reference for the government institutions for making policies related to social and environmental disclosures.

4. For Other Interested Users

    In addition, this research contributes in developing theory related to social and environmental disclosure.

1.5. Systematics of Writing

The systematics of this research are divided into six chapters which are as follows:

Chapter I: INTRODUCTION

The first chapter outlines the study background, problem formulation, research objective, research contribution, and systematics of writing.

Chapter II: THEORETICAL REVIEW

The second chapter contains of a theoretical basis that is used to discuss the issues raised in this study and previous research.

Chapter III: LITERATURE REVIEW

This chapter explains and describes in the details about literature reviews to discuss the issues raised in this research and previous research.

Chapter IV: RESEARCH METHODOLOGY

This chapter describes the sample research data resources, data collection techniques, the type of data used, data analysis techniques, and test the validity of data. This chapter is related to chapter five, which will explain the research methodology to answer the problem formulation.

Chapter V: ANALYSIS

This chapter consists of the explanation and data analysis to answer the problem formulations.

Chapter VI: CONCLCUSION

This chapter contains the conclusions of the results of the research conducted, research implication, limitations, and recommendations for further research.

CHAPTER II
THEORETICAL FRAMEWORK

2.1. Environmental Disclosure Definitions

There is a variety of environmental disclosure terms. As stated by Ahmadi and Bouri (2017), the term came from outside financial scope, corporate social responsibility and social and environmental disclosure reflect the extent of the company is responsibility toward its stakeholders. According to Cahaya (2006), social disclosure and environmental disclosure are generally have the same definition. Eljayash (2017) stated that there are a lot of varieties of environmental disclosure, which depends on the quality and quantity of disclosure according to temporal, spatial and sector influences. Onozawa (2013) also stated that corporate social responsibility has become a well-known term, yet it is no general definition of what it means. Hence, there are many different definitions of this term. In addition, Enquist, Johnson, and Ska°le´n (2006, p. 188) stated that "CSR can be understood as the voluntary integration of social and environmental concerns into business operations and interactions with stakeholders. The previous research has established that companies use CSR initiatives to communicate with their stakeholders".

Haron, Said, and Zainuddin (2009, p. 213) defined the environmental disclosure as "one approach of how companies published or disclosed their corporate social responsibility activities". The Bursa Malaysia's CSR framework (Bursa Malaysia, 2007) defined corporate social responsibility as "a concept

whereby enterprises integrated social and environmental concerns in business operations and in their interactions with stakeholders". Guthrie and Mathews (cited in Hackston & Milne, 1996, p. 78) defined corporate social responsibility as "the provision of financial and non-financial information related to an organization's interaction with its physical and social environment, as stated in corporate annual reports or separate social reports"

A company determines environmental disclosure as reflected on the company's image as well as being a socially responsible and ethical activity (Villiers, 2003). Social and environmental responsibilities become critical issues among companies and this becomes ways for them to measure and manage their interactions in the field in terms of social concerns (Gray, 2005). Eljayash (2017, p. 2) defined environmental disclosure as "comprises information related to a corporation's activities, aspirations and public image with regard to environmental, community, employee and consumer issues". In this content, Ahmadi & Bouri (2017) defined social and environmental disclosures as "encompasses multiple ranges of firms' performance aspects related to social product responsibility efforts, human right protection and environmental management that can be measured with multidimensional corporate social responsibility construct". Cormier, Ledoux, and Magnan (2011) stated that social and environmental disclosures can reduce information asymmetry. Therefore, by issuing the social and environmental disclosure companies try to provide an integrated view of their performances.

2.2. Environmental Disclosure's Sub Category

Corporate Social Responsibility (CSR) disclosure guideline that is widely used by companies globally including Thailand is the Global Reporting Initiative (GRI). To confirm this statement, the definition of each item and its relevance of indicators from Global Reporting Initiative (GRI) G4 Environmental Standards in the annual reports of listed companies in SET context are presented in below.

1. Materials

    The materials used by companies can be divided into two categories which are (1) non-renewable materials such as minerals, oil, gas, or coral, and (2) renewable materials such as wood or water. Both non-renewable materials and renewable materials can be recycled input materials (Global Reporting Initiative, 2017). For measuring this indicator, the researcher uses some checklists as guidelines from GRI as follows:

    1) Materials used by weight or volume

    2) Recycled input materials used

    3) Reclaimed products and their packaging materials

2. Energy

    Company consumed different forms of energy such as fuel, electricity, heating, cooling or steam. Energy that is used by company can be self-generated or purchased it from external parties and the energy itself can be divided into two: renewable resources (wind, hydro or solar) and non-renewable resources (coal, petroleum or natural gas) (Global Reporting Initiative, 2017). For

measuring this indicator, the researcher uses some checklists as guidelines from GRI as follows:

1) Energy consumption within the organization

2) Energy consumption outside of the organization

3) Energy intensity

4) Reduction of energy consumption

5) Reduction in energy requirements of products and services

3. Water

Water is very essential for human and wellbeing. Companies can also be impacted from water such as water withdrawal and consumption. According to Global Reporting Initiative (GRI) (2017), withdrawal from water system can affect the environment by lowering the water table, reducing available water volume for use. These effects can impact the quality of life in the area, including economic effects and other consequences for local communities. For measuring this indicator, the researcher uses some checklists as guidelines from GRI as follows:

1) Water withdrawal by source

2) Water sources significantly affected by water withdrawal

3) Water recycled and reused

4. Biodiversity

Taking care of biological diversity is crucial to guarantee the preservation of plant, animal, and natural ecosystems. Natural ecosystems afford clean water, air, and provide food protection and human health (Global

Reporting Initiative, 2017). For measuring this indicator, the researcher uses some checklists as guidelines from GRI as follows:

1) Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas

2) Significant impacts of activities, products, and services on biodiversity

3) Habitats protected or restored

4) International Union for Conservation of Nature (IUCN) Red List species and national conservation list species with habitats in areas affected by operations

5. Emission

Emission into air is the unloading of substances from a source into atmosphere. Types of emissions are including: greenhouse gas (GHG), ozone depleting substances (ODS), nitrogen oxides (NOX), and sulfur oxides (SOX). According to GRI (2017) GHG emission contributes a major effect to climate change so that the United Nations (UN) takes control on this by issuing 'Framework Convention on Climate Change'. Deterioration of air quality, forest degradation and public health concerns influencing local and international regulations to govern emissions of these pollutants. Pollutants such as NOX and SOX have negative effects on climate, ecosystems, air quality, habitats, agriculture, and human (Global Reporting Initiative, 2017). Reductions in the emission of regulated pollutants lead to improved health conditions for workers and local communities and can increase relations with

affected stakeholders. For measuring this indicator, the researcher uses some checklists as guidelines from GRI as follows:

1) Direct (Scope 1) GHG emissions

2) Energy indirect (Scope 2) GHG emissions

3) Other indirect (Scope 3) GHG emissions

4) GHG emissions intensity

5) Reduction of GHG emissions

6) Emissions of ozone-depleting substances (ODS)

7) Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions

6. Effluents and Waste

   Effluents and Waste include water discharges (the generation, treatment and disposal of water), spills of chemicals, oils, fuels, and other substances. The unmanaged discharges of effluents with a high chemical load (nitrogen, phosphorous, or potassium) can influence aquatic habitats, the quality of available water, and other water users (Global Reporting Initiative, 2017). The generation, treatment and disposal of water can also harm the human health and environment. This particularly becomes the concerns of countries lacking of infrastructure and regulation, because this will lead to the damage of soil, water, air, biodiversity, and human health. For measuring this indicator, the researcher uses some checklists as guidelines from GRI as follows:

1) Water discharge by quality and destination

2) Waste by type and disposal method

3) Significant spills

4) Transport of hazardous waste

5) Water bodies affected by water discharges and/or runoff

7. Environmental Compliance

Environmental compliance, covering an organization's compliance with environmental laws and/or regulations, includes compliance with international declarations, conventions and treaties, as well as national, sub-national, regional, and local regulations (Global Reporting Initiative, 2017). For measuring this indicator, the researcher uses some checklists as guidelines from GRI as follows:

1) Non-compliance with environmental laws and regulations

8. Supplier Environmental Assessment

Company may be involved with impacts either through its own activities or as a result of its business relationships with other parties. Due to expectations of company in order to restrict and reduce negative environmental impacts in the supply chain include impacts made by company either causes or contributes to, or that are directly related to its activities, products, or services by its relationship with a supplier (Global Reporting Initiative, 2017). For measuring this indicator, the researcher uses some checklists as guidelines from GRI as follows:

1) New suppliers that were screened using environmental criteria

2) Negative environmental impacts in the supply chain and actions taken

2.3. Theoretical Framework

The stakeholder theory is divided into two parts, namely managerial and ethical branches. Deegan and Unerman (2011, p. 349) stated that "the moral or ethical perspective of stakeholder theory argued that all stakeholders have the right to be treated fairly by an organization, and that the issues of stakeholder power are not directly relevant". "The managerial branch of stakeholder theory explicitly refers to issues of stakeholder power, and how a stakeholder's relative power affects their ability to 'coerce' the organization into complying with the stakeholder's expectations" (Deegan and Unerman, 2011, p. 348). Al-Shaer, salama, and Toms (2017) argued that stakeholder and legitimacy theories have connections so that it should not be considered as two apart theories but two overlapping contexts which can define why company might choose to make a particular set of voluntary disclosure.

The stakeholder theory is the fundamental theory used to understand variety, Corporate Social Responsibility, and Corporate Governance so that the company's operations do not only perform for its own benefit (Waluyo, 2017). This theory is considered to create a strategy to persuade the company's relationships with other parties with which it interacts (Deegan & Unerman, 2011). The stakeholder theory is also used to manage the stakeholders of the company including customers, employees, shareholders, supplies, competitors, government, and community (Chaiwong & Ussahawanitchakit, 2016). Big companies will encounter more attention from stakeholders such as government, federations, and consumers (Cowen, Ferreri, & Parker, 1987).Therefore, it is very important to meet the

demands or interests of any stakeholders. The environmental disclosure was seen as an end of product to appease stakeholders (Buhr, 2002). Ahmad (2014) found that information related to environmental activities is more demanding for stakeholders than the issues related to environmental financial aspects and energy issues. Eljayash (2017) stated that in developing countries, the stakeholder theory may partly explain environmental disclosure.

The stakeholder theory tries to describe when corporate management will be likely to attend to the expectations of particular key stakeholders (Deegan & Unerman, 2011). Deegan and Unerman (2011, p. 353) stated that:

> *within a descriptive managerial branch of the stakeholder theory the organization is also considered to be part of the wider social system, but this perspective of stakeholder theory specifically considers the different stakeholder groups within the society and how they should be managed if the organization is to survive (hence we call it a 'managerial' perspective of stakeholder theory).*

Therefore, in this research it is very important to develop the quality of environmental information disclosed by companies, for uniting the demands of various stakeholders (Ensslin, Ensslin, Lunkes, & Rosa, 2012). Based on explanation above the researcher will use managerial branch of stakeholder theory as the theory that will be used.

CHAPTER III
LITERAURE REVIEW

3.1. Stakeholder

Stakeholders are individuals or groups that are affected by an organization, and stakeholders can affect the organization's functioning, goals, development, and even survival (Chinyio & Olomolaiye, 2010; Chaiwong & Ussahawanitchakit, 2016). Chaiwong & Ussahawanitchakit (2016, p. 87) defined stakeholders as "groups or individuals may affect or be affected by the success of the mission of the organization". Freeman (2004) defined stakeholders in a broad strategic sense as "any group or individual that can affect or is affected by the achievement of a corporation's purpose". Calvert (cited in Chinyio & Olomolaiye, 2010) divided the stakeholder into two:

a) Internal stakeholder: that is those who are members of the company of coalition or who provide finance.

b) External stakeholder: that is those who are affected by the company in significant ways.

Waluyo (2017) stated that stakeholders as parties that produce certain relationships with the community to manage the company's image with attention to social factors and environmental factors. Stakeholders are paying more attentions and need social and environmental disclosure to make strategic decisions (Gandhi & Singhania, 2015). Therefore, the mission of the organization and the stakeholders

must be congruent. As stakeholders have claims, right and expectations, they ought to be directed in order they can prevent influences that could be converse from firm's objective (Chinyio & Olomolaiye, 2010). Thus, companies must identify their stakeholders and increase that advantages for them while minimizing companies' potential negative impacts. Companies can do mapping stakeholders for listing of stakeholders to replace subjectivity with objective measures and to make the assessment process transparent (Chinyio & Olomolaiye, 2010).

In runnig CSR activities, companies also have to disclose the activities that have been done by companies in the annual report or separated report known as sustainability report (Wuttichindanon, 2017). Disclosure of Corporate Social Responsibility turns into a substantial strategy for companies, as stakeholders want to evaluate and perceive the extent to which companies implement Corporate Social Responsibility (Waluyo, 2017). Government as one of the stakeholders also need information of environmental activities of companies to implement the regulations toward environmental disclosure (Gandhi & Singhania, 2015). Demonstrating the extent to which corporate actions are consistent with environmental responsibilities. Voluntary disclosure theory figured that companies with better environmental performance utilize environmental disclosure to inform stakeholders (Kim, Patten, Song, & Yook, 2017). As stated by Deegan, Rankin and Voght (2000, p.127):

> *Arguably, stakeholders have a 'right to know' about the social and environmental implications of an organization's operations at all times—not just when management has been 'shocked' into action by 'legitimacy threatening' events. Regulation might be necessary to ensure that this 'right to know' is satisfied.*

The differing claims, rights, expectations, and interests of stakeholders can exert in various actions. This effect must be responded by managing stakeholders collectively in accordance with the objective of companies.

3.2. Hypothesis Development

3.2.1. Government Ownership

Company that has proportion of government ownership may engage more social and environmental information in annual report (Ghazali, 2007). Government interventions create demands for companies to disclose additional information because the government is a party entrusted by the public (Said et al., 2009). Ghazali (2007) found that the government as an important shareholder, which is familiar business aspects in Malaysia, is significant influence on CSR disclosure in annual reports. According to Wuttichindanon (2017), firms with government ownership disclosed more on CSR activities because companies owned by the government indirectly represent the company owned by the public at large (Ghazali, 2007).

In addition, Said et al. (2009) found that government ownership is positively and significantly connected with the higher level of corporate social responsibility disclosure. In accordance with Ghazali (2007), he found that government ownership as a substantial stakeholder significantly influences the corporates social responsibility. Based on above information, the researcher proposed the following the following hypotheses:

H1a: There is a positive relationship between government ownership and the propensity to disclose environmental information.

H1b: There is a positive relationship between government ownership and the extent of environmental disclosure.

3.2.2. Company Age

Companies with great number of years means that companies have more experiences to pay attention to stakeholders interests through voluntary disclosure in annual report (Waluyo, 2017). Company age determines the involvement of company toward corporate social disclosure and years of company reveal involvement of company in making greater voluntary disclosure (Batra, Joshi, & Kansal, 2014). Company age is a sign that reveals the emergence and capability of companies in competing. Companies that have survived in a long time will have greater experiences (Waluyo, 2017). Furthermore, company age influences the corporate social disclosure (Hamid, 2004).

Based on the research that has been done by Waluyo (2017), it stated the company age significantly influences the corporate social responsibility. Wuttichindanon (2017) found that company age is significant determinant of CSR disclosure. Hamid (2004) found that company age has marginally significant and positive relationships with corporate disclosure. In addition, Al-Haj, Rahman, and Zain (2011) argued that company age has no significant relationship with CSR disclosure. Therefore, the researcher posited the second two hypothesizes:

H2a: There is a positive relationship between company age and the propensity to disclose environmental information.

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H2b: There is a positive relationship between company age and the extent of environmental disclosure.

3.2.3. Company Size

The larger of company in size, the better of information related to financial or voluntary disclosure system and it generates various information that are needed by stakeholders (Waluyo, 2017). It is acceptable that larger companies prepare more disclosures because they tend to get more intentions from the general public and are therefore under greater demand to exhibit voluntary activities (Cowen, Ferreri, & Parker, 1987). As stated by Cahaya and Hanifa (2016) that large companies interact with greater number of stakeholders, to maintain this companies prepare voluntary disclosure. Wuttichindanon (2017) identified that large companies have greater number of stakeholders, therefore, they face challenges from stakeholders' interests to disclose voluntary information. The managers of larger companies are more likely to recognize the potential benefits of great disclosure and small companies are more likely to recognize that full disclosure of information could weaken their competitive position (Rouf, 2011).

In addition, larger companies forecast to disclose more CSR information to present their corporate citizenship, thereby legitimizing their existence (Ghazali, 2007). The larger size of company the greater reporting information system and it creates various information needed by stakeholders (Waluyo, 2017). Rouf (2011) argued that the extent of corporate social responsibility is not related to company size. Waluyo (2017) also found that company size significantly influences corporate

social responsibility disclosure. Therefore, the researcher posited the third two hypothesizes:

H3a: There is a positive relationship between company size and the propensity to disclose environmental information.

H3b: There is a positive relationship between company size and the extent of environmental disclosure.

3.2.4. Profitability

Companies with high profitability indicate that the management of companies is dealing effectively with various stakeholders (Ullmann, 1985). These companies disclose voluntary information which are relevant to certain stakeholders (Gray, Meek, & Robert, 1995). Moreover, profitable companies tend to distinguish themselves from less profitable companies by disclosing voluntary information in annual report (Gray, Meek, & Robert, 1995). Companies which disclose envrionmental infromation in annual report tend to have good economic performance (Ghazali, 2007). Profitable company has an effect on environmental disclosures (Gamerschlag, Mo¨ller, & Verbeeten, 2011). When company has high of profitability, company's manager prefers to communicate the disclosure more to stakeholders in order to obtain or keep a good image of the company (Álvarez & Custodio, 2016).

Profitable companies disclose more social information to perform their contribution to stakeholders (Cooke & Haniffa, 2005). However, Ghazali (2007) found that profitability is not significant to environmental disclosure because the

demand comes from public rather than economic pressure or market place. Wuttichindanon (2017) found that economic performance is not a significant determinant of CSR disclosure. In addition, Álvarez and Custodio (2016) also found that profitability does not affect firms' CSR information disclosure. Batra, Joshi, and Kansal (2014) argued that profitability has a significant influence on corporate social responsibility disclosure. Therefore, the researcher posited the fourth hypothesizes:

H4a: There is a positive relationship between profitability and the propensity to disclose environmental information.

H4b: There is a positive relationship between profitability and the extent of environmental disclosure.

3.2.5. Leverage

As stated by Cahaya (2006) that company with high number of leverage means the company depends on stakeholders namely creditors. Then company adopt voluntary disclosure to satisfy stakeholders' interests. Leverage is a ratio of company's loan capital (debt) to the value of its common stock. When a company increases its debt, it should gain along its level of disclosure to convince the stakeholders that company is able to pay back its debt (Álvarez & Custodio, 2016). Leverage was not found to be explanatory variables of overall social disclosure practices of Indonesian listed entities (Cahaya, 2006). For highly leveraged companies, voluntary disclosure means to reduce their cost of capital by improving their disclosure quantities (Kent & Zunker, 2013).

Al-Haj, Rahman, and Zain (2011) found that leverage variable has a negative and no significant relationship with the total CSR disclosure. Álvarez and Custodio (2016) found that leverage affects the disclosure of environmental information. In addition, Giannarakis (2014) found that leverage is a significant determinant that influences the extent of CSR disclosure. The effect of leverage on the extent of CSR disclosure sounds to be an argumentative topic with modifying reactions among explanatory studies (Giannarakis, 2014). Therefore, the researcher posited the fifth hypothesizes:

H5a: There is a positive relationship between leverage and the propensity to disclose environmental information.

H5b: There is a positive relationship between leverage and the extent of environmental disclosure.

3.2.6. International Operation

Companies that have international operation will have potential stakeholders as foreign consumers, employees, and investors (Cahaya, 2006). These companies will face great demands from foreign stakeholders that have different expectations from original country, then environmental disclosure is expected to fulfil the expectations from stakeholders (Cahaya, 2006). Companies which have international markets aim to follow the current reporting in order to be recognized as the world class companies (Amran & Devi, 2007). A company which has international operation has more complicated social problems because the problems may contradict between countries (Cahaya & Hanifa, 2016).

Companies operating internationally are discovered to western environmental and social responsibility and aim to react according to the environment (Amran & Devi, 2007). Companies operating internationally also communicate with bigger number of stakeholders than companies operating in national level (Cahaya & Hanifa, 2016). Cahaya, Porter, Tower, and Brown (2017) found that international operation has a positive significant influence to communicate corporate social responsibility. Amran and Devi (2007) found that international operation does not significantly influence the corporate social disclosure. Therefore, the researcher posited the sixth hypothesizes:

H6a: There is a positive relationship between international operations and the propensity to disclose environmental information.

H6b: There is a positive relationship between international operation and the extent of environmental disclosure.

3.2.7. Environmental Performance

Companies with good environmental performance tend to disclose more environmental information in annual report when they had environmental reputation (Lu & Taylor, 2018). This is signal for stakeholders that companies take care of companies operational that have impacts on environmental (Lu & Taylor, 2018). Companies with bad environmental performance would be predicted to prepare more positive environmental disclosures in their financial reports (Cho & Patten, 2007). Major information on the company's environmental performance might be contained in the annual report (Buhr , 2002).

Amran and Devi (2007) companies experiencing environmental related issues prepare more specific environmental information in their annual reports. As Cho and Patten (2007) argued that poor environmental performance companies tend to disclose environmental information in CERs than in Non-CERs. Large companies spend big of effort and money to disclose information on their social and environmental performance (Gamerschlag, Mö̈ller, & Verbeeten, 2011). Therefore, the poorer the corporate environmental performance, the greater the amount of environmental disclosure (Coluccia, D'Amico, Fontana, & Solimene, 2015). Lu and Taylor (2018) found that environmental performance has a positive relationship with environmental disclosure. Hence, the researcher posited the seventh hypothesizes:

H7a: There is a positive relationship between environmental performance and the propensity to disclose environmental information.

H7b: There is a positive relationship between environmental performance and the extent of environmental disclosure.

3.3. Control Variable: Industry Type

The control variable of this research is industry type. Industry type concerns to the group of company's main operations (Cahaya, 2006). The industry in which a company operates also appears to be associated with disclosures regarding energy, environment and community involvement (Cowen, Ferreri, & Parker, 1987). Furthermore, companies adopt the identical decisions taken by other leading companies connected to environmental disclosure practice when this company is

industry leader in a specific (Eljayash, 2017). According to Norhayati and Sulaiman (2015) stated that a leading company in an industry may impact other companies to follow same practices. Companies in various type of industries may experience various degree of influences from stakeholders' interests then company disclose more environmental information in annual report to satisfy stakeholders (Ghazali, 2007)

Companies in certain types of industries challenge a diverse degree of demands to disclose a particular type of information because of competitive purposes (Ghazali, 2007). Companies in the oil industry, mining, agriculture, food and beverages, and paper and allied products prepared more environmental disclosure compared to other industries (Djajadikerta & Trireksani, 2012). According to Djajadikerta, Gunawan, and Smith (2008) companies engaged in mining industries aim to disclose compliance to particular government regulation in land restoration and recover of environmental damage. For instance in chemical industry, companies disclose more environmental information to reveal sensitivity to their particular problems compared to manufacturing industries that are tended to disclose more about employees (Cooke & Haniffa, 2005). Therefore, it is predicted that the addition of industry type as a control variable in this research will help to describe environmental disclosure practices of companies that listed in Thailand Stock Exchange.

3.4. Conceptual Schema

Based on the above hypothesizes, the researcher prepared conceptual schema for describing the relationship between the dependent variable and

independent variable and the control variable. The conceptual schema for
illustrating the whole set of the independent, dependent, and control variables in
this study is presented in Figure 3.1.
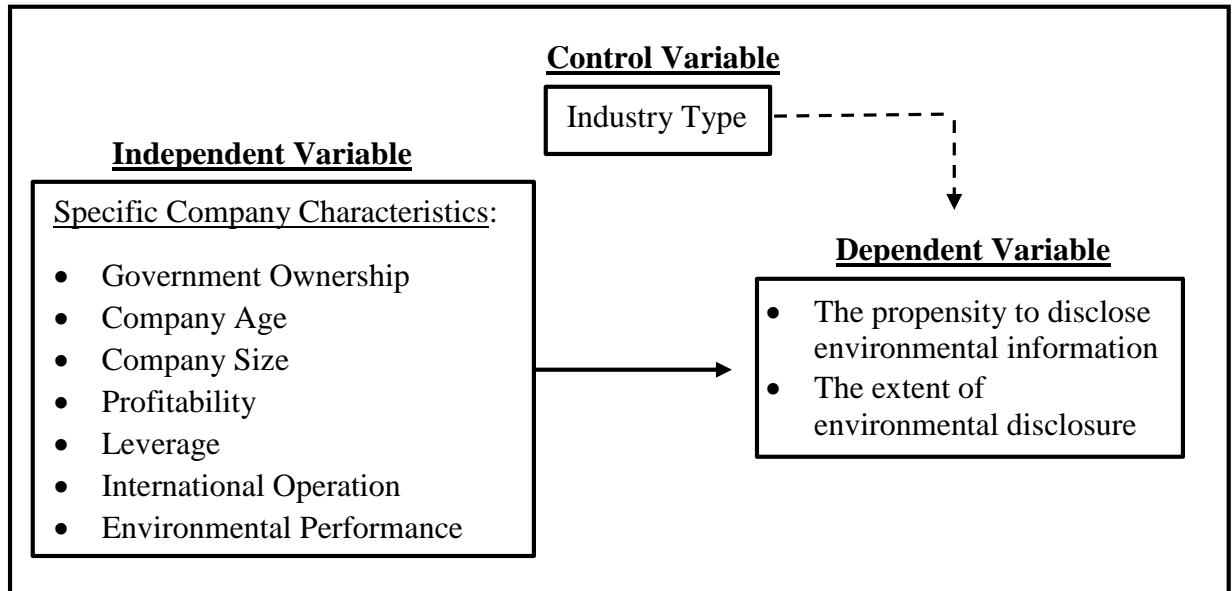
Figure 3.1 Conceptual Schema

CHAPTER IV

RESEARCH METHODOLOGY

4.1. Population and Sample

The population of this research was companies listed on the Stock Exchange Thailand (SET) from period of January 1st – December 31th, 2016. However, this study excluded the companies listed on the Market for Alternative Investment (MAI), which is consistent with Wuttichindanon (2017), an alternative stock market for small and medium-sized companies. MAI companies are smaller so that investments in CSR disclosures may not be comparable to the SET companies (Wuttichindanon, 2017). Therefore, this research excluded MAI companies. The selection of sample companies for this research is based on the accessibility of annual reports and sustainable report of companies from the SET website and companies' websites. Moreover, the sample of this research used 100 companies listed on SET and used a simple random sampling. Simple random sampling ensures each element in the population will have an equal chance of being included in the sample (Babin, Carr, Griffin, & Zikmund, 2013).

4.2. Data Collection Method

The data used in this research are secondary data by using company's annual report and sustainability report (if available) of companies listed in Stock Exchange of Thailand. Data collection method took all the data from the website of SET and the companies' website.

4.3. Measurement of Variables

4.3.1. Measurement of Dependent Variable

Study	Country	Disclosure Items Examined	Technique
(Kuasirikun & Sherer, 2004)	Thailand	Corporate reports	Content analysis - the number of words
(Davey, Low, & Ratanajongkol, 2006)	Thailand	CSR disclosure	Content analysis-the number of words
(Ghazali, 2007)	Malaysia	CSR disclosure	Disclosure index
(Haron, Said, & Zainuddin, 2009)	Malaysia	CSR disclosure items	Content analysis-number of sentences
(Hariri, Haron, Said, & Zainuddin, 2011)	Malaysia	CSR disclosure which include: environment, community involvement, human resource/employee information and energy.	Content analysis-the number of words
(Gamerschlag, Mo¨ller, & Verbeeten, 2011)	German	CSR information	Content analysis-the unit of analysis
(Al-Haj, Rahman, & Zain, 2011)	Malaysia	CSR disclosure	Content analysis-number of sentences
(Cahaya, Porter, Tower, & Brown, 2012)	Indonesia	Labor practices and decent work disclosures	Disclosure index
(Said, Hariri, Haron, & Zainuddin, 2015)	Malaysia	CSR disclosure index was developed by adding all the items covering the five themes, which were environment,	Content analysis-the number of words

		community, human resource, energy and product.	
(Coluccia, D'Amico, Fontana, & Solimene, 2015)	Italy	Environmental disclosure	Disclosure index
(Álvarez & Custodio, 2016)	France, Portugal, Spain, the UK and the US	CSR information	Disclosure index
(Waluyo, 2017)	Indonesia	79 disclosure items which include: economic (EC), environment (EN), human rights (HR), labor practices (LP), product responsibility (PR) and society (SO).	Disclosure index

Table 4.1 Measurement Techniques of Dependent Variable in Prior Study

In this research, there are two dependent variables namely the propensity to disclose environmental information and the extent of environmental disclosure. The techniques to measure the dependent variable namely dichotomous code for the propensity to disclose environmental information and content analysis number of words for the extent of environmental disclosure.

The first one is propensity of company to disclose environmental information that is measured by dichotomous coding. A code of 1 given if companies disclose environmental information in annual report and or sustainability report, or a code of 0 given for companies do not disclose environmental information in their annual reports and or sustainability reports based on Global Reporting Initiative (GRI) G4 for environmental standards as a checklist.

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The second measurement for the dependent variable employed content analysis. The unit of analysis used was the number of words. GRI G4 indicators was used as the disclosure checklist as can be seen in Table 4.2. The GRI was considered the most important organization of its kind at an international level, both by companies and by different stakeholders. Slater and Zwat (2015, p. 5) stated that "GRI wishes to take advantage of technology to create a platform that contributes to effective sustainability communications well beyond reports". Each annual report and sustainability report (if available) will be read carefully to find any information in accordance with the checklist. If information in the checklist is found, then the number of words representing that information is calculated. Table 4.1 showed the measurement of environmental disclosure in prior research.

Abbott and Monsen (1979, p. 504) defined an analysis technique as "Content analysis is a technique for gathering data that consists of codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity". According Krippendorf (1980), content analysis observes data, not as physical matters but as text, images, and expressions that are set up to be seen, read, interpreted, and responded on their meanings, and must therefore be analyzed. Quantitative method can be obtained by the level of disclosure and can be considered as a continuous variable when it is calculated by a content analysis (Cahaya, 2006). Hence, the researcher will use content analysis to analyze the dependent variable.

No.	GRI Standard Indicators	Checklist
1.	GRI-301-Materials	Materials used by weight or volume

		Recycled input materials used
		Reclaimed products and their packaging materials
2.	GRI-302-Energy	Energy consumption within the organization
		Energy consumption outside of the organization
		Energy intensity
		Reduction of energy consumption
		Reduction in energy requirements of products and services
3.	GRI-303-Water	Water withdrawal by source
		Water sources significantly affected by withdrawal of water
		Water recycled and reused
4.	GRI-304- Biodiversity	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
		Significant impacts of activities, products, and services on biodiversity
		Habitats protected or restored
		The International Union for Conservation of Nature (IUCN) Red List species and national conservation list species with habitats in areas affected by operations
5.	GRI-205- Emission	Direct (Scope 1) GHG (Greenhouse Gas) emissions
		Energy indirect (Scope 2) GHG emissions
		Other indirect (Scope 3) GHG emissions
		GHG emissions intensity
		Reduction of GHG emissions
		Emissions of ozone-depleting substances (ODS)
		Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions
6.	GRI-206- Effluents and Waste	Water discharge by quality and destination
		Waste by type and disposal method

		Significant spills
		Transport of hazardous waste
		Water bodies affected by water discharges and/or runoff
7.	GRI-207- Environmental Compliance	Non-compliance with environmental laws and regulations
8.	GRI-208- Supplier Environmental Assessment	New suppliers that were screened using environmental criteria
		Negative environmental impacts in the supply chain and actions taken

Table 4.2 Environmental Disclosure Indicator G4 Guidelines by GRI

4.3.2. Measurement of Independent Variable

A summary of the measurement technique of the independent variables adopted in this research is presented in the Table 4.3.

Independent Variable	Measurement
Government Ownership	1 = there is a proportion of government ownership, 0 = otherwise
Company Age	Number of years from inception
Company Size	Total assets
Profitability	Net income after taxes divided by average of total assets in the last 2 years
Leverage	Total liabilities divided by total assets
International Operation	1 =Yes, if a company has foreign sales or a foreign subsidiary or a foreign branch office, 0 = otherwise
Environmental Performance	1= if the company has a good environmental performance, and 0= otherwise

Table 4.3 Measurement Techniques of Independent Variable

4.3.2.1. Government ownership

The techniques applied in prior research for measuring company size are presented in the Table 4.4.

Study	Country	Measurement
(Ghazali, 2007)	Malaysia	1 if the government is a substantial shareholder in the company; 0 otherwise
(Haron, Said, & Zainuddin, 2009)	Malaysia	Percentage of shares owned by government to the total number of shares issued
(Muttakin & Subramaniam, 2015)	India	Percentage of shares owned by the government
(Wuttichindanon, 2017)	Thailand	A dummy variable of 1 if the government is one of the top-10 major shareholders; 0 otherwise.
(Cahaya, Porter, Tower, & Brown, 2017)	Indonesia	1=there is a proportion of government ownership 0=otherwise

Table 4.4 Measurement Techniques of Government Ownership in Prior Study

It can be seen from the Table 4.4 that dichotomous coding is the most common technique used to measure the government ownership. Thus, the measurement of government ownership in this research adopted a dummy variable, where 1 = if there is a proportion of government ownership and 0 = otherwise.

4.3.2.2. Company Age

Study	Country	Measurement
(Cahaya, Porter, Tower, & Brown, 2012)	Indonesia	Number of years from inception

(Ling & Sultana, 2015)	Singapore	Number of days from the time of incorporation
(Muttakin & Subramaniam, 2015)	India	Natural log of the number of year since the firm's inception
(Wuttichindanon, 2017)	Thailand	The number of years since the firm was established

Table 4.5 Measurement Techniques of Company Age in Prior Study

The Table 4.5 illustrates the techniques used by prior researchers for measuring company age. From the Table 4.4, it can be known that all researchers used the same measurements, then the researcher decided to use this measurement. Therefore, the measurement of company age in this research adopted the number of years since the firm was established.

4.3.2.3. Company Size

Study	**Country**	**Measurement**
(Cahaya, 2006)	Indonesia	Total assets
(Giannarakis, 2014)	USA	Total assets
(Ling & Sultana, 2015)	Singapore	Natural logarithm of the market capitalization
(Muttakin & Subramaniam, 2015)	India	Natural logarithm of total assets
(Ali, Khan, & Lone, 2016)	Pakistan	The basis of total assets
(Wuttichindanon, 2017)	Thailand	The natural logarithm of market capitalization, transformed data with right skew

Table 4.6 Measurement Techniques of Company Size in Prior Study

Company size can be measured in many ways. The Table 4.6 illustrates the measurement of prior research. Moreover, it can be seen from the Table 4.6 that the

total asset is the most common technique of company size used. Therefore, this research used total assets as a proxy to company size which was widely used by other researchers.

4.3.2.4. Profitability

Generally, the method used in calculating the profitability are return on assets (ROA) and return on equity (ROE). Between the two techniques, it is believed that ROA produces a better measurement than ROE (Cahaya, 2006), a presented in the Table 4.7, the measurement of profitability in prior research. It can be seen from the Table 4.7 that net income after taxes divided by total assets is the most common used technique of profitability. This research adopted Cahaya and Hanifa (2016)'s measurement technique, measuring the net income after taxes divided by average of total assets in the last 2 years. Therefore, the measurement of profitability in this research adopted net income after taxes divided by average of total assets in the last 2 years.

Study	Country	Measurement
(Ghazali, 2007)	Malaysia	Profit before tax/Total assets
(Giannarakis, 2014)	USA	Return on sales (ROS) Return on equity (ROE)
(Ling & Sultana, 2015)	Singapore	The ratio of the net earnings after income tax, depreciation and interest divided by the total assets
(Cahaya & Hanifa, 2016)	Indonesia	ROA: 2-year average
(Wuttichindanon, 2017)	Thailand	Ratio of net income to total assets

(Cahaya, Porter, Tower, & Brown, 2017)	Indonesia	Return on assets (ROA)

Table 4.7 Measurement Techniques of profitability in Prior Study

4.3.2.5. Leverage

Study	**Country**	**Measurement**
(Cahaya, Porter, Tower, & Brown, 2012)	Indonesia	Total liabilities divided by total assets
(Muttakin & Subramaniam, 2015)	India	Ratio of book value of total debt and assets
(Ling & Sultana, 2015)	Singapore	The ratio of total liabilities divided by the total assets
(Ali, Khan, & Lone, 2016)	Pakistan	Total debt to total assets ratio
(Álvarez & Custodio, 2016)	France, Portugal, Spain, the UK and the US	The ratio between its total debt and stockholders' equity
(Wuttichindanon, 2017)	Thailand	Ratio of total debt to total assets

Table 4.8 Measurement Techniques of Leverage in Prior Study

Table 4.8 illustrates the measurement of leverage of prior research. This research adopted Cahaya, Porter, Tower, and Brown (2012)'s measurement technique, measuring the ratio of total liabilities to total assets. Therefore, the measurement of company size in this research adopted total liabilities divided by total assets.

4.3.2.6. International Operation

Study	Country	Measurement
(Cahaya, 2006)	Indonesia	Dichotomous coding: 0 = No foreign sales, foreign subsidiaries or foreign branch offices, 1 =Yes-Have foreign sales or a foreign subsidiary or a foreign branch office
(Cahaya, Porter, Tower, & Brown, 2012)	Indonesia	1= Yes, if a company has foreign sales or a foreign subsidiary or a foreign branch office, 0 = No foreign sales, foreign subsidiaries or foreign branch offices
(Cahaya & Hanifa, 2016)	Indonesia	1=Yes, if a company has foreign sales or a foreign subsidiary or a foreign branch office, 0 = otherwise

Table 4.9 Measurement Techniques of International Operation in Prior Study

Measurement of international operation in prior research is illustrated in the Table 4.9. From the Table 4.9, it can be known that all of the researchers use the same measurements so that the researcher decided to use this measurement. Therefore, the measurement of international operations in this research adopted dummy variable, 0 = No foreign sales, foreign subsidiaries or foreign branch offices, 1 =Yes-Have foreign sales or a foreign subsidiary or a foreign branch office.

4.3.2.7. Environmental Performance

The techniques applied in prior research for measuring company size are presented in the Table 4.10.

Study	Country	Measurement
(Hassan & Guo, 2017)	Europe	Environmental impact ratios (EIRs) produced by Trucost.

(Chaitidis, Giannarakis, Konteos, & Sariannidis, 2017)	USA	Dummy variable, where value 0= good environmental performance, value 1 = bad environmental performance
(Lu & Taylor, 2018)	USA	The sum of 50 percent of environmental impact score and environmental management score from 2012 green rankings

Table 4.10 Measurement techniques of Environmental Performance in Prior Study

The measurement of environmental performance uses dichotomous coding, a company will get 1= if the company has good environmental performance, and 0= otherwise. To decide whether companies have good or bad environmental performance, the researcher used certification established by Thailand Business Council for Sustainable Development (TBCSD) (www.tei.or.th) and any other relevant environmental certifications. If a company has the certification then the company is considered to have good environmental performance. Otherwise, if a company has no the certification then the company is considered to have bad environmental performance.

4.3.3. Measurement of Control Variable

Study	Country	Classifications of Industry Type
(Davey, Low, & Ratanajongkol, 2006)	Thailand	1.Manufacturing, 2.Service, 3.Finance, 4.property
(Haron, Said, & Zainuddin, 2009)	Malaysia	1. Consumer products, 2. Industrial products, 3. Trading and services, 4. Plantations, 5. Properties, 6. Construction, 7.Other industries
(Ullmann, 1985)	Bangladesh	1. Engineering, 2. Food& allied, 3. Fuel & power, 4. Textile & Jute, 5. Pharmaceuticals & Chemicals, 6.

		Tannery, Paper & Service, 7. Cement, Ceramics& IT
(Cahaya, Porter, Tower, & Brown, 2012)	Indonesia	1=high profile industry 0=low profile industry
(Ling & Sultana, 2015)	Singapore	Company is scored 1 if classified under *SGX* industry sector, otherwise, scored 0.
(Cahaya, Porter, Tower, & Brown, 2017)	Indonesia	1=high profile industry 0=low profile industry
(Wuttichindanon, 2017)	Thailand	1. Resource, 2.technology, 3.Agriculture, 4.Consumer, 5.Finance, 6. Industrial, 7.Property, 8.Service
(Ikram, Malik, Naseem, Rehman, & Riaz, 2017)	Pakistan	1. Banking, 2.Insurance, 3.Cement, 4.Fuel & Energy, 5.Sugar, 6.Textile

Table 4.11 Classification of Industry Type as Control Variable in Prior Study

Industry type as the control variable in this research can be categorized in various ways, as illustrated in the Table 4.11 categorization of industry type in prior research. However, this research identified the scope of companies only in eight categories, consisting of:

- Property & Construction

- Resources

- Industrials

- Consumer Products

- Services

- Financials

- Technology

- Agro & Food Industry

The measurement of industry type of this research adopted Cahaya (2006)'s techniques by using dummy variable where a code of 1 given to a company with high profile and 0 for otherwise. The high profile company can be classified into industries such as agriculture, mining, basic industry and chemicals, miscellaneous industry, consumer goods industry, property and real estate, and infrastructure, utilities and transportation. Moreover, for the other two finance and trade industries, services and investment industries are classified as low profile companies. Cahaya, Porter, Tower , and Brown (2017) stated that companies with high profiles are more likely to prepare more voluntary disclosure than companies with low profiles. Thus, the researcher employed the dummy variable.

4.4. Analysis Techniques

4.4.1 Descriptive Statistics

Descriptive statistics enable researchers to describe variables numerically and statistics describes a variable focusing on two aspects: the central tendency and the dispersion (Saunders, Lewis, & Thornhill, 2012). Descriptive statistics describes systematically the implementation of environmental disclosure using secondary data of companies listed in SET. Therefore, through this statistical tool, the description of each variable's data (government ownership, company age, company size, profitability, leverage, international operations, and environmental performance) can be identified by using minimum, maximum, mean, and standard deviation.

4.4.2. Logistic Regression

Logistic regression certifies researchers to forecast a discrete outcome from explanatory variables that may be continuous, discrete, dichotomous, or a mix (Tabachnick & Fidel, 2001). The logistic regression only can be used if the dependent variable is dichotomous score (Tabachnick & Fidel, 2001). Moreover in logistic regression does not need any assumptions, such as the predictors do not need to be normally distributed, or of equal variance within predictor variables (Tabachnick & Fidel, 2001). Therefore, this research adopted dichotomous code. A code 0 given to companies that do not disclose environmental information and a code of 1 given to companies that disclose environmental information in their annual reports and or sustainability reports. The logistic regression equation can be written as follows:

$$Ln(p) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$$

Where:

Ln (p)   = Environmental Disclosure (Dependent variable)

β_0 = Constanta

β_1 = Regression coefficient of government ownership

β_2 = Regression coefficient of company age

β_3 = Regression coefficient of company size

β_4 = Regression coefficient of profitability

β_5 = Regression coefficient of leverage

β_6 = Regression coefficient of international operation

β_7 = Regression coefficient of environmental performance

X_1 = Government ownership

X_2 = Company age

X_3 = Company size

X_4 = Profitability

X_5 = Leverage

X_6 = International operation

X_7 = Environmental performance

4.4.3. Classical Assumption Test

Before doing the multiple regression, many multivariate procedures should be done based on assumptions. The classical assumption test is done to confirm the data set and the assumption is measured before multiple regression procedure is conduced (Tabachnick & Fidel, 2001).

4.4.3.1. Normality Test

Normality test aims to examine whether the regression model, residual has distributed normally or not. Normality test in this research adopted Kolmogorov-Smirnov. The basic principle to take decision was depending on the significant value. The terms used were as follows:

- If Asymp. Sig. (2-tailed) less than 0.05 so that the H0 is rejected. It is caused by residual is distributed abnormally.

- If Asymp. Sig. (2-tailed) more than 0.05 so that the H0 is accepted. It is caused by residual is distributed normally.

4.4.3.2. Multicollinearity Test

Multicollinearity test aims to examine whether in the regression model there is a straight-line relationship between two variables (Tabachnick & Fidel, 2001). VIF method is used to examine whether there is multicollinearity or not. If tolerance value is more than 0.10 and VIF value is less than 10 so that it can be concluded that the regression model is free from multicollinearity. Conversely, if tolerance value is more than 0.05, and VIF value is less than 10 meaning that there is high multicollinearity between independent variables.

4.4.3.3. Heteroscedasticity Test

Heteroscedasticity test aims to examine whether in the regression model there are differences in variance from one residual to another residual. If one residual to another residual is the same, there is homoscedasticity. However, if the variance is different, it is heteroscedasticity. A good regression model is when the residual is homoscedasticity or there is no heteroscedasticity. This research employed glejser test to find evidences that there is no heteroscedasticity. To test that there is no heteroscedasticity, it is shown by having no independent variable significantly influencing the dependent variable residuals absolute value, known by the significant value which is more than 0.05.

4.4.4. Multiple Regression

Multiple regression is used as a descriptive statistic tool that enable researchers to examine the relationship between dependent variable (Y) and independent variable (X) (Tabachnick & Fidel, 2001). Tabachnick and Fidel (2001) stated that multiple regression can be applied in which independent variables have

significant relationships with others and with the dependent variable to varying degrees. Moreover, multiple regression is an extension in which several independent variables alternatively just one of independent variable are combined to predict a value on a dependent variable for each subject (Tabachnick & Fidel, 2001). The multiple regression equation can be written as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + e$$

Where:

Y   = Environmental Disclosure (Dependent Variable)

a   = Constanta

b_1 = Regression coefficient of government ownership

b_2 = Regression coefficient of company age

b_3 = Regression coefficient of company size

b_4 = Regression coefficient of profitability

b_5 = Regression coefficient of leverage

b_6 = Regression coefficient of international operation

b_7 = Regression coefficient of environmental performance

X_1 = Government ownership

X_2 = Company age

X_3 = Company size

X$_4$　　= Profitability

X$_5$　　= Leverage

X$_6$　　= International operation

X$_7$　　= Environmental performance

e　　= Error

The hypothesis examinations in this research consisted of determination coefficient and T test. The purpose of hypothesizes examinations was to make logical decisions of uncertainty. The decisions were made from sample data populations that that contain incomplete information (Tabachnick & Fidel, 2001).

CHAPTER V

ANALYSIS

5.1. Descriptive Statistic Analysis

Descriptive Statistic Analysis is used to communicate view and description of data in research. This chapter shows descriptive statistical analysis of 100 annual reports and sustainability reports (if any) of the company which are obtained in SET in 2016. This analysis is focused on dependent variable (Environmental Disclosure), independent variables (Government Ownership, Company Age, Company Size, Profitability, Leverage, International Operation, and Environmental Performance), and control variable (Industry Type). In this research, the obtained data were verified and checked (see appendix A) then there was a 95.93% agreement rate (see appendix B). The descriptive statistics was used to assess statistical analysis on the minimum, maximum, means, and standard deviation. The results of statistical analysis are as follows:

5.1.1. Characteristics of Continuous Variables

Table 5.1 shows a summary of descriptive characteristics of company age, company size, profitability, leverage.

Continues Variable	Minimum	Maximum	Mean	Standard Deviation
Company Age (in years)	1	112	32.10	18.81623
Company Size (in Thousand Bath)	385,714	539,687,987	23,111,689	64,188,678
Profitability (in %)	-0.33	0.26	0.0604236	0.07881954
Leverage (in %)	0.00	0.95	0.4262905	0.22805647

Table 5.1 Descriptive Statistics of Continuous Variables

Table 5.1 shows that company age measured by the number of years from inception, has a wide range. The youngest sample company (Jasmine Broadband Internet Infrastructure Fund) is just 1 year based on the limitation period of the research, while the oldest company (Christiani & Nielsen (Thai) Public Limited Company) is 112 years. The average number of inception of companies listed in SET and used as samples of this research (2016) is 32.10 years, with the standard deviation of 18.816.

The range of the minimum and maximum of company size (total assets) is very wide, as can be seen from the Table 5.1 showing that the smallest sample company (D.T.C. Industries Public Company Limited) has the total asset around 385,714 thousand bath, whereas the biggest sample company (The Siam Cement Public Company Limited) has the total asset around 539,687,987 thousand bath. The mean of the sample is 23,111,689 thousand bath, indicating that listed companies in SET have total assets about 23,111 million bath on average.

The range of profitability is not wide, which is measured by net income after taxes divided by average of total assets in the last 2 years. The minimum of profitability is -0.33% of sample companies and the maximum is 0.26%. Meanwhile, the mean of sample companies is 0.06%, indicating that the sample of companies listed in SET have 0.06% on average.

As compared with other continues variables (company age, company size, profitability), leverage is considerably narrow. The measurement of leverage is total liabilities divided by total assets. It can be seen from the Table 5.1 showing that the

minimum percentage of leverage is 0.00% and the maximum percentage is 0.95% of the sample companies. Moreover, the mean percentage is 0.42%, indicating that the average of leverage of listed companies in SET is 0.42%. It means that the listed companies in SET do not relay on creditors' fund.

From the above result of descriptive statistics and analysis, it can be seen that two continuous variables, which are company age and company size, have very large range. On the other hands, other continuous variables, profitability and leverage, have slightly low dispersion. The lower figure of leverage indicates that listed companies in SET do not really rely on creditor's funding.

5.1.2. Characteristics of Categorical Variables

There are three of independent variables which are categorized as categorical variables, which are government ownership, international operation, and environmental performance. The descriptive statistics for categorical variables employed a percentage value. These three variables are dichotomous and their characteristics are described in the following section.

5.1.2.1. Government Ownership

As stated in the previous chapter, measuring government ownership was employed a code of 0 to a sample company that there is no a proportion of government ownership and a code of 1 is for company that there is a proportion of government ownership. Figure 5.1 illustrates that 86% of sample companies have no government ownership, meanwhile 14% have government ownership.
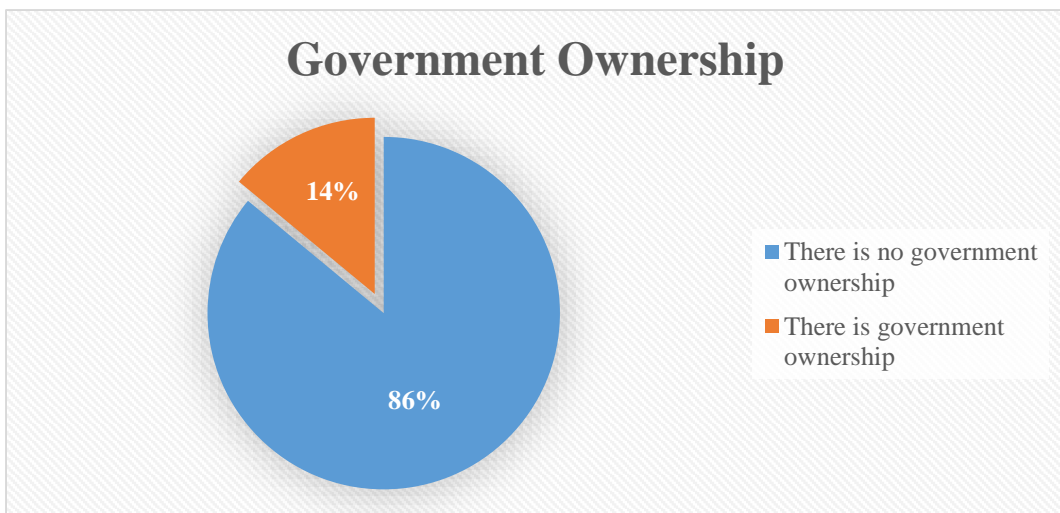
Figure 5.1 Classification of Government Ownership

In depth examination reveals that from 14% of sample companies have government ownership, only 5 (about 71.43% of the 14%) industry classifications (services, financials, resources, property & construction, and industrials) that have government ownership as stated in Figure 5.2.
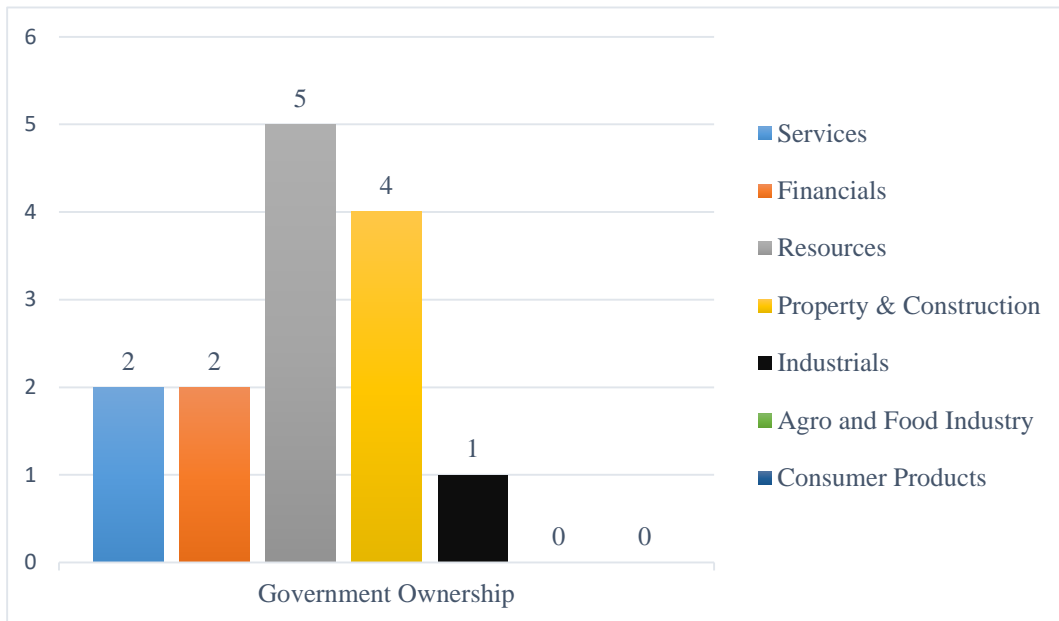
Figure 5.2 Distribution of Government Ownership

5.1.2.2. International Operation

The measurement of international operation, as stated in Chapter IV, employed a code of 0 to sample companies that have no foreign subsidiaries, or foreign branch, or foreign sales. A code of 1 given to companies that have foreign subsidiaries, or foreign branches, or foreign sales. Figure 5.3 shows that 28% of sample companies do not have international operations and 72% of sample companies do have international operations.
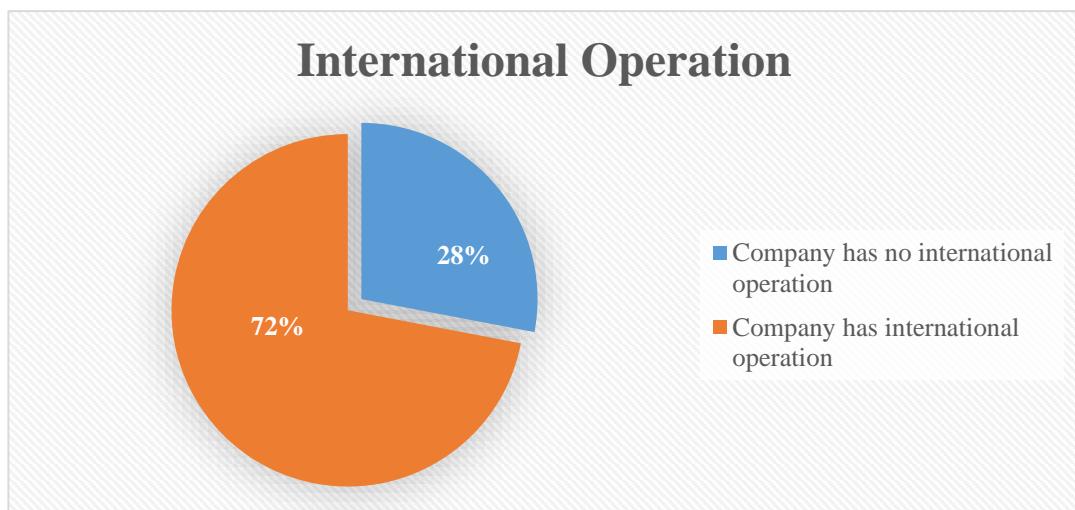
Figure 5.3 Classification of International Operation

Deeply examination (Figure 5.4) also was done for international operation, the result states that 62.5% of sample companies that have international operation do have foreign subsidiaries, only 9 companies (about 12.5% of 72%) have international branches, and 72 companies have international operation or 100% of the companies having international operations have foreign sales. Moreover, there are only 8 companies that have all the indicators (foreign subsidiary, foreign branch, and foreign sales).
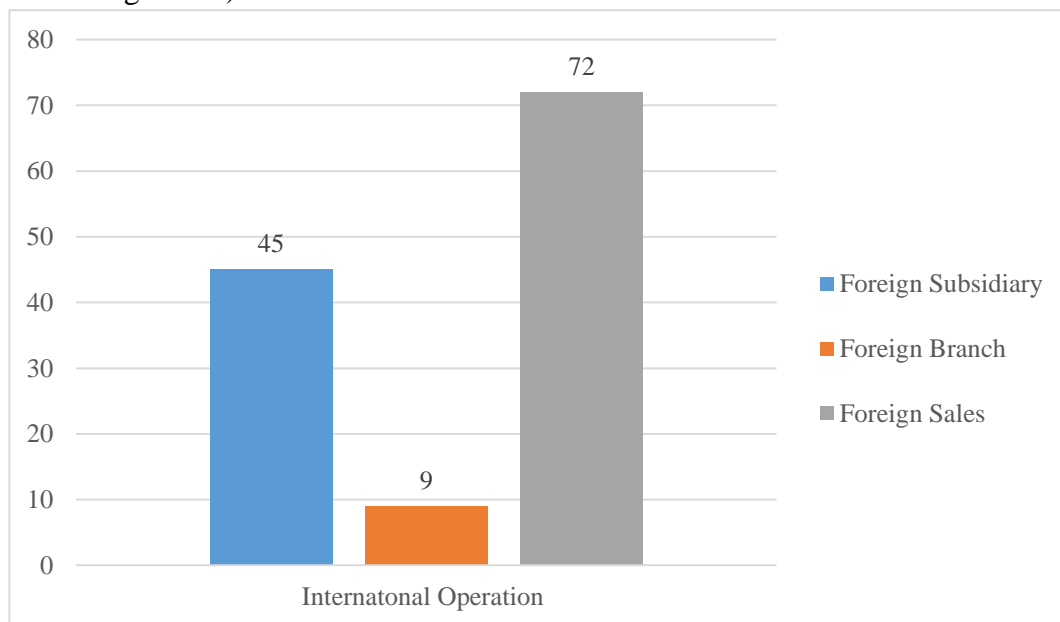
Figure 2.4 Distribution of International Operation

5.1.2.3. Environmental Performance

Alike previous continuous variables, environmental performance also used a code of 0 and 1. A code of 0 given to companies having bad environmental performance and code of 1 given to companies having good environmental performance. To know that a company has a good or bad environmental performance was based on the certification by Thailand Business Council for

Sustainable Development (TBCSD) (www.tei.or.th) and any other relevant environmental certifications as explained in the previous chapter. It can be seen from Figure 5.5 shows that 58% of total sample companies have bad environmental performance. The rest of the sample companies have good environmental performance or 42%. Based on the results of descriptive statistics, it can be concluded that the environmental performance of companies listed in SET are too low because more than a half of the total samples had bad environmental performance.
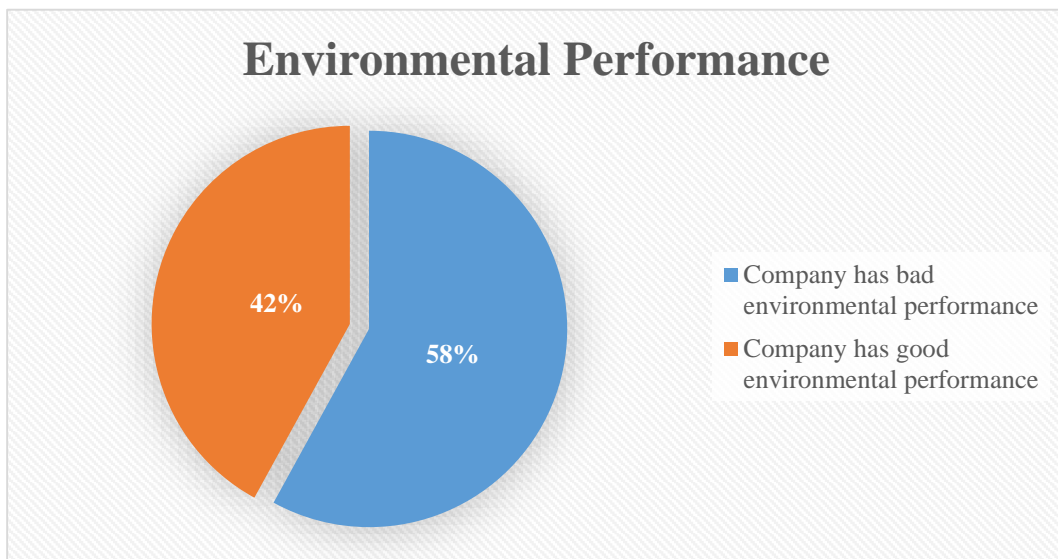
Figure 5.5 Classification of Environmental Performance

5.1.3. Characteristics of the Control Variable: Industry Type

As explained in the previous chapter, industry type is measured by using eight classifications of industry, a code of 0 given to low profile companies and a code of 1 given to high profile companies. It is consistent with Cahaya, et al. (2017). It can be seen in Figure 5.6 that 44% of sample companies are low profile companies, and 64% of total sample companies are high profile companies.
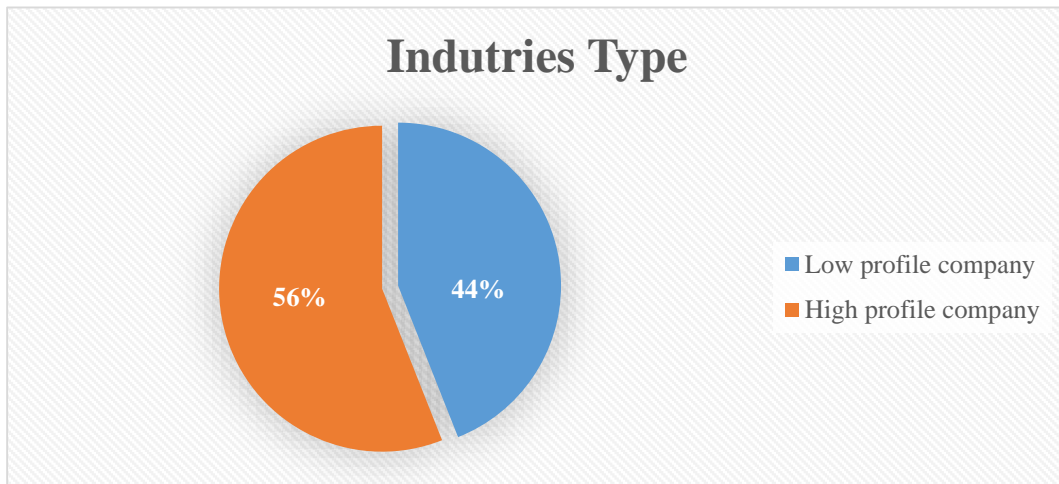
Figure 5.6 Classification of Industry Type

Table 5.2 shows that the number of total sample companies is unsteadly distributed due to difficulties in accessing and obatined the annual reports and sustainability reports (if any) and the sample method selected is random sampling, thus the distribution is not spread evenly.

SET Code	SET Industry Classification	Number of Indutries
1	Resources	13
2	Property & Construction	20
3	Industrials	19
4	Consumer Products	4
5	Agro and Food Industry	10
6	Technology	11
7	Financials	10
8	Services	13

Table 5.2 Distribution of Company based on Industry Type in SET

5.1.4. Characteristics of Dependent Variable: Environmental Disclosure

5.1.4.1. Frequency of Dependent Variable of Logistic Regression

Figure 5.7 shows the result of frequency of dependent variable of logistic regression. The information shown about the environmental disclosure practices represents in frequency of 100 total sample companies' annual reports and sustainability reports (if any) for 2016 financial year.
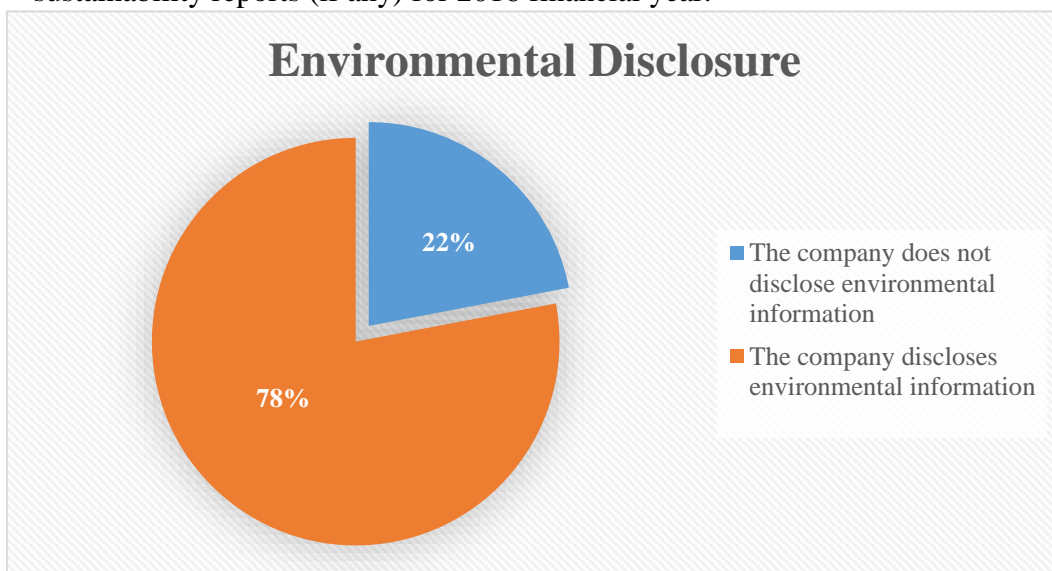
Figure 5.7 Classification of Environmental Dislcosure

As explained in the previous chapter, dependent variable of logistic regression is measured by dummy variable. A code of 0 given to companies that do not disclose environmental information and a code of 1 given to companies that disclose environmental information in their annual reports and or sustainability reports. It is consistent with Cahaya, Porter, Tower, and Brown (2017). It can be seen in Figure 5.7 that 78% of sample companies disclose their environmental information, and 22% of the total sample companies do not disclose environmental information in their annual reports and or sustainability reports. It is indicated that the level of environmental disclosure practices in Thailand is high, but it is inconsistent with

the regulation in Thailand that every listed company is mandated to disclose voluntary information in the annual reports and/or sustainability reports (Wuttichindanon, 2017).

5.1.4.2. Descriptive Statistics of Dependent Variable of Multiple Regression

Table 5.3 shows the result of descriptive statistics of multiple regression of the dependent variable. The shown information of environmental disclosure represents the minimum, maximum, mean, and standard deviation of 78 sample companies' annual reports and sustainability reports (if any). The measurement of dependent variable employed content analysis 'number of words'.

	Minimum	Maximum	Mean	Std. Deviation
Environmental Disclosure (number of words)	13	2,594	376.50	391,610

Table 5.312 Descriptive Statistics of Dependent variable of Multiple Regression

Table 5.3 shows that the minimum number of words of environmental disclosure in companies' annual reports and sustainability reports (if any) is 13 and the maximum number of words is 2,594. The range of minimum and maximum number of words to disclose environmental is very wide. Meanwhile, the mean is 376.50 meaning that intentions of companies listed in SET are still low compared to the maximum number of words which are more than six times of mean of number of words disclosed. Moreover, there are 22 of sample companies that do not disclose environmental disclosure in their annual reports or sustainability reports, indicating that the environmental disclosure practices of listed companies in SET are still low as described by the results of descriptive statistics. Whereas the Securities and Exchange Commission (SEC) of Thailand has set the regulation of voluntary

disclosure, stating that all listed companies in SET are mandated to dislcose their CSR activities whether in annaul reports or sustainability reports (Wuttichindanon, 2017). However, this finding reveals that not all the listed companies disclose the environmental information in their annual reports as it has been explained in the previous chapter. Moreover, the companies which do not disclose the environmental information are excluded from the multiple regression analysis.
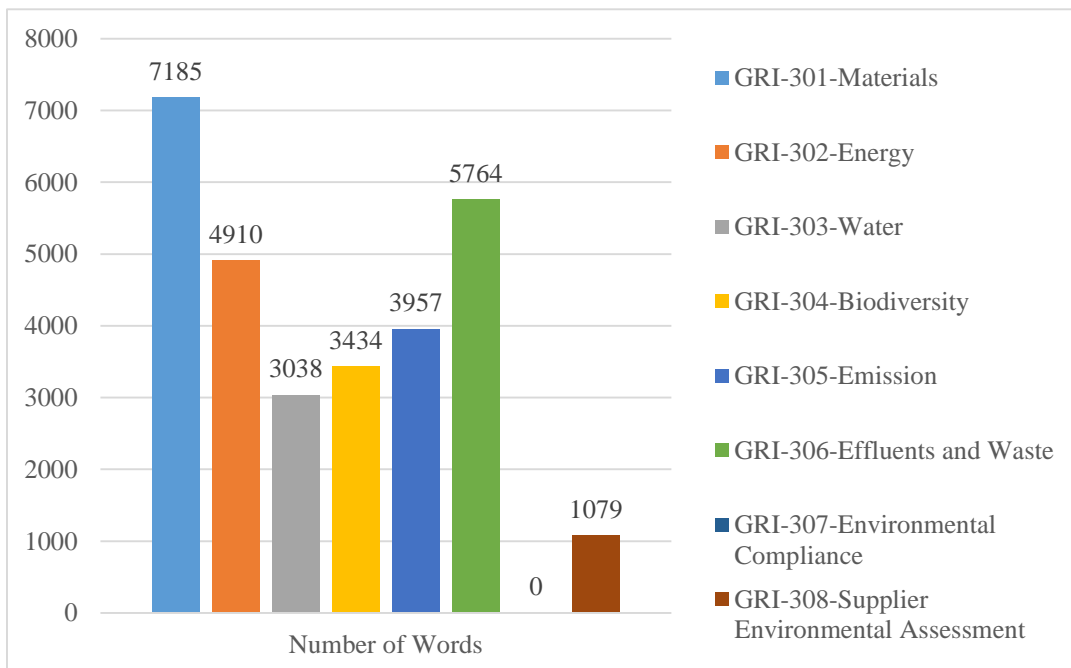
Figure 5.8 Distribution of Number of Words Based on GRI Standard

Figure 5.8 shows that from 78 of sample companies, most item disclosed for environmental disclosure is materials. Materials describe how a company's impacts related to materials, and how it manages these impacts (Global Reporting Initiative, 2017). It can be seen that materials have the greater number which is about 7,185 number of words, indicating that the sample companies concern on material items. The second item that has wide number is effluents and waste which is more than 5,700 number of words of environmental disclosure, effluents and waste item

include water discharges, the generation, treatment and disposal of waste, and spills

of chemicals, oils, fuels, and other substances. Followed by energy item that has

about 4,910 number of words of environmental disclosure, energy item consists of

how a company's impacts related to energy, and how it manages them (Global

Reporting Initiative, 2017). The emission item, biodiversity item, and water item

have the number of words that is slightly similar approximately 3,597, 3,434, and

3,038 number of words of environmental disclosure respectively. Moreover, the last

item disclosed by sample companies is supplier environmental assessment about

1,079 number of words of environmental disclosure. In contrast, there is none of

sample companies disclosing environmental compliance on their annual reports and

sustainability reports (if any). The reasons are companies tend to report good

environmental conduct and to hide the bad impacts on companies operations to

increase the image of company towards its stakeholders.

5.2. Results of Logistic Regression

Variable	Prediction Sign	Coefficient	*p*-value
Constant		23.237	0.997
Government Ownership	+	-1.035	0.403
Company Age	+	0.006	0.772
Company Size	+	0.000	0.563
Profitability	+	4.271	0.300
Leverage	+	0.973	0.519
International Operation	+	-1.915	0.004*
Environmental Performance	+	-21.223	0.997
Industry Type (control variable)		-0.678	0.291
Model Summary:			

Nagelkerke R^2 : 0.542
Regression Model (sig.) : 0.000

Table 5.4 Result of Logistic Regression
Significance at 5% level.

From the result of logistic regression above, then the researcher obtained the model

of regression equation which is developed as follows:

Environmental Disclosure = 23.237 - 1.035 Government Ownership + 0.006

Company Age + 0.000 Company Size + 4.271 Profitability + 0.973 Leverage -

1.915 International Operation - 21.223 Environmental Performance - 0.678

Industry Type

From the regression equation above, the conclusions are:

1. The value of constant intercept is 23.237. It can be concluded that if all the independent variables and control variable are 0 (zero), the value of environmental disclosure will be 23.237.

2. Regression coefficient value of government ownership is -1.035. It can be concluded that if government ownership variable has government ownership in the sample companies, then environmental disclosure will decrease as much as 1.035 with an assumption that all the other independent variables and control variable are constant.

3. Regression coefficient value of company age is 0.006. It can be concluded that if company age variable increases in number of year, then environmental disclosure will increase as much as 0.006 with an assumption that all the other independent variables and control variable are constant.

4. Regression coefficient value of company size is 0.000. It can be concluded that if company size variable increases in a bath unit, environmental disclosure will increase as much as 0.000 with an assumption that all the other independent variables and control variable are constant.

5. Regression coefficient value of profitability is 4.271. It can be concluded that if profitability variable increases 1 percent, environmental disclosure will increase as much as 4.271 with an assumption that all the other independent variables and control variable are constant.

6. Regression coefficient value of leverage is 0.973. It can be concluded that if leverage variable increases 1 percent, environmental disclosure will increase as much as 0.973 with an assumption that all the other independent variables and control variable are constant.

7. Regression coefficient value of international operation is -1.915. It can be concluded that if international operation variable has a foreign subsidiary or a foreign branch or a foreign sale, environmental disclosure will decrease as much as 1.915 with an assumption that all the other independent variables and control variable are constant.

8. Regression coefficient value of environmental performance is -21.223. It can be concluded that if environmental performance of a company is good environmental performance, environmental disclosure will decrease as much as 21.223 with an assumption that all the other independent variables and control variable are constant.

9. Regression coefficient value of industry type is -0.678. It can be concluded that if industry type variable is high profile company, environmental disclosure will decrease as much as 0.678 with an assumption that all the independent variables are constant.

5.3. Hypothesis of Logistic Regression

5.3.1. Determination Coefficient Test

The *P*-Value of the overall model is 0.000 which is less than 0.01 of the significant level. Hence, it is very significant. It means that regression model is highly predictive the level of environmental disclosure or it can be concluded that the regression model has enough evidence that the combination of government ownership, company age, company size, profitability, leverage, international operation, and environmental performance significantly influence the level of environmental disclosure. Table 5.4 also shows that the value of adjusted Nagelkerke R-Square is 0.542. It means that the variation of environmental disclosure practices can be explained by the variation of seven independent variables (government ownership, company age, company size, profitability, leverage, international operation, and environmental performance) and control variables (industry type) as much as 54.2% and the rest (45.8%) is explained by other variables which are not including in this research.

5.3.2. T Statistic Test of Logistic Regression

Hypothesis test 1a through 7a in this research employed t statistic test. The result of the t statistic test of logistic regression can be seen in Table 5.4. Below are the hypothesis test in this research.

1. As it can be seen in Table 5.4, government ownership has p-value 0.403. Thus, it indicates that the level of significance of government ownership is above the significance level of 0.05. Then, it can be concluded that between government ownership and environmental disclosure do not significantly influence one another. Therefore, the hypothesis 1a is rejected.

2. As it can be seen in Table 5.4, company age has p-value 0.772. Thus, it indicates that the level of significance of company age is above the significance level of 0.05. Then, it can be concluded that between company age and environmental disclosure do not significantly influence one another. Thus, the hypothesis 2a is rejected.

3. Company size has p-value 0.563. Thus, it indicates that the level of significance of company size is above the significance level of 0.05. Then it can be concluded that between company size and environmental disclosure do not significantly influence one another. Therefore, the hypothesis 3a is rejected.

4. As shown in Table 5.4, it reveals that profitability has p-value 0.300. Hence, it indicates that profitability is above the significance level of 0.05. Then, it can be concluded that between profitability and environmental disclosure do not significantly influence one another. Therefore, the hypothesis 4a is rejected.

5. As it can be seen in Table 5.4, leverage has p-value 0.519. Thus, it indicates that the level of significance of leverage is above the significance level of 0.05. Then, it can be concluded that between leverage and environmental

disclosure do not significantly influence one another. Therefore, the hypothesis 5a is rejected.

6. International operation has p-value 0.004. Hence, there is a significance influence between international operation and environmental disclosure. However, there is an evidence that international operation is significant to environmental disclosure, but it has a negative value of coefficient that is -1.915. This finding indicates that there is a negative relationship between international operation and environmental disclosure. Thus, the hypothesis 6a is rejected.

7. As depicted in Table 5.4, it reveals that environmental performance has the p-value 0.997. Thus, it indicates that the level of significance of environmental performance is above the significance level of 0.05. Then, it can be concluded that between environmental performance and environmental disclosure do not significantly influence one another. Therefore, the hypothesis 7a is rejected.

8. Moreover, industry type (control variable) has the p-value 0.291. Thus, it indicates that the level of significance of industry type is above the significance level of 0.05. Then, it can be concluded that between industry type and environmental disclosure do not significantly influence one another.

Table 5.5 shows the result of hypothesis test of logistic regression, as follows:

Variable	Hypothesis	Result
Government Ownership	**H1a**: There is a positive relationship between government ownership and the propensity to disclose environmental information.	Not Supported
Company Age	**H2a:** There is a positive relationship between company age and the propensity to disclose environmental information.	Not Supported
Company Size	**H3a:** There is a positive relationship between company sizes and the propensity to disclose environmental information.	Not Supported
Profitability	**H4a:** There is a positive relationship between profitability and the propensity to disclose environmental information.	Not Supported
Leverage	**H5a:** There is a positive relationship between leverage and the propensity to disclose environmental information.	Not Supported
International Operation	**H6a:** There is a positive relationship between international operations and the propensity to disclose environmental information.	Not Supported
Environmental Performance	**H7a:** There is a positive relationship between environmental performances and the propensity to disclose environmental information.	Not Supported

Table 5.5 Results of Hypothesis Test of Logistic Regression

As shown in Table 5.5, there is no independent variable that has a significant relationship in a positive direction to propensity of listed companies disclosing environmental information in their annual report and or sustainability report. There

is no evidence that independent variables have relationship to environmental disclosure in a positive direction. This finding indicated that managerial branch of stakeholder theory is failed to explain the relationship between dependent variable (environmental disclosure) and independent variable (government ownership, company age, company size, profitability, leverage, international operation, environmental performance).

5.4. Discussion of Logistic Regression Results

5.4.1 Government Ownership (H1a)

From the data analysis results, this research found that government ownership does not influence environmental disclosure of listed companies in SET. It can be concluded that even though the companies listed in SET have the proportion of government ownership in companies increases, it does not influence the management to disclose the environmental information in their annual report and or sustainability report. This finding is consistent with the study conducted by Cahaya, Porter, Tower, and Brown (2017). This insignificant finding may be caused by the intention of government which is not on voluntary disclosure but in voluntary activities (Cahaya, Porter, Tower, & Brown, 2017). In contrast with Wuttichindanon (2017) and Ghazali (2007), as stated in the previous chapter, firms with government ownership disclose more on CSR activities because companies owned by government indirectly represent that the company is owned by the public at large. Whereas government's interventions can create demands for companies to disclose voluntary information, because government is an entity trusted by public (Haron, Said, & Zainuddin, 2009). Cahaya et al. (2017) also found that government

is not positively significant to the tendency to disclose voluntary disclosure because government's focuses is not in voluntary disclosure but more focus in voluntary activities.

5.4.2. Company Age (H2a)

According to the result of logistic regression, this research found that company age does not significantly influence the environmental disclosure. In other words, although the companies listed in SET have a great number of years, this does not suggest that they have propensity to disclose environmental information in their annual report and or sustainability report. This finding is consistent with Wuttichindanon (2017) and Cahaya , Porter, Tower, and Brown (2012). The possible reason is that companies that a number of years does not ensure that the companies have more knowledge and experiences in terms of voluntary disclosures. However, this finding is contradicted with Waluyo (2017) stated that companies with a great number of inception have experiences to pay intention of voluntary disclosure. Moreover, the experiences of companies cannot be standardized for companies to have propensity to disclose the environmental information in annual reports and or sustainability reports (Cahaya & Hanifa, 2016).

5.4.3. Company Size (H3a)

This research found that company size does not significantly influence the environmental disclosure. Thus, it can be said that if the listed companies in SET is large firms it does not affect the tendency to disclose the environmental information in annual reports and or sustainability reports. The possible reason is that companies tend to be invisible from the public and the companies does not face the demands

from stakeholders. Therefore, there is no tendency to disclose environmental information (Cahaya, 2006). This finding is contrast with Wuttichindanon (2017) stated that large companies tend to dislcose voluntary information in stand alone report know as sustainability report no matter what the company's financial status. Moreover, Nawaiseh, Boa, and El-shohnah (2015) stated that companies often evaluate the cost-benefit of voluntary disclosures and if the cost exceeds the benefit, irrespective of the company size voluntary disclosure may not be made.

5.4.4 Profitability (H4b)

It can be seen from Table 5.4 that profitability does not influence environmental disclosure. It indicated that although the companies have a great number of profitability, it does not suggest that the companies have a tendency to disclose environmental information in their annual report. This finding is consistent with Ghazali (2007), and Arussi, Hanefah, and Selamat (2009). Although some previous researchers stated that companies with high of profitability tend to disclose voluntary information, but it does not represent that company's focus on voluntary disclosure. As argued by Ghazali (2007) that the empirical evidence on the relationship between profitability and voluntary disclosure is inconclusive. This could be caused by the management of company may not utilize profitability of company to finance the voluntary disclosure. Addition, as stated by Ghazali (2007) that voluntary disclosures are related to influences from stakeholders rather than economic pressure. Moreover, companies face challenges from stakeholders to disclose environmental information in annual report no matter what the companies' financial status are (Wuttichindanon, 2017).

5.4.5   Leverage (H5a)

As shown in Table 5.4, leverage has an insignificant relationship to the environmental disclosure. It means that if the companies listed in the SET increase the leverage by 1 percent, it does not affect environmental disclosure. This finding is consistent with Wuttichindanon (2017), Cahaya, Porter, Tower, and Brown (2017), and Arussi, Hanefah, and Selamat (2009). This might be caused by companies' focus on the other information such as reforming bankruptcy system reformation and corporate governance implementation to satisfy their creditors (Cahaya, 2006).

5.4.6.   International Operation (H6a)

This research found that the international operation significantly influences the environmental disclosure. This indicates that the listed companies in SET have a foreign subsidiary, or a foreign branch, or a foreign sale, meaning that companies disclosed the environmental information in their annual reports or sustainability reports. However, as it depicted in Table 5.4, international operation is negatively influence the tendency to disclose environmental information means that international operation has a negative effect to environmental disclosure. When the company has an international operation that faces challenges from international stakeholders, the company may ignore to disclose environmental information because it has a negative direction. This finding is in contrast with Cahaya, Porter, Tower, and Brown (2017) showing that international operation is significant but in a positive direction. Cahaya, Porter, Tower, and Brown, (2017) stated that companies that have international operation face challenges from global

stakeholders such as foreign government and foreign customer related to voluntary information. In this research found that international operation is significant in negative direction so companies try to ignore challenges from global stakeholders.

5.4.7. Environmental Performance (H7a)

Table 5.4 indicates that environmental performance has no significant influence to environmental disclosure. In other words, whether the companies listed in SET have good environmental performance or not, it does not affect the environmental disclosure. This finding is consistent with Coluccia, D'Amico, Fontana, and Solimene (2015). The potential reason whether the companies have good environmental performances or not, is that the companies must be accountable because impact of companies' operations and the poor of environmental performance of companies, they disclose more environmental information to deflect the attention of public to other information (Coluccia, D'Amico, Fontana, & Solimene, 2015). This finding is in contrast with Lu and Taylor (2018) indicating a positive relationship between environmental performance and environmental dislcosure.

5.4.8 Control Variable: Industry Type

As can be seen in Table 5.4, the industry type (control variable) has a insignificant influence to environmental disclosure. It means that whether the listed companies in SET are high profile companies will not affect the environmental disclosure. The main reason, whether the company is high profile or not, is that companies have the same responsibility to environmental issues that impact the companies' operation. This finding is in contrast with Cahaya, Porter, Tower, and

Brown (2017) indicating a significant relationship between voluntary disclosure and industry type. In addition, the companies disclose relevant information towards the issue of industry that they are operating at (Cahaya, Porter, & Brown, 2008).

5.5. Results of Assumption Test

Assumption test was done to identify whether all the assumptions needed for multiple regression are accomplished. Assumption tests in this research consist of normality test, multicollinearity test, and heteroscedasticity test.

5.5.1. Results of Normality Test

The purpose of normality test is to examine whether in the regression model, residuals have normal distribution. In this research, the normality test was done by One-Sample Kolmogorov-Smirnov test. The basis to take the Kolmogorov-Smirnov test is normality of data having significance value of more than 0.05. The results of Kolmogorov-Smirnov test are presented in Table 5.6.

		Unstandardized Residual
N		78
Normal Parameters	Mean	0.0000000
	Standard Deviation	330.21346020
Most Extreme Differences	Absolute	0.123
	Positive	0.123
	Negative	-0.108
Kolmogorov-Smirnov Z		0.123
Asymp. Sig. (2-tailed)		0.005

Table 5.6 Results of One-Sample Kolmogorov-Smirnov before Transformation

As can be seen in the results of the normality test in Table 5.6, the result showed that Kolmogorov-Smirnov test is 0.123 and the level of significance is 0.005. It means that the residuals data are not distributed normally because p value is less

than 0.05 or 5%. To resolve this problem, the researcher did the data transformation to obtain the normal residual distribution. Hence, the researcher did the second One-Sample Kolmogorov-Smirnov test with data that have been transformed by logarithm natural (Ln). The results of the second One-Sample Kolmogorov-Smirnov test are presented in Table 5.7.

		Unstandardized Residual
N		78
Normal Parameters	Mean	0.0000000
	Standard Deviation	0.88764097
Most Extreme Differences	Absolute	0.064
	Positive	0.050
	Negative	-0.064
Kolmogorov-Smirnov Z		0.064
Asymp. Sig. (2-tailed)		0.200

Table 5.7 Result of One-Sample Kolmogorov-Smirnov after Transformation

The Table 5.7 reveals that data have been distributed normally after conducting the second One-Sample Kolmogorov-Smirnov test with data that have been transformed by logarithm natural. The result of normality test found that the result of Kolmogorov-Smirnov test is 0.064 and level of significance is 0.200 or 20%. It means that the second residual data is distributed normally because p value is more than 0.05 or 5%. Thus, it can be concluded that regression model is accomplished the normality assumption.

5.5.2. Results of Multicollinearity Test

The purpose of multicollinearity test was to examine whether in the regression model there are relationships between independent variables in this research. The Table 5.8 shows the results of multicollinearity test.

Variable	Tolerance	VIF
Government Ownership	0.760	1.316
Company Age	0.887	1.127
Company Size	0.729	1.372
Profitability	0.857	1.166
Leverage	0.892	1.121
International Operation	0.919	1.089
Environmental Performance	0.897	1.115
Industry Type (Control variable)	0.945	1.058

Table 5.813 Results of Multicollinearity Test

The results of multicollinearity test in Table 5.8 reveal that all tolerance values are above 0.10 and VIF values of all variables are below 10. Hence, it can be concluded that there is no multicollinearity.

5.5.3. Results of Heterocedasticity Test

The purpose of heteroscedasticity test was to examine whether in the regression model there is any differences of variance of one residual to another residual. In this research, glejser test was employed. The results of the heteroscedasticity test are presented in Table 5.9.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	141.796	117.294		1.209	0.231
Government Ownership	247.892	75.477	0.397	3.284	0.002
Company Age	0.873	1.474	0.067	0.592	0.556
Company Size	7.559E-11	0.000	0.022	0.174	0.086 2
Profitability	-368.268	355.571	-0.127	-1.036	0.304
Leverage	8.510	139.300	0.008	0.061	0.951

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
International Operation	-10.320	69.966	-0.016	-0.148	0.883
Environmental Performance	102.049	52.418	0.213	1.947	0.056
Industry Type	-32.598	52.161	-0.066	-0.625	0.534

Table 5.9 Result of Heteroscedasticity Test before Transformation

As depicted in Table 5.9, the significance values of company age, company size, profitability, leverage, international operation, environmental performance, and industry type have more than 0.05, meaning that the company age, company size, leverage, and environmental performance are not significant to absolute residual. Therefore, it can be concluded that there is no heteroscedasticty. Meanwhile, government ownership has a significance value which is less than 0.05, meaning that government ownership is significant to absolute residual. There is heteroscedasticity on government ownership. Thus, the researcher did the data transformation. The result of hetersocedasticity test after transformation can be seen in Table 5.10.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.332	1.011		1.317	0.192
Government Ownership	-0.028	0.167	-0.021	-0.170	0.865
Company Age	0.032	0.103	0.035	0.312	0.756
Company Size	-0.031	0.040	-0.096	-0.776	0.440
Profitability	-0.109	0.046	-0.267	-2.346	0.022
Leverage	-0.048	0.059	-0.092	-0.822	0.414
International Operation	-0.323	0.156	-0.227	-2.067	0.042
Environmental Performance	0.073	0.118	0.068	0.613	0.542

| Industry Type | -0.300 | 0.118 | -0.275 | -2.539 | 0.013 |

Table 140 Result of Heteroscedasticity Test after Transformation

As depicted in Table 5.10, it reveals that government ownership, company age, company size, leverage, and international operation have the significance values which are above 0.05, meaning that there is no heteroscedaticity. Meanwhile, profitability, international operation, and industry type have the significance values under 0.05, meaning that there is heteroscedasticity. As can be seen from Table 5.10, although the researcher has done the data transformation, but still there is hoteroscedasticity. This problem was explained by Tabachnick and Fidel, (2001, p.80) stated that "The linear relationship between variables is captured by the analysis, but there is even more predictability if the heteroscedasticity is counted for. If is not, the analysis is weakened, but not invalidated". Thus, the decision using this result of assumption test can be accepted.

5.6.   Results of Multiple Regression

The aims of this multiple regression test is to examine the relationship between independent variables (government ownership, company age, company size, profitability, leverage, international operation, environmental performance), control variable (industry type), and dependent variable (environmental disclosure). Table 5.11 shows the result of multiple regression.

Variable	Prediction Sign	Coefficient	*P*-Value
Constant		2.801	0.149
Government Ownership	+	0.201	0.529
Company Age	+	0.050	0.798
Company Size	+	0.123	0.108
Profitability	+	0.393	0.000*

Leverage	+	0.142	0.206
International Operation	+	0.466	0.121
Environmental Performance	+	0.502	0.029*
Industry Type (control variable)	+	0.500	0.029*

Table 5.11 Result of Multiple Regression
*significance at 5% level

Based on the result of the multiple regression above, the researcher obtained the model of regression equation which is developed as follows:

Environmental Disclosure = 2.801 + 0.201 Government Ownership + 0.050 Company Age + 0.123 Company Size + 0.393 Profitability + 0.142 Leverage + 0.466 International Operation + 0.502 Environmental Performance + 0.500 Industry Type

From the regression equation above, the conclusions are:

1. The value of constant intercept is 2.801. It can be concluded that if all the independent variables and control variable are 0 (zero), so, the value of environmental disclosure will be 2.801.

2. Regression coefficient value of government ownership is 0.201. It can be concluded that if the government ownership variable has government ownership in the sample companies, then the extent of environmental disclosure will increase as much as 0.201 with an assumption that all the other independent variables and control variable are constant.

3. Regression coefficient value of company age is 0.050. It can be concluded that if company age variable increases in the number of year, then the extent of environmental disclosure will increase as much as 0.050 with an

assumption that all the other independent variables and control variable are constant.

4. Regression coefficient value of company size is 0.123. It can be concluded that if company size variable increases in a bath unit, then the extent of environmental disclosure will increase as much as 0.123 with an assumption that all the other independent variables and control variable are constant.

5. Regression coefficient value of profitability is 0.393. It can be concluded that if profitability variable increases 1 percent, then the extent of environmental disclosure will increase as much as 0.393 with an assumption that all the other independent variables and control variable are constant.

6. Regression coefficient value of leverage is 0.142. It can be concluded that if leverage variable increases 1 percent, then the extent of environmental disclosure will increase as much as 0.142 with an assumption that all the other independent variables and control variable are constant.

7. Regression coefficient value of international operation is 0.466. It can be concluded that if international operation variable has a foreign subsidiary or a foreign branch or a foreign sale, then the extent of environmental disclosure will increase as much as 0.466 with an assumption that all the other independent variables and control variable are constant.

8. Regression coefficient value of environmental performance is 0.502. It can be concluded that if environmental performance of company is good environmental performance, then the extent of environmental disclosure

will increase as much as 0.502 with an assumption that all the other independent variables and control variable are constant.

9. Regression coefficient value of industry type is 0.500. It can be concluded that if industry type variable is high profile company, then the extent of environmental disclosure will increase as much as 0.500 with an assumption that all the independent variables are constant.

5.7. Hypothesis Test of Multiple Regression

5.7.1. Determination Coefficient Test

Table 5.12 shows the predictive power of multiple regression model.

	Overall Model *P*-Value	R-Square	Adjusted R-Square	Standard Error of the Estimate
Model of Environmental disclosure complete regression	0.000	0.404	0.335	0.93769

Table 5.12 Predictive Power of Multiple Regression Model

The *P*-Value of the overall model is 0.000 which is less than the significance level of 0.01. Hence, it is very significant. It means that the regression model is highly predictive the level of environmental disclosure or it can be concluded that the regression model has enough evidence that the combination of government ownership, company age, company size, profitability, leverage, international operation, and environmental performance, significantly influence the level of environmental disclosure. Table 5.12 also shows that the value of adjusted R-Square is 0.335. It means that the variation of environmental disclosure practices can be explained by the variation of seven independent variables (government

ownership, company age, company size, profitability, leverage, international operation, and environmental performance) and control variables (industry type) as much as 33.5% and the remaining (66.5%) is explained by other variables that there is excluded in this research

5.7.2. T Statistic Test of Multiple Regression

Hypothesis tests for H1b through H7b in this research employed t statistic test. The result of t statistic test of multiple regression can be seen in Table 5.11. The results of the hypothesis test in this research as follows:

1. As can be seen in Table 5.11, government ownership have p-value of 0.529 and coefficient value of 0.201 in positive direction. Thus, it indicates that level of significance of government ownership is above the significance level of 0.05. Then, it can be concluded that between government ownership and the extent of environmental disclosure have no relationship. Hence, the hypothesis 1b is rejected.

2. As can be seen in Table 5.11, company age have p-value of 0.798 and coefficient value of 0.050 in a positive direction. Thus, it indicates that the significant level of company age is above the significance level of 0.05. Then, it can be concluded that between company age and the extent of environmental disclosure have no relationship. The hypothesis 2b is rejected.

3. Company size have p-value of 0.108 and coefficient value of 0.123 in positive direction. Thus, it indicates that the significant level of company size is above the significance level of 0.05. Then, it can be concluded that

between company size and the extent of environmental disclosure have no relationship. Hence, the hypothesis 3b is rejected.

4. Based on the Table 5.11, it reveals that profitability is highly significant. The p-value is 0.000 which is smaller than the significance level of 0.05. Hence, there is an adequate evidence to conclude that profitability is associated with the extent of environmental performance in the annual report or sustainability report. In accordance with the hypothesis 4a, the coefficient value of profitability is 0.393 and has a positive sign, there is a positive relationship between profitability and the extent of environmental disclosure. It reveals that listed companies in SET that have bigger number of profitability disclose more environmental disclosure in their annual report and sustainability report (if any). Therefore, the hypothesis 4b is supported.

5. As can be seen in Table 5.11, leverage has p-value of 0.206 and coefficient value of 0.142 in a positive direction. Thus, it suggests that the significance level of leverage is above the significance level of 0.05. Then, it can be concluded that between leverage and the extent of environmental disclosure have no relationship. Hence, the hypothesis 5b is rejected.

6. International operation has p-value of 0.121. Hence, it indicates that the significance level of international operation is above the significance level of 0.05 and coefficient value of 0.466 in a positive direction. Then, it can be concluded that between international operation and the extent of environmental disclosure have no relationship. As such, the hypothesis 6b is rejected.

7. As shown in Table 5.11, the environmental performance has *p*-value of 0.029 which is smaller than 0.05 the significance level. Hence, there is an adequate evidence to conclude that the environmental performance is associated with the extent of environmental performance in annual reports or sustainability reports. In accordance with the hypothesis 7b, the coefficient value of environmental performance is 0.502 and has a positive sign. This indicates that there is a positive relationship between environmental performance and the extent of environmental disclosure. It suggests that listed companies in SET that have good environmental performance disclose more environmental disclosure in their annual reports and sustainability reports (if any). Thus, the hypothesis 7b is supported.

8. Moreover, industry type (control variable) has *p*-value of 0.029 which is smaller than the significance level of 0.05. Hence, there is an adequate evidence to conclude that the industry type is associated with the extent of environmental performance in annual reports or sustainability reports. The coefficient value of environmental performance is 0.500 and has a positive sign. This indicates that there is a positive relationship between industry type and the extent of environmental disclosure. It reveals that listed companies in SET that have high profile companies disclose more environmental disclosure in their annual reports and sustainability reports (if any).

Table 5.13 shows the result of hypothesis test, as follows:

Variables	Hypotheses	Results
Government Ownership	**H1b:** There is a positive relationship between government ownership and the extent of environmental disclosure.	Not Supported
Company Age	**H2b:** There is a positive relationship between company ages and the extent of environmental disclosure.	Not Supported
Company Size	**H3b:** There is a positive relationship between company sizes and the extent of environmental disclosure.	Not Supported
Profitability	**H4b:** There is a positive relationship between profitability and the extent of environmental disclosure.	Supported
Leverage	**H5b:** There is a positive relationship between leverage and the extent of environmental disclosure.	Not Supported
International Operation	**H6b:** There is a positive relationship between international operations and the extent of environmental disclosure.	Not Supported
Environmental Performance	**H7b:** There is a positive relationship between environmental performances and the extent of environmental disclosure.	Supported

Table 15 Results of Hypothesis Test of Multiple Regression

As shown in Table 5.13, hypothesis 4b and 7b are supported. This means that two independent variables (profitability and environmental performance) were proven to be significant determinants of environmental disclosure. Meanwhile, the five independent variables (government ownership, company age, company size, leverage, and international operation) were not significant to environmental

disclosure as determinants. Moreover, the control variable (industry type) is also found to be significant to environmental disclosure in a positive direction.

5.8. Discussion of Result of Multiple Regression

5.8.1 Government Ownership (H1b)

From the data analysis, this research found that government ownership is not significant to the extent of environmental disclosure of companies listed in SET. It can be concluded that even though the companies listed in SET have the proportion of government ownership in companies increased, it has no relationship with the extent of environmental disclosure. This finding indicates that government as a legal entity that has an authority to influence companies to disclose more environmental information unable to insist companies to conduct the environmental disclosure practices. It is caused by the government's focus on the performance rather than the disclosure (Cahaya, Porter, Tower, & Brown, 2017). This finding is consistent with the study conducted by Cahaya, Porter, Tower, and Brown (2017), they found that there was no significant relationship between government ownership and voluntary disclosure. This is insignificant finding in contrast with Ghazali (2007) as stated in previous chapther that firms with government ownership disclose more on CSR activities, because companies that owned by government indirectly represents that the company is owned by the public at large.

5.8.2. Company Age (H2b)

Based on the result of multiple regression, this research found that company age is not significant to the extent of environmental disclosure. In other words, although the listed companies in SET have a great number of years, it does not mean

that companies disclose more environmental information. This finding is consistent with Ghazali (2007), Wuttichindanon (2017), and Cahaya, Porter, Tower, and Brown (2017), they found that there is no significant relationship between the extent of environmental dislcosure and company age. The possible reason is that although companies have a big number of inception, this does not mean that the companies have more experiences and knowledge in voluntary disclosure. It suggests that companies having a small number of inception also have a chance to have more knowledge (Cahaya & Hanifa, 2016). In addition, this finding is in contrast, as stated in the previous chapter, that companies survived in a long time will have greater experiences (Waluyo, 2017). Moreover, the experiences of companies cannot be standardized in terms of voluntary disclosure practices (Cahaya & Hanifa, 2016).

5.8.3. Company Size (H3b)

This research found that company size is not significant to the extent of environmental disclosure. Thus, it can be said that although the listed companies in SET are large firms, it does not suggest the relationship between the extent of environmental disclosure and company size. This research reinforces the prior researchers (e.g. Cahaya, Porter, Tower, & Brown 2017 and Cahaya 2006) finding that there is no relationship between the extent of environmental disclosure and company size. The potential reason for this finding is that companies may tend to be invisible to public in order to minimize demands from stakeholders to coerce companies to disclose more environmental information in annual report. Moreover, Nawaiseh, Boa, and El-shohnah (2015) stated that companies often evaluate the

cost-benefit of voluntary disclosures and if the cost exceeds the benefit, irrespective of the company size, voluntary disclosure may not be made.

5.8.4 Profitability (H4b)

As can be seen in Table 5.11, profitability is positively significant to the extent of environmental disclosure. It can be stated that the listed companies in SET having a high number of profitability discloses more environmental information. When companies have a high number of profitability, the company's manager prefers to communicate the disclosure more to stakeholders in order to obtain or keep a good image of the companies (Álvarez & Custodio, 2016). Moreover, this finding is consistent with Cooke and Haniffa (2005) stating that companies with a great number of profitability disclose more environmental information. This finding is also consistent with Cahaya, Porter, Tower, and Brown (2017). Companies with a good economic performance do have adequate financial supports to CSR practices and disclose the activities in annual reports (Cahaya, Porter, Tower, & Brown, 2017). This finding is in contrast with Cahaya (2006) finding that profitability is insignificant.

5.8.5 Leverage (H5b)

As shown in Table 5.11, it reveals that leverage is insignificant to the extent of environmental disclosure. It means that when the listed companies in the SET increase the leverage by 1 percent, it does not significant to the extent of environmental disclosure. This finding is consistent with Wuttichindanon (2017), Cahaya, Porter, Tower, and Brown (2017), and Arussi, Hanefah, and Selamat (2009). This might be caused by the company's focus is not on environmental

information, but on other information such as reform bankruptcy system and corporate governance implementation to satisfy their creditors (Cahaya, 2006).

5.8.6. International Operation (H6b)

This research found that the international operation is not significant to the extent of environmental disclosure. This indicates that the listed companies in SET either the companies have a foreign subsidiary, or a foreign branch, or a foreign sale, it does not have relationships to the extent of environmental disclosure. This finding is in contrast with Cahaya, Porter, Tower, and Brown (2017) and Cahaya and Hanifa (2016). The potential reasons for this finding could be there is no demand from global stakeholders on companies operating internationally (Cahaya & Hanifa, 2016).

5.8.7. Environmental Performance (H7b)

As shown in Table 5.11, it indicates that environmental performance is positively significant to the extent of environmental disclosure in a positive direction. In other words, the listed companies in SET have good environmental performance. The more the company disclose the environmental aspects in annual report and or sustainability report, the better the performance. This finding is consistent with Lu and Taylor (2018).The potential reason is that the companies try to be responsible to the impacts of their operations, especially to high profile companies having big impacts on environment. Then the company is responsible for the stakeholders' interest that they have to be responsible to the environment (Coluccia, D'Amico, Fontana, & Solimene, 2015).

5.8.8 Control variable: Industry Type

As can be seen in table 5.11, the industry type is positively significant to the extent of environmental disclosure. This finding is consistent with Cahaya, Porter, Tower, and Brown (2017) finding the significant relationsip between volunatry disclosure and industry type. It means that if the listed companies in SET are high profile companies, companies disclose more environmental disclosure. The main reason for this finding is that the high profile companies have wide impacts on the environment so that companies have demands from stakeholders to be responsible to their operational impacts and companies address governments' environmental requirement through voluntary disclosure (Cahaya, Porter, Tower, & Brown, 2017). Moreover, this finding is contrast with Cahaya and Hanifa (2016).

CHAPTER VI

CONCLUSION

6.1. Overview of the Research

This empirical research provides a useful description of voluntary environmental practices by Thailand listed companies. The focus of this research are:

1. the examination of determinants of the propensity to disclose environmental information practices in companies listed in SET.

2. the examination of the determinants of the extent of environmental disclosure practices in companies listed in SET.

by using the managerial branch of stakeholder theory and investigated the characteristics of companies to explain variations of voluntary environmental disclosure practices in SET listed companies. The particular examined characteristics of companies were government ownership, company age, company size, profitability, leverage, international operation, and environmental performance. Industry type as a control variable was tested in the statistical analysis. 100 annual reports and sustainability reports (if any) for the year 2016 financial year were selected from the SET website and companies' websites based on the random sampling method. Then, the environmental disclosures were analyzed by using GRI environmental indicators as a checklist. This research used content analysis number of words for examining the extent and tendency of environmental disclosure. Moreover, for testing the purposes of hypothesis, the researcher

employed two analyses namely logistic regression and multiple regression. Logistic regression is used to examine the tendency of environmental disclosure practices and multiple regression is used to examine the extent of environmental disclosure practices.

6.2.   Summary of Results

Employing the managerial branch of stakeholder theory, this research analyzed 100 annual reports and sustainability report (if any) for the year 2016 financial year of SET listed companies to contribute for additional knowledge about environmental disclosure practices in developing countries, especially in Thailand. This research reveals that the level of environmental disclosure practices of companies in Thailand is low. This research also reveals that profitability, environmental performance and industry type as control variable significantly influence the extent of voluntary environmental disclosure in a positive direction for multiple regression result and only international operation has significantly influence the environmental disclosure in a negative direction for logistic regression results. Thus, the companies with high economic performance, good environmental performance, and high profile companies disclose more environmental information in their annual reports and or sustainability reports and the companies having international operation disclose the environmental disclosure in the annual reports and or sustainability reports.

The summary of answers for two main research questions as explained in the first chapter of this research is represented as follows:

6.2.1. Summary Results of Logistic Regression

Research Questions	Answers
1. Does the government ownership have a relationship to propensity to disclose environmental information?	No, there is no significant relationship between the environmental disclosure and government ownership.
2. Does the company age have a relationship to propensity to disclose environmental information?	No, there is no significant relationship between the environmental disclosure and company age.
3. Does the company size have a relationship to propensity to disclose environmental information?	No, there is no significant relationship between the environmental disclosure and company size.
4. Does the profitability have a relationship to propensity to disclose environmental information?	No, there is no significant relationship between the environmental disclosure and profitability.
5. Does the leverage have a relationship to propensity to disclose environmental information?	No, there is no significant relationship between the environmental disclosure and leverage.
6. Does the international operation have a relationship to propensity to disclose environmental information?	Yes, there is a significant relationship between environmental disclosure and international operation but negative direction.
7. Does the environmental performance have a relationship to propensity to disclose environmental information?	No, there is no significant relationship between the environmental disclosure and environmental performance.

Table 6.1 Summary of Answers of the First Main Research Question

The logistic regression revealed that only international operation is significant to environmental disclosure, but in a negative direction. It acknowledged that companies have international operation do not disclose environmental information because it has a negative direction. The possible reason is that companies having

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international operation tend to not disclose environmental information in the annual reports and or individual report known as sustainability reports. Conversely, other variables (government ownership, company age, company size, profitability, leverage, and environmental performance) and control variable (industry type) have no significant influence to environmental disclosure. This finding indicated that the managerial branch of stakeholder theory is failed to explain the relationship between dependent variable (environmental disclosure) and independent variables namely government ownership, company age, company size, profitability, leverage, international operation, and environmental performance. Hence, this is an evidence that the low level of relationship between environmental disclosure and independent variables implies that SET listed companies do not consider environmental disclosure as important factors for both their long term success and their key stakeholders' interests. Moreover, the frequency of dependent variable of logistic regression shows that SET listed companies disclose the environmental information at high level (78%).

6.2.2. Summary Results of Multiple Regression

Research Questions	Answers
1. Does the government ownership have a significant relationship to the extent of environmental disclosure?	No, there is no significant relationship between the extent of environmental disclosure and government ownership.
2. Does company age have a significant relationship to the extent of environmental disclosure?	No, there is no significant relationship between the extent of environmental disclosure and company age.
3. Does company size have a significant relationship to the	No, there is no significant relationship between the extent of environmental disclosure and company size.

extent of environmental disclosure?	
4. Does the profitability have a significant relationship to the extent of environmental disclosure?	Yes, there is a significant relationship between the extent of environmental disclosure and profitability in a positive direction.
5. Does the leverage have a significant relationship to the extent of environmental disclosure?	No, there is no significant relationship between the extent of environmental disclosure and leverage.
6. Does the international operation have a significant relationship to the extent of environmental disclosure?	No, there is no significant relationship between the extent of environmental disclosure and international operation.
7. Does the environmental performance have a significant relationship to the extent of environmental disclosure?	Yes, there is a significant relationship between the extent of environmental disclosure and environmental performance in a positive direction.

Table 6.2 Summary of Answers of the Second Main Research Question

The descriptive statistical analysis of dependent variable of multiple regression reveals that SET listed companies disclose environmental information in the annual reports and or sustainability reports at a low level (11.32% of GRI indicators as checklist). Hence, this indicates that the low level of the extent of environmental disclosure implies that SET listed companies do not consider environmental disclosure as important factors for both their long term success and their key stakeholders' interests.

This research found that from 78 companies disclose the environmental information, the most disclosed indicator is GRI-301-Materials which is more than 2,500 number of words, and followed by GRI-306-Effluents and Waste, GRI-302-Energy, GRI-305-Emission, GRI-304-Biodiversity, GRI-303-Water, and GRI-308-Supplier Environmental assessment disclosed are 5,764, 4,910, 3,957, 3,434, 3,038,

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and 1,079 number of words respectively. Surprisingly, there is no company that discloses GRI indicator 307-Environmental Compliance. It revealed that SET listed companies tend to report good environmental conduct, and hide the bad impacts on companies operations for increasing the image of company towards its stakeholders by disclosing more other environmental information.

The multiple regression analysis revealed that profitability has a significant relationship with the level of environmental disclosure of SET listed companies in a positive tendency. It explained that a good economic performance of companies discloses more environmental information in the annual report and or sustainability report. Company's management tends to communicate the disclosure more to stakeholders in order to obtain or keep a good image of company (Álvarez & Custodio, 2016) and profitable companies disclose more social information to perform its contribution to stakeholders (Cooke & Haniffa, 2005).

The second finding of multiple regression acknowledged that environmental performance has a significant relationship with the extent of environmental disclosure. It suggested that a good environmental performance of companies discloses more environmental information. The company tries to be responsible to the impacts of their operations, especially for companies having big impacts on the environment.

In addition, multiple regression revealed that industry type as a control variable has significant relationship to the extent of environmental disclosure. It indicated that high profile companies disclose more environmental information in

the annual report and or sustainability report. In contrast, this research did not find any significant relationship between the extent of environmental disclosure practices and government ownership, company age, company size, leverage, and international operation.

6.3.   Research Implication

6.3.1. Logistic Regression

The finding of logistic regression in this research found that only one of independent variables that has a significant value towards the dependent variable (environmental disclosure). The independent that has the significant value to environmental disclosure is international operation but in a negative direction. This finding indicated that the managerial branch of stakeholder theory failed to explain the variability of environmental disclosure practices of SET listed companies with only one (international operation) out of seven examined independent variables having a significant value but in a negative direction. Independent variable, for instance, there is a demand from global stakeholders to disclose environmental information, but the companies may ignore to disclose the environmental information because the company's focus on other information such as financial information rather than voluntary disclosure.

International operation was found to be significant to environmental disclosure, but in a negative direction. This implied that the proportion of international operation does effect the environmental disclosure negatively. Companies, for example, having the proportion of international operation face demands from global stakeholders to disclose environmental information.

However, the companies omit to disclose the environmental information because they concern in other areas such as economic information.

The results of this research found that government ownership has no significant effect to environmental disclosure. This meant that the percentage of government ownership does not affect the companies to disclose environmental information in the annual report and or sustainability report. It indicated that although the proportion of government ownership in companies increases, it does not mean the company prefers to disclose environmental information. This may be caused by the attention of government is not on environmental disclosures, but the government's concern may be more in activities of environment.

Company age as the independent variable found to be insignificant towards the environmental disclosure. It implied that the number of years of company does not affect the environmental disclosure. Although, the increasing number of years in companies does not mean that the company tends to disclose the environmental information in the annual report. The reason is that when the company has a small number of years the company prefer to disclose environmental information in the annual report.

The company size in this research was found to be insignificant to environmental disclosure. This suggested that company size as measured by total assets does not affect the environmental disclosure. For instance, the company having a great number of assets does not mean that the companies disclose environmental information in the annual report. This could be caused by the

company may tend to be invisible to minimize the demands from stakeholders to disclosure environmental information in the annual report. In addition, companies' management evaluate the voluntary disclosure cost-benefits, if the cost are greater than benefit then companies do not prepare voluntary disclosure.

The result of profitability was insignificant to environmental disclosure. It showed that the percentage of profitability does not have any relationship with environmental disclosure. If the company has a big number of profitability, the company does not prefer to disclose environmental information. This could be led by the profitability of companies may not be utilized to support the voluntary disclosure but they concern in other areas such as increasing the operation of company and added by Ghazali (2007) that voluntary disclosure related to influences from public rather than economic pressure.

Leverage was found not significant to the tendency of company to disclose environmental information. It suggested that the percentage of leverage does not have any significant relationship to the tendency of company to disclose environmental information. This finding indicated that the big number of leverage is not significant to environmental disclosure. This is led by companies' focus on other information such as reform bankruptcy system and corporate governance implementation to satisfy their creditors (Cahaya, 2006).

The finding of this research found that environmental performance is not significant to environmental disclosure. This showed that environmental performance does not have any relationship to the tendency of companies to

disclose environmental information. It suggested that a good environmental performance of companies does not mean that company prefers to disclose environmental information in annual report. This is because the companies should be responsible to the environmental that caused by operational impacts of companies.

Industry type as the control variable also was found to be insignificant to environmental disclosure. It indicated that industry type does not have a significant relationship to the propensity to disclose environmental information. Moreover, this finding suggested that high profile companies do not have any significant relationship to the propensity of company to disclose environmental information in the annual report. This is because companies disclose environmental information that is aligned with company's area.

6.3.2. Multiple Regression

The multiple regression found that there are two out of seven of independent variables that are positively significant to the extent of environmental disclosure. This finding implied that managerial branch of stakeholder theory partially explains the variability of environmental disclosure practices in SET listed companies with two independent variables namely profitability and environmental performance that having significant values in a positive direction, it was also found that industry type as the control variable is positively significant to the extent of environmental disclosure. For instance, the company with high number of profitability prefers to disclose more environmental information in the annual report and or sustainability report to maintain the good relationship and to satisfy the stakeholders.

The result found that profitability is significant to the extent of environmental disclosure in a positive direction. It showed that the percentage of profitability does affect the extent of environmental disclosure. Companies that have a great number of profitability disclose more environmental information in the annual report, meaning that the listed companies in SET have big commitments to disclose environmental information rather than the companies that have the smaller number of profitability. In accordance with stakeholder theory stated that commitments of companies tries to fulfill the stakeholders' interests so that it is aligned with companies' responsibility to satisfy stakeholders. Moreover, profitable companies have sufficient financial to prepare voluntary performance and voluntary disclosure.

This research also found that environmental performance has a positive relationship to the extent of environmental disclosure. It meant that the level of environmental performance does affect the extent of environmental disclosure. In another word, companies that have a good environmental performance prefer to disclose more environmental information in the annual report compared to companies that have a bad environmental performance. This could because companies tend to reveal to stakeholders that companies did good environmental performances. As stated by Ahmad (2014) that information related to environmental activities is more demanding for stakeholders than the issues related to environmental financial aspects.

Industry type as the control variable was also found to be positively significant to the extent of environmental disclosure. It revealed that industry type

has a significant relationship to the extent of environmental disclosure. Thus, companies with high profile companies prefer to disclose more environmental information in the annual report than companies with the bad environmental performance. The possible reason is that the companies with high profiles have a wide impact on environment so that the companies have more demand from stakeholders to responsible to their operational impacts. Then, the companies prefer to disclose more environmental information in the annual report to satisfy the stakeholders because the stakeholders are more impressed to environmental information than environmental financial.

Moreover, the results also found that government is not significant to the extent of environmental disclosure. It showed that the increasing proportion of government ownership does not affect the extent of environmental disclosure. This meant that the percentage of government ownership does not affect the companies to disclose more environmental information in the annual report and or sustainability report. It indicated that although the proportion of government ownership in companies increase, it does not mean the company prefers to disclose more environmental information in annual report. This might be because government is not paying attention to environmental disclosures, but the government is more concerned may be more in activities related to environment.

This research found that company age is insignificant towards the extent of environmental disclosure. It implied that the number of years of company does not affect the extent of environmental disclosure, although the increasing number of years in companies does not mean the company discloses more about environmental

information in the annual report. The reason is that whether the company has smaller number of years, company may prefer to disclose environmental information in the annual report. Moreover, company that has great number of years has more experiences, experiences cannot be criterion for providing more environmental information in annual report.

The company size in this research was found to be insignificant to the extent of environmental disclosure. This suggested that company size as measured by total assets does not affect the environmental disclosure. For instance, the company having a great number of assets does not mean that the companies disclose more environmental information in the annual report. This could be because the company may tend to be invisible to avoid demands from public to disclose environmental information in the annual report. Addition, companies' management evaluate the voluntary disclosure cost-benefits, if the cost are greater than benefit then companies do not prepare voluntary disclosure.

Leverage was found to be not significant to the extent of environmental disclosure. It showed that the percentage of leverage does not have a significant relationship to the extent of company to disclose environmental information. This finding indicated that the big number of leverage is not significant to extent of environmental disclosure. This is led by companies' focus on the other information such as bankruptcy system reformation and corporate governance implementation to satisfy their creditors than environmental information (Cahaya, 2006).

The finding of this research found that international operation is not significant to extent of environmental disclosure. This showed that international operation does not have any relationship to the extent of companies to disclose environmental information. It suggested that the company having international operations does not mean that the company prefers to disclose more environmental information in the annual report. This is because companies may ignore demands form global stakeholders to disclose more environmental information in the annual report.

6.4. Research Limitation

In this research, there are limitations which are possible to influence the results of this research:

1. In this research, the obtained data are only from two resources namely the annual report and sustainability report related to environmental disclosure, and exclude the website of the companies.

2. The interpretation of GRI in the context of content analysis is the subjectivity of the researcher so that this may not represent all the indicators of GRI.

3. The propensity of company to disclose environmental information only can be known by interviewing the management of company to know the reasons.

6.5. Recommendation

1. For Future Researcher

As it can be seen from the limitations of the research explained in the previous section, here are some recommendations for future researchers as follows:

1. Future researchers are recommended to include the companies' website as data resources and other medias so that it represents the results generally.

2. The future researchers are recommended to study about the GRI indicators in more details so that the result may not be subjective and can represent all the GRI indicators.

3. The future researchers are recommended to interview directly the management of company why company do not disclose environmental information.

2. For Government

Government should supervise the process of company in disclosing environmental information in annual report or sustainability and give penalty to companies that do not compliance with the regulation.

3. For Company

Company should disclose environmental information in annual report and /or sustainability report to satisfy the stakeholders' interests.

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APPENDIX

Appendix A

Before doing the statistical analysis, the data has been verified and checked by an accounting student to ensure the accuracy of data. The steps of data validation contain of disclosure scoring verification, verification of independent variables' data taken from the annual reports, and verification of data entered into the excel file. The steps are namely:

1. verification of dependent variable' data, independent variable' data, and control variable' data taken from annual report and sustainability report

    an undergraduate student major in accounting was asked to rescore independently the dependent variable, independent variable, and control variable from 10 annual reports and sustainability report (if any) (10% of the sample size). Point data that were input were 270 consist of environmental disclosure (GRI-301-Materials, GRI-302-Energy, GRI-303-Water, GRI-304- Biodiversity, GRI-205-Emission, GRI-206- Effluents and Waste, GRI-207- Environmental Compliance, and GRI-208- Supplier Environmental Assessment), Government Ownership, Company Age, Company Size, Profitability, Leverage, International Operation, Environmental Performance, Industry Type, Total Asset 2015, Total Asset 2016, Net Income After Tax, Total Liability, and Company Inception. Moreover, result of data verification is compared with data that are taken by researcher. There was a 95.93% agreement rate.

2. Data verification entered into excel file

Result of data verification inputted in excel file were compared with data that had been inputted by researcher. It found from total data of dependent variable, independent variable, and control variable which has verified that there is mistake that has been done by researcher at 0,74%. The mistake is still below the standard that has been agreed at 10%, then the mistake has been fixed.

Appendix B

Descriptive statistic

Table of frequency of categorical variables

Government Ownership

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	86	86.0	86.0	86.0
	1	14	14.0	14.0	100.0
	Total	100	100.0	100.0	
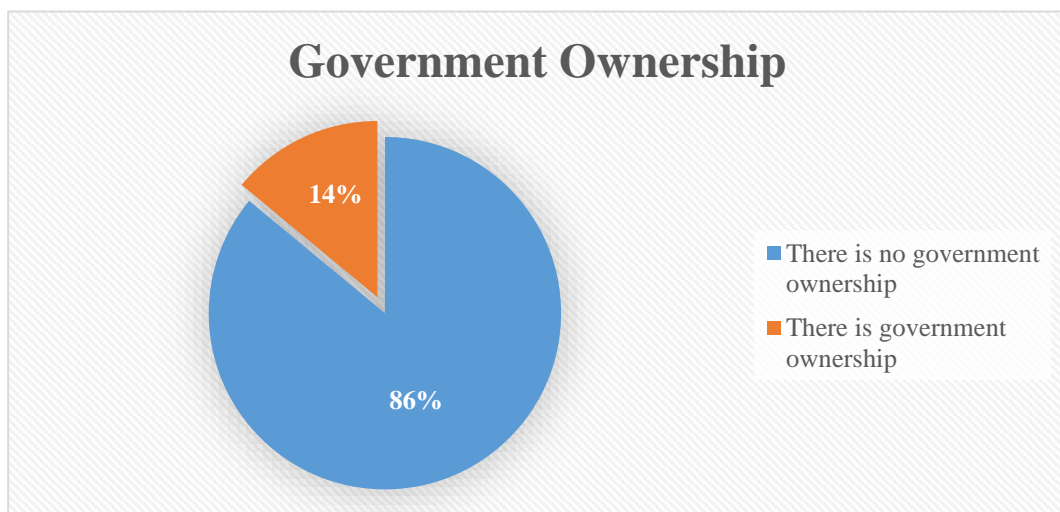
International Operation

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	28	28.0	28.0	28.0
1	72	72.0	72.0	100.0
Total	100	100.0	100.0	
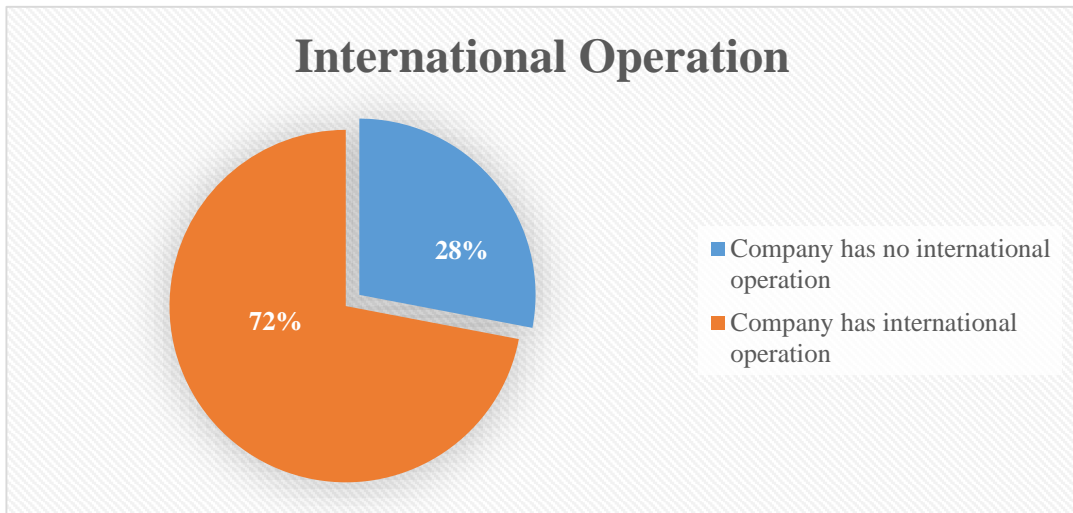
Environmental Performance

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	58	58.0	58.0	58.0
1	42	42.0	42.0	100.0
Total	100	100.0	100.0	

Environmental Performance
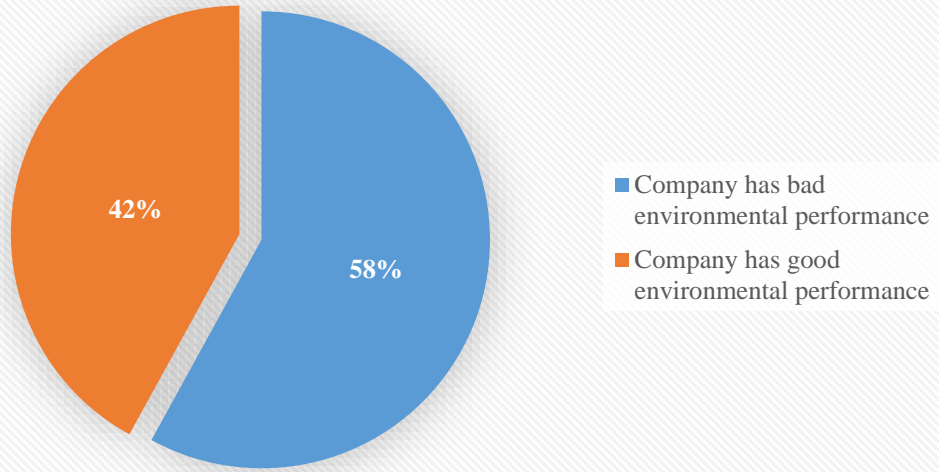
Industry Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	44	44.0	44.0	44.0
	1	56	56.0	56.0	100.0
	Total	100	100.0	100.0	

Indutry Type
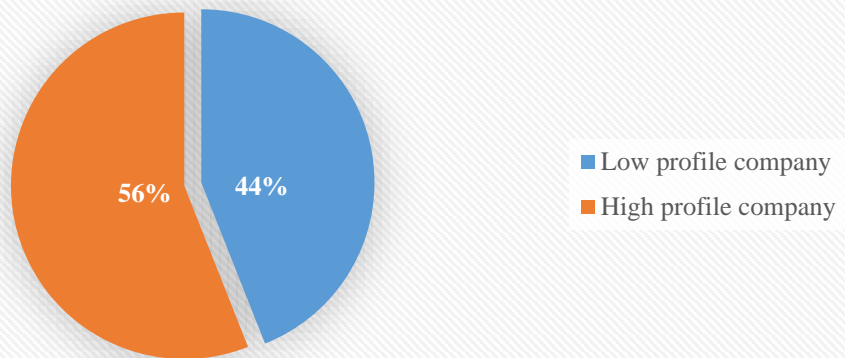
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Company age	100	1.00	112.00	32.1000	18.81623
Company size	100	385714180.61	539687987000.00	23111689576.5126	64188678950.09890
Profitability	100	-.33983	.26507	.0604236	.07881954
Leverage	100	.00036	.95474	.4262905	.22805647
Valid N (listwise)	100				

Dependent Variable of multiple regression:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Environmental Disclosure	78	13	2594	376.50	391.610
Valid N (listwise)	78				

Dependent Variable of logistic regression:

Environmental Disclosure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	22	22.0	22.0	22.0
	1	78	78.0	78.0	100.0
	Total	100	100.0	100.0	

Assumption Test

1. **Normality**

One-Sample Kolmogorov-Smirnov Test *

		Unstandardized Residual
N		78
Normal Parameters	Mean	.0000000
	Std. Deviation	330.21346020
Most Extreme	Absolute	.123
Differences	Positive	.123
	Negative	-.108
Test Statistic		.123
Asymp. Sig. (2-tailed)		.005

* Table of normality test before transformation

One-Sample Kolmogorov-Smirnov Test**

		Unstandardized Residual
N		68
Normal Parameters	Mean	.0000000
	Std. Deviation	.89718882
Most Extreme	Absolute	.078
Differences	Positive	.052
	Negative	-.078
Test Statistic		.078
Asymp. Sig. (2-tailed)		.200

** Table of normality test after transformation

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		78
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.88764097
	Absolute	.064

Most Extreme Differences	Positive	.050
	Negative	-.064
Test Statistic		.064
Asymp. Sig. (2-tailed)		.200[c,d]

2. Multicollinearity

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.801	1.921		1.458	.149		
	Gov Ownership	.201	.317	.068	.633	.529	.760	1.316
	Ln_CompanyAge	.050	.196	.025	.257	.798	.887	1.127
	Ln_CompanySize	.123	.076	.177	1.627	.108	.729	1.372
	Ln_Profitability	.393	.088	.447	4.450	.000	.857	1.166
	Ln_Leverage	.142	.111	.126	1.276	.206	.892	1.121
	International Operation	.466	.297	.152	1.569	.121	.919	1.089
	Environmental Performance	.502	.225	.219	2.233	.029	.897	1.115
	Industry Type	.500	.224	.213	2.227	.029	.945	1.058

a. Dependent Variable: Ln_environmental_disclosure

3. Heteroscedasticity

Before transformation

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	141.796	117.294		1.209	.231
	GOVERNMENT OWNERSHIP	247.892	75.477	.397	3.284	.002
	COMPANY AGE	.873	1.474	.067	.592	.556
	COMPANY SIZE	7.559E-11	.000	.022	.174	.862
	PROFITABILITY	-368.268	355.571	-.127	-1.036	.304
	LEVERAGE	8.510	139.300	.008	.061	.951
	INTERNATIONAL OPERATION	-10.320	69.966	-.016	-.148	.883
	ENVIRONMENTAL PERFORMANCE	102.049	52.418	.213	1.947	.056
	INDUSTRY TYPE	-32.598	52.161	-.066	-.625	.534

a. Dependent Variable: ABS1

After transformatiuion

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.332	1.011		1.317	.192
	GOVERNMENT OWNERSHIP	-.028	.167	-.021	-.170	.865
	LN_CompanyAge	.032	.103	.035	.312	.756
	LN_CompanySize	-.031	.040	-.096	-.776	.440
	LN_Profitability	-.109	.046	-.267	-2.346	.022
	LN_Leverage	-.048	.059	-.092	-.822	.414
	INTERNATIONAL OPERATION	-.323	.156	-.227	-2.067	.042
	ENVIRONMENTAL PERFORMANCE	.073	.118	.068	.613	.542
	INDUSTRY TYPE	-.300	.118	-.275	-2.539	.013

a. Dependent Variable: ABS2

Multiple Regression

Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.635[a]	.404	.335	.93769

a. Predictors: (Constant), Industry Type, LN_Leverage, LN_CompanyAge, International Operation, Gov Ownership, Environmental Performance, LN_Profitability, LN_CompanySize

ANOVAa

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	41.083	8	5.135	5.841	.000[b]
Residual	60.669	69	.879		
Total	101.752	77			

a. Dependent Variable: LN_Environmental_Disclosure

b. Predictors: (Constant), Industry Type, LN_Leverage, LN_CompanyAge, International Operation, Gov Ownership, Environmental Performance, LN_Profitability, LN_CompanySize

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Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.801	1.921		1.458	.149
	Gov Ownership	.201	.317	.068	.633	.529
	LN_CompanyAge	.050	.196	.025	.257	.798
	LN_CompanySize	.123	.076	.177	1.627	.108
	LN_Profitability	.393	.088	.447	4.450	.000
	LN_Leverage	.142	.111	.126	1.276	.206
	International Operation	.466	.297	.152	1.569	.121
	Environmental Performance	.502	.225	.219	2.233	.029
	Industry Type	.500	.224	.213	2.227	.029

a. Dependent Variable: LN_Environmental_Diclosure

Logistic Regression

Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	43.542	8	.000
	Block	43.542	8	.000
	Model	43.542	8	.000

Model Summary

Step	-2 Log likelihood		Cox & Snell R Square	Nagelkerke R Square
1	61.839[a]		.353	.542

Variables in the Equation

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1	Gov. Ownership	-1.035	1.238	.699	1	.403	.355	.031	4.022
	Company Age	.006	.020	.084	1	.772	1.006	.967	1.046
	Company Size	.000	.000	.335	1	.563	1.000	1.000	1.000
	Profitability	4.271	4.120	1.075	1	.300	71.579	.022	229835.378
	Leverage	.973	1.510	.415	1	.519	2.645	.137	50.972

		B	S.E.	Wald	df	Sig.	Exp(B)		
International Operation		-1.915	.658	8.484	1	.004	.147	.041	.534
Environmental Performance		-21.223	5337.535	.000	1	.997	.000	.000	.
Industry Type		-.678	.643	1.115	1	.291	.507	.144	1.788
Constant		23.237	5337.536	.000	1	.997	12356826379.037		

No.	Company Code	Company Name
1	AAV	ASIA AVIATION PUBLIC COMPANY LIMITED
2	AEC	AEC SECURITIES PUBLIC COMPANY LIMITED
3	AIT	ADVANCED INFORMATION TECHNOLOGY PUBLIC CO.,LTD.
4	AKR	EKARAT ENGINEERING PUBLIC COMPANY LIMITED
5	AMATA	AMATA CORPORATION PUBLIC COMPANY LIMITED
6	APEX	APEX DEVELOPMENT PUBLIC COMPANY LIMITED
7	ASIA	ASIA HOTEL PUBLIC COMPANY LIMITED
8	BAFS	BANGKOK AVIATION FUEL SERVICES PCL.
9	BCP	BANGCHAK CORPORATION PUBLIC COMPANY LIMITED
10	BEC	BEC WORLD PUBLIC COMPANY LIMITED
11	CEN	CAPITAL ENGINEERING NETWORK PUBLIC COMPANY LIMITED
12	CNT	CHRISTIANI & NIELSEN (THAI) PUBLIC COMPANY LIMITED
13	CI	CHARN ISSARA DEVELOPMENT PUBLIC COMPANY LIMITED
14	CM	CHIANGMAI FROZEN FOODS PUBLIC COMPANY LIMITED
15	CPN	CENTRAL PATTANA PUBLIC COMPANY LIMITED
16	CSC	CROWN SEAL PUBLIC COMPANY LIMITED
17	CTW	CHAROONG THAI WIRE & CABLE PUBLIC COMPANY LIMITED
18	DCC	DYNASTY CERAMIC PUBLIC COMPANY LIMITED
19	DIF	DIGITAL TELECOMMUNICATIONS INFRASTRUCTURE FUND
20	DTCI	D.T.C. INDUSTRIES PUBLIC COMPANY LIMITED
21	EKH	EKACHAI MEDICAL CARE PUBLIC COMPANY LIMITED
22	EARTH	ENERGY EARTH PUBLIC COMPANY LIMITED
23	EASON	EASON PAINT PUBLIC COMPANY LIMITED
24	ECL	EASTERN COMMERCIAL LEASING PUBLIC COMPANY LIMITED
25	F&D	FOOD AND DRINKS PUBLIC COMPANY LIMITED
26	FUTUREPF	FUTURE PARK LEASEHOLD PROPERTY FUND
27	FSS	FINANSIA SYRUS SECURITIES PUBLIC COMPANY LIMITED
28	GL	GROUP LEASE PUBLIC COMPANY LIMITED
29	GPSC	GLOBAL POWER SYNERGY PUBLIC COMPANY LIMITED
30	GSTEL	G STEEL PUBLIC COMPANY LIMITED
31	HANA	HANA MICROELECTRONICS PUBLIC COMPANY LIMITED
32	HTECH	HALCYON TECHNOLOGY PUBLIC COMPANY LIMITED
33	MTLS	MUANGTHAI LEASING PUBLIC COMPANY LIMITED

34	ILINK	INTERLINK COMMUNICATION PUBLIC COMPANY LIMITED
35	PDI	PADAENG INDUSTRY PUBLIC COMPANY LIMITED
36	IRPC	IRPC PUBLIC COMPANY LIMITED
37	JASIF	JASMINE BROADBAND INTERNET INFRASTRUCTURE FUND
38	JMART	JAY MART PUBLIC COMPANY LIMITED
39	KCE	KCE ELECTRONICS PUBLIC COMPANY LIMITED
40	TMD	THAI METAL DRUM MANUFACTURING PUBLIC COMPANY LIMITED
41	L&E	LIGHTING & EQUIPMENT PUBLIC COMPANY LIMITED
42	LHPF	LAND AND HOUSES FREEHOLD AND LEASEHOLD PROPERTY FUND
43	LRH	LAGUNA RESORTS & HOTELS PUBLIC COMPANY LIMITED
44	MBK	MBK PUBLIC COMPANY LIMITED
45	MACO	MASTER AD PUBLIC COMPANY LIMITED
46	MALEE	MALEE GROUP PUBLIC COMPANY LIMITED
47	MIDA	MIDA ASSETS PUBLIC COMPANY LIMITED
48	UOBKH	UOB KAY HIAN SECURITIES (THAILAND) PUBLIC COMPANY LIMITED
49	MEGA	MEGA LIFESCIENCES PUBLIC COMPANY LIMITED
50	WAVE	WAVE ENTERTAINMENT PUBLIC COMPANY LIMITED
51	MTI	MUANG THAI INSURANCE PUBLIC COMPANY LIMITED
52	NOBLE	NOBLE DEVELOPMENT PUBLIC COMPANY LIMITED
53	NYT	NAMYONG TERMINAL PUBLIC COMPANY LIMITED
54	OCC	O.C.C. PUBLIC COMPANY LIMITED
55	PACE	PACE DEVELOPMENT CORPORATION PUBLIC COMPANY LIMITED
56	PATO	PATO CHEMICAL INDUSTRY PUBLIC COMPANY LIMITED
57	PB	PRESIDENT BAKERY PUBLIC COMPANY LIMITED
58	PF	PROPERTY PERFECT PUBLIC COMPANY LIMITED
59	PMTA	PM THORESEN ASIA HOLDINGS PUBLIC COMPANY LIMITED
60	PPP	PREMIER PRODUCTS PUBLIC COMPANY LIMITED
61	PT	PREMIER TECHNOLOGY PUBLIC COMPANY LIMITED
62	PTG	PTG ENERGY PUBLIC COMPANY LIMITED
63	QHHR	QUALITY HOUSES HOTEL AND RESIDENCE FREEHOLD AND LEASEHOLD PROPERTY FUND
64	RCL	REGIONAL CONTAINER LINES PUBLIC COMPANY LIMITED
65	RICH	RICH ASIA CORPORATION PUBLIC COMPANY LIMITED
66	RPC	RPCG PUBLIC COMPANY LIMITED
67	S	SINGHA ESTATE PUBLIC COMPANY LIMITED
68	SAMART	SAMART CORPORATION PUBLIC COMPANY LIMITED

69	SAT	SOMBOON ADVANCE TECHNOLOGY PUBLIC COMPANY LIMITED
70	SAUCE	THAITHEPAROS PUBLIC COMPANY LIMITED
71	SENA	SENADEVELOPMENT PUBLIC COMPANY LIMITED
72	SCC	THE SIAM CEMENT PUBLIC COMPANY LIMITED
73	SIAM	SIAM STEEL INTERNATIONAL PUBLIC COMPANY LIMITED
74	SITHAI	SRITHAI SUPERWARE PUBLIC COMPANY LIMITED
75	SCG	SAHACOGEN (CHONBURI) PUBLIC COMPANY LIMITED
76	SEAFCO	SEAFCO PUBLIC COMPANY LIMITED
77	SMIT	SAHAMIT MACHINERY PUBLIC COMPANY LIMITED
78	SNC	SNC FORMER PUBLIC COMPANY LIMITED
79	SNP	S & P SYNDICATE PUBLIC COMPANY LIMITED
80	SOLAR	SOLARTRON PUBLIC COMPANY LIMITED
81	TSI	THE THAI SETAKIJ INSURANCE PUBLIC COMPANY LIMITED
82	SPRC	STAR PETROLEUM REFINING PUBLIC COMPANY LIMITED
83	SSSC	SIAM STEEL SERVICE CENTER PUBLIC COMPANY LIMITED
84	SVI	SVI PUBLIC COMPANY LIMITED
85	SUTHA	GOLDEN LIME PUBLIC COMPANY LIMITED
86	SYMC	SYMPHONY COMMUNICATION PUBLIC COMPANY LIMITED
87	SYNTEC	SYNTEC CONSTRUCTION PUBLIC COMPANY LIMITED
88	TCC	THAI CAPITAL CORPORATION PUBLIC COMPANY LIMITED
89	TCCC	THAI CENTRAL CHEMICAL PUBLIC COMPANY LIMITED
90	TFG	THAIFOODS GROUP PUBLIC COMPANY LIMITED
91	POST	BANGKOK POST PUBLIC COMPANY LIMITED
92	THAI	THAI AIRWAYS INTERNATIONAL PUBLIC COMPANY LIMITED
93	CFRESH	SEAFRESH INDUSTRY PUBLIC COMPANY LIMITED
94	THE	THE STEEL PUBLIC COMPANY LIMITED
95	FE	FAR EAST FAME LINE DDB PUBLIC COMPANY LIMITED
96	ALLA	ALLA PUBLIC COMPANY LIMITED
97	TK	THITIKORN PUBLIC COMPANY LIMITED
98	TKN	TAOKAENOI FOOD & MARKETING PUBLIC COMPANY LIMITED
99	TLUXE	THAILUXE ENTERPRISES PUBLIC COMPANY LIMITED
100	TMB	TMB BANK PUBLIC COMPANY LIMITED

Independent Variable						
Government ownership	Company Age	Company Size	Profitability	Leverage	International Operation	Environmental Performance
0	12	56,599,425,832.00	0.06210	0.16378	1	0
0	45	2,719,934,102.00	-0.01005	0.57940	0	0
0	24	4,511,796,751.00	0.09351	0.36079	1	0
0	35	2,106,117,767.03	-0.02950	0.35162	1	1
0	27	4,972,700,533.00	0.05043	0.27267	1	0
0	28	1,656,090,000.00	0.03409	0.50512	0	0
0	52	9,158,197,066.00	0.00067	0.39582	1	1
1	30	12,157,846,869.00	0.11327	0.39371	1	1
1	31	101,782,859,989.00	0.05148	0.56861	1	1
1	26	14,930,959,393.00	0.08236	0.52380	1	0
0	28	5,927,630,776.00	-0.02842	0.32427	0	1
0	112	5,009,879,062.00	0.02932	0.63296	1	0
0	27	7,328,280,407.00	0.04565	0.68771	0	0
0	28	1,617,515,804.00	0.07698	0.09176	0	0
1	36	104,527,348,168.00	0.09006	0.49291	1	1
0	48	3,582,364,193.00	0.10781	0.16835	1	1
1	49	5,743,909,516.00	0.04585	0.26369	1	1
1	27	5,749,827,020.00	0.26158	0.41264	0	0
0	3	100,460,993,906.00	0.05735	0.15482	0	0
0	53	385,714,180.61	0.07981	0.13495	1	0

0	13	877,622,078.00	0.12671	0.10283	0	1
0	9	34,056,233,507.00	0.02747	0.67373	1	0
0	51	1,307,178,689.02	0.08136	0.19661	1	1
1	34	2,542,802,667.53	0.01113	0.56567	0	0
0	31	1,017,993,069.00	-0.07463	0.43673	1	0
0	10	7,459,996,886.00	0.10419	0.09234	0	0
0	12	6,540,760,298.00	0.04386	0.61752	0	0
0	30	17,265,674,247.00	0.07583	0.50764	1	0
1	3	58,028,283,914.00	0.05038	0.33215	1	1
0	21	32,614,667,952.00	-0.03175	0.66677	1	1
0	38	23,780,783,760.00	0.08978	0.16059	1	1
0	38	1,276,820,510.00	0.12382	0.19840	1	0
0	24	24,425,575,859.00	0.07807	0.72601	0	0
0	21	5,585,899,040.00	0.05028	0.42926	1	1
1	35	5,592,507,776.00	0.08932	0.28172	1	0
1	38	172,378,000,000.00	0.05794	0.53007	1	1
0	1	58,101,758,669.00	0.08595	0.02339	0	0
0	28	13,003,142,309.00	0.04511	0.69315	0	0
0	34	17,327,685,553.00	0.17899	0.42130	1	1
0	58	2,797,678,788.51	0.11949	0.09206	1	1
0	23	2,708,457,444.00	0.02631	0.59143	1	0
0	4	3,575,644,096.00	0.05289	0.02399	0	0
0	33	20,725,348,255.00	0.01851	0.38793	1	1
0	6	42,517,701,352.00	0.04828	0.52132	1	1

0	28	1,631,295,190.00	0.08214	0.28978	1	0
0	38	3,640,240,716.00	0.15867	0.56615	1	0
0	25	10,226,838,197.00	0.01915	0.52354	1	0
0	18	6,220,454,616.00	0.04645	0.49110	1	0
0	34	7,940,973,000.00	0.10224	0.41068	1	1
0	28	3,467,326,205.00	0.00717	0.54388	0	0
0	8	19,948,533,277.00	0.03280	0.75157	0	0
0	25	23,268,973,384.00	0.02953	0.80949	0	0
0	34	4,380,470,000.00	0.08837	0.14679	1	1
0	43	1,144,223,007.00	0.06363	0.26634	1	0
0	13	31,831,160,686.00	-0.08055	0.94693	1	0
0	44	691,308,483.00	0.20624	0.20148	1	0
0	36	7,527,674,756.00	0.20529	0.19103	1	1
1	31	48,790,217,155.00	0.00722	0.71435	1	0
0	2	2,012,085,166.00	0.13943	0.16078	1	0
0	41	2,145,646,319.00	0.08235	0.45150	0	1
0	43	1,730,261,025.00	0.09737	0.61545	1	0
0	28	12,526,572,346.00	0.10559	0.63364	1	1
0	8	4,134,480,146.00	0.05445	0.00036	1	0
0	36	18,124,352,954.00	-0.07291	0.48960	1	0
0	17	2,782,224,628.69	-0.33983	0.95474	1	0
0	21	3,170,733,292.00	-0.01904	0.58782	0	0
0	21	30,592,200,505.00	0.00591	0.49346	1	0
0	27	25,216,008,898.00	-0.00160	0.68645	1	0

0	21	9,421,050,881.00	0.06377	0.37514	1	1
0	62	2,658,494,935.00	0.15632	0.09971	1	0
0	23	7,633,444,298.00	0.09693	0.46967	0	0
1	103	539,687,987,000.00	0.13475	0.47818	1	1
0	63	3,618,857,732.00	-0.01016	0.31492	1	1
0	53	11,304,074,573.00	0.02358	0.56359	1	1
0	20	6,830,677,379.00	0.02456	0.64203	0	1
0	42	1,884,208,711.67	0.08407	0.43304	1	0
0	43	2,405,944,148.58	0.08341	0.11908	1	0
0	22	5,219,854,368.00	0.08492	0.47684	1	1
0	43	3,713,710,768.00	0.11652	0.34820	1	1
0	30	4,012,446,783.00	-0.01344	0.51026	1	1
0	74	1,583,070,589.00	-0.11422	0.84105	0	0
0	24	60,187,989,252.00	0.14324	0.30685	1	1
0	31	3,630,974,753.00	0.07415	0.24467	1	1
0	31	10,734,898,057.00	0.17338	0.33883	1	1
0	13	938,518,377.00	0.06971	0.38353	1	1
0	11	4,036,866,591.00	0.02587	0.65319	0	0
0	28	9,523,220,114.00	0.10490	0.49574	0	0
0	44	916,213,958.18	0.00871	0.06125	1	0
0	43	11,307,789,939.00	0.22154	0.13900	1	1
0	15	15,596,269,000.00	0.10198	0.60715	1	0
0	70	2,576,873,516.00	-0.07642	0.69735	1	0
1	57	283,123,865,006.00	0.00016	0.88137	1	1

0	34	5,001,147,287.00	0.07646	0.55083	1	1
0	25	5,403,327,574.50	0.11558	0.68055	0	0
0	52	1,649,266,442.94	0.07452	0.33234	0	0
0	24	900,041,469.00	0.07637	0.19077	1	1
0	44	8,611,426,000.00	0.05094	0.04716	1	0
0	12	3,084,278,147.00	0.26507	0.27971	1	0
0	29	3,569,307,914.00	0.08155	0.49028	1	1
1	59	821,000,082.00	0.00993	0.89787	1	1

Dependent Variable								Total Number of Word	Tendency of Company
GRI-301-Materials	GRI-302-Energy	GRI-303-Water	GRI-304-Biodiversity	GRI-205-Emission	GRI-206-Effluents and Waste	GRI-207-Environmental Compliance	GRI-208-Supplier Environmental Assessment		
25	174	0	0	24	0	0	0	223	1
0	13	0	0	0	0	0	0	13	1
13	12	0	26	0	0	0	0	51	1
199	0	0	0	0	0	0	42	241	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
90	98	64	18	0	0	0	0	270	1
76	34	386	167	152	659	0	120	1594	1
166	201	144	0	209	345	0	113	1178	1

0	0	0	0	0	0	0	0	0	0
0	28	0	64	22	0	0	0	114	1
190	170	0	56	32	145	0	16	609	1
0	0	0	0	0	0	0	0	0	0
121	122	0	128	0	81	0	0	452	1
0	220	207	54	229	142	0	16	868	1
137	0	0	0	0	0	0	58	195	1
154	16	0	0	0	54	0	0	224	1
142	97	88	0	0	19	0	54	400	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	33	0	0	33	1
0	298	58	52	0	329	0	0	737	1
80	75	0	241	0	0	0	27	423	1
138	35	0	0	0	0	0	0	173	1
0	0	0	24	0	0	0	0	24	1
372	68	0	0	0	190	0	0	630	1
0	0	0	0	0	0	0	0	0	0
0	27	0	0	0	0	0	0	27	1
0	0	0	0	0	0	0	0	0	0
0	0	0	470	100	216	0	0	786	1
278	48	0	0	253	0	0	0	579	1
166	110	0	76	88	79	0	0	519	1
217	0	0	0	16	34	0	0	267	1
0	0	0	0	0	0	0	0	0	0

29	0	0	0	0	0	0	0	29	1
44	130	181	139	52	163	0	53	762	1
274	167	491	90	1025	349	0	198	2594	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
241	74	0	25	0	28	0	36	404	1
240	0	0	0	84	0	0	0	324	1
24	0	0	0	0	0	0	0	24	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	48	0	0	48	1
0	96	356	0	219	130	0	0	801	1
0	85	0	0	0	0	0	0	85	1
117	32	0	0	0	82	0	0	231	1
0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0
122	147	15	0	34	54	0	52	424	1
0	85	0	0	0	0	0	0	85	1
0	0	0	0	0	0	0	0	0	0
216	0	0	80	52	65	0	0	413	1
54	0	0	0	0	91	0	0	145	1
114	90	0	0	0	0	0	0	204	1
0	54	39	49	0	86	0	0	228	1
91	22	49	0	0	110	0	0	272	1
319	158	111	27	0	132	0	0	747	1

103	77	0	0	0	30	0	0	210	1
101	0	0	0	0	94	0	0	195	1
183	55	0	56	0	132	0	134	560	1
0	27	0	86	0	0	0	0	113	1
0	205	0	83	22	0	0	0	310	1
0	0	25	0	0	0	0	0	25	1
0	0	0	0	0	0	0	0	0	0
110	0	0	104	31	95	0	0	340	1
0	0	0	0	0	0	0	0	0	0
39	0	0	99	0	0	0	61	199	1
78	0	0	0	0	0	0	0	78	1
32	0	0	0	160	138	0	0	330	1
99	88	0	0	0	126	0	0	313	1
0	0	0	0	0	0	0	0	0	0
129	218	298	59	78	63	0	0	845	1
113	252	0	88	72	71	0	18	614	1
223	74	0	0	118	163	0	0	578	1
67	0	31	0	0	0	0	0	98	1
84	0	0	62	36	123	0	0	305	1
0	0	0	0	0	0	0	0	0	0
227	0	0	85	0	20	0	0	332	1
0	191	0	0	0	15	0	0	206	1
29	114	26	0	0	0	0	0	169	1
0	0	0	0	0	0	0	0	0	0

0	0	203	0	182	86	0	0	471	1
172	0	0	100	65	0	0	0	337	1
15	0	0	0	28	27	0	0	70	1
107	0	22	118	49	182	0	0	478	1
0	0	0	0	0	0	0	0	0	0
0	0	0	35	0	0	0	0	35	1
75	0	0	92	0	0	0	0	167	1
186	121	39	170	0	200	0	0	716	1
0	0	0	0	241	175	0	0	416	1
0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	14	1
302	270	93	0	108	157	0	81	1011	1
127	0	0	0	0	0	0	0	127	1
0	0	0	0	0	0	0	0	0	0
46	0	0	54	76	109	0	0	285	1
0	136	0	0	0	0	0	0	136	1
75	17	96	124	61	0	0	0	373	1
0	79	0	233	39	81	0	0	432	1
0	0	16	0	0	13	0	0	29	1

Total Asset 2016 (in Baht)	Total Asset 2015 (in Baht)	Net Income After Tax (in bath)	Total Liability (in bath)
฿ 56,599,425,832.00	฿ 52,826,525,128.00	฿ 3,397,600,605.00	฿ 9,270,100,605.00
฿ 2,719,934,102.00	฿ 2,246,949,745.00	-฿ 24,948,792.00	฿ 1,575,922,398.00
฿ 4,511,796,751.00	฿ 4,672,503,695.00	฿ 429,392,385.00	฿ 1,627,801,370.00
฿ 2,106,117,767.03	฿ 2,110,135,581.70	-฿ 62,182,844.94	฿ 740,557,201.23
฿ 4,972,700,533.00	฿ 4,996,720,842.00	฿ 251,372,133.00	฿ 1,355,896,888.00
฿ 1,656,090,000.00	฿ 1,974,880,000.00	฿ 61,890,000.00	฿ 836,520,000.00
฿ 9,158,197,066.00	฿ 9,113,721,409.00	฿ 6,158,368.00	฿ 3,624,960,000.00
฿ 12,157,846,869.00	฿ 8,540,544,641.00	฿ 1,172,291,566.00	฿ 4,786,648,025.00
฿ 101,782,859,989.00	฿ 81,942,316,638.00	฿ 4,729,408,334.00	฿ 57,874,325,319.00
฿ 14,930,959,393.00	฿ 14,957,570,781.00	฿ 1,230,861,768.00	฿ 7,820,770,985.00
฿ 5,927,630,776.00	฿ 5,355,009,343.00	-฿ 160,337,104.00	฿ 1,922,157,832.00
฿ 5,009,879,062.00	฿ 4,551,232,108.00	฿ 140,170,354.00	฿ 3,171,041,969.00
฿ 7,328,280,407.00	฿ 6,814,453,163.00	฿ 322,795,513.00	฿ 5,039,761,883.00
฿ 1,617,515,804.00	฿ 1,488,621,686.00	฿ 119,558,472.00	฿ 148,425,619.00
฿ 104,527,348,168.00	฿ 103,044,632,148.00	฿ 9,347,027,531.00	฿ 51,522,546,602.00
฿ 3,582,364,193.00	฿ 3,326,814,693.00	฿ 372,436,132.00	฿ 603,096,125.00
฿ 5,743,909,516.00	฿ 5,612,021,469.00	฿ 260,339,450.00	฿ 1,514,603,984.00
฿ 5,749,827,020.00	฿ 5,134,260,572.00	฿ 1,423,510,543.00	฿ 2,372,613,812.00
฿ 100,460,993,906.00	฿ 86,799,831,724.00	฿ 5,370,072,157.00	฿ 15,553,049,248.00
฿ 385,714,180.61	฿ 367,873,980.74	฿ 30,070,208.40	฿ 52,053,037.93

฿ 877,622,078.00	฿ 310,412,321.00	฿ 75,269,796.00	฿ 90,244,114.00
฿ 34,056,233,507.00	฿ 29,429,665,828.00	฿ 871,887,687.00	฿ 22,944,713,225.00
฿ 1,307,178,689.02	฿ 848,708,122.05	฿ 87,696,775.06	฿ 257,004,090.38
฿ 2,542,802,667.53	฿ 1,953,041,752.40	฿ 25,029,259.98	฿ 1,438,379,708.98
฿ 1,017,993,069.00	฿ 713,898,152.00	-฿ 64,623,419.00	฿ 444,590,501.00
฿ 7,459,996,886.00	฿ 7,522,338,382.00	฿ 780,538,327.00	฿ 688,841,251.00
฿ 6,540,760,298.00	฿ 4,009,538,096.00	฿ 231,343,311.00	฿ 4,039,062,936.00
฿ 17,265,674,247.00	฿ 10,765,116,582.00	฿ 1,062,819,265.00	฿ 8,764,763,617.00
฿ 58,028,283,914.00	฿ 55,982,890,786.00	฿ 2,871,974,284.00	฿ 19,274,170,539.00
฿ 32,614,667,952.00	฿ 33,435,701,849.00	-฿ 1,048,492,194.00	฿ 21,746,441,514.00
฿ 23,780,783,760.00	฿ 23,122,839,985.00	฿ 2,105,418,951.00	฿ 3,819,018,790.00
฿ 1,276,820,510.00	฿ 1,023,299,004.00	฿ 142,397,438.00	฿ 253,322,906.00
฿ 24,425,575,859.00	฿ 13,082,802,089.00	฿ 1,464,137,540.00	฿ 17,733,294,792.00
฿ 5,585,899,040.00	฿ 3,450,087,828.00	฿ 227,164,080.00	฿ 2,397,821,383.00
฿ 5,592,507,776.00	฿ 5,104,741,678.00	฿ 477,765,630.00	฿ 1,575,499,396.00
฿ 172,378,000,000.00	฿ 163,174,000,000.00	฿ 9,721,000,000.00	฿ 91,373,000,000.00
฿ 58,101,758,669.00	฿ 61,615,924,941.00	฿ 5,144,696,863.00	฿ 1,359,116,585.00
฿ 13,003,142,309.00	฿ 9,350,038,310.00	฿ 504,226,962.00	฿ 9,013,152,855.00
฿ 17,327,685,553.00	฿ 16,830,068,453.00	฿ 3,056,950,733.00	฿ 7,300,182,240.00
฿ 2,797,678,788.51	฿ 2,651,120,501.89	฿ 325,534,369.47	฿ 257,545,292.87
฿ 2,708,457,444.00	฿ 2,951,642,507.00	฿ 74,470,538.00	฿ 1,601,855,985.00
฿ 3,575,644,096.00	฿ 3,610,526,485.00	฿ 190,023,357.00	฿ 85,796,867.00
฿ 20,725,348,255.00	฿ 20,091,271,790.00	฿ 377,788,023.00	฿ 8,040,045,921.00
฿ 42,517,701,352.00	฿ 40,549,382,268.00	฿ 2,005,245,671.00	฿ 22,165,519,913.00

฿ 1,631,295,190.00	฿ 894,939,765.00	฿ 103,753,342.00	฿ 472,723,205.00
฿ 3,640,240,716.00	฿ 3,041,945,110.00	฿ 530,115,486.00	฿ 2,060,924,577.00
฿ 10,226,838,197.00	฿ 9,051,312,795.00	฿ 184,597,290.00	฿ 5,354,200,413.00
฿ 6,220,454,616.00	฿ 4,125,181,291.00	฿ 240,297,850.00	฿ 3,054,845,974.00
฿ 7,940,973,000.00	฿ 7,610,041,000.00	฿ 794,937,000.00	฿ 3,261,163,000.00
฿ 3,467,326,205.00	฿ 4,037,613,537.00	฿ 26,895,408.00	฿ 1,885,792,372.00
฿ 19,948,533,277.00	฿ 18,664,265,435.00	฿ 633,222,166.00	฿ 14,992,677,863.00
฿ 23,268,973,384.00	฿ 22,942,357,227.00	฿ 682,199,748.00	฿ 18,836,019,923.00
฿ 4,380,470,000.00	฿ 4,446,690,000.00	฿ 390,030,000.00	฿ 643,020,000.00
฿ 1,144,223,007.00	฿ 1,080,763,985.00	฿ 70,788,402.00	฿ 304,749,771.00
฿ 31,831,160,686.00	฿ 25,932,146,754.00	-฿ 2,326,397,565.00	฿ 30,141,947,985.00
฿ 691,308,483.00	฿ 640,093,652.00	฿ 137,292,562.00	฿ 139,287,674.00
฿ 7,527,674,756.00	฿ 6,724,557,023.00	฿ 1,462,949,194.00	฿ 1,437,984,032.00
฿ 48,790,217,155.00	฿ 43,277,021,304.00	฿ 332,287,426.00	฿ 34,853,435,688.00
฿ 2,012,085,166.00	฿ 1,961,625,182.00	฿ 277,028,644.00	฿ 323,511,934.00
฿ 2,145,646,319.00	฿ 2,208,100,047.00	฿ 179,261,292.00	฿ 968,756,967.00
฿ 1,730,261,025.00	฿ 1,644,304,138.00	฿ 164,288,478.00	฿ 1,064,896,639.00
฿ 12,526,572,346.00	฿ 7,805,278,554.00	฿ 1,073,395,562.00	฿ 7,937,301,530.00
฿ 4,134,480,146.00	฿ 3,586,099,331.00	฿ 210,176,390.00	฿ 1,474,309.00
฿ 18,124,352,954.00	฿ 19,617,257,480.00	-฿ 1,375,896,137.00	฿ 8,873,713,087.00
฿ 2,782,224,628.69	฿ 4,286,016,127.94	-฿ 1,200,993,568.92	฿ 2,656,295,639.98
฿ 3,170,733,292.00	฿ 3,332,212,591.00	-฿ 61,901,956.00	฿ 1,863,810,358.00
฿ 30,592,200,505.00	฿ 25,307,630,152.00	฿ 165,089,545.00	฿ 15,095,995,897.00
฿ 25,216,008,898.00	฿ 27,317,052,263.00	-฿ 42,091,061.00	฿ 17,309,487,544.00

฿ 9,421,050,881.00	฿ 9,633,530,543.00	฿ 607,557,665.00	฿ 3,534,192,802.00
฿ 2,658,494,935.00	฿ 2,650,982,525.00	฿ 415,001,474.00	฿ 265,088,574.00
฿ 7,633,444,298.00	฿ 8,135,984,153.00	฿ 764,285,242.00	฿ 3,585,166,317.00
฿ 539,687,987,000.00	฿ 509,980,644,000.00	฿ 70,719,180,000.00	฿ 258,069,868,000.00
฿ 3,618,857,732.00	฿ 3,088,354,580.00	-฿ 34,085,467.00	฿ 1,139,636,914.00
฿ 11,304,074,573.00	฿ 11,107,091,094.00	฿ 264,186,435.00	฿ 6,370,850,502.00
฿ 6,830,677,379.00	฿ 6,159,765,203.00	฿ 159,501,611.00	฿ 4,385,514,894.00
฿ 1,884,208,711.67	฿ 1,807,440,149.57	฿ 155,177,013.14	฿ 815,945,883.33
฿ 2,405,944,148.58	฿ 2,313,961,068.38	฿ 196,847,962.45	฿ 286,506,823.77
฿ 5,219,854,368.00	฿ 4,138,599,596.00	฿ 397,358,792.00	฿ 2,489,033,866.00
฿ 3,713,710,768.00	฿ 3,806,704,010.00	฿ 438,157,827.00	฿ 1,293,099,230.00
฿ 4,012,446,783.00	฿ 3,500,513,368.00	-฿ 50,474,325.00	฿ 2,047,377,630.00
฿ 1,583,070,589.00	฿ 1,628,726,564.00	-฿ 183,429,204.00	฿ 1,331,444,862.00
฿ 60,187,989,252.00	฿ 61,121,850,807.00	฿ 8,688,088,327.00	฿ 18,468,822,990.00
฿ 3,630,974,753.00	฿ 3,859,150,957.00	฿ 277,697,329.00	฿ 888,376,547.00
฿ 10,734,898,057.00	฿ 7,752,322,330.00	฿ 1,602,672,639.00	฿ 3,637,308,209.00
฿ 938,518,377.00	฿ 1,012,599,137.00	฿ 68,001,609.00	฿ 359,946,249.00
฿ 4,036,866,591.00	฿ 3,645,694,107.00	฿ 99,359,965.00	฿ 2,636,845,805.00
฿ 9,523,220,114.00	฿ 6,721,833,885.00	฿ 852,071,995.00	฿ 4,721,027,460.00
฿ 916,213,958.18	฿ 1,017,322,274.41	฿ 8,424,450.94	฿ 56,113,695.75
฿ 11,307,789,939.00	฿ 9,600,722,282.00	฿ 2,316,046,992.00	฿ 1,571,801,820.00
฿ 15,596,269,000.00	฿ 12,777,575,000.00	฿ 1,446,801,000.00	฿ 9,469,202,000.00
฿ 2,576,873,516.00	฿ 3,112,959,124.00	-฿ 217,397,849.00	฿ 1,796,973,362.00
฿ 283,123,865,006.00	฿ 302,471,057,764.00	฿ 46,821,201.00	฿ 249,535,673,224.00

฿ 5,001,147,287.00	฿ 5,264,342,276.00	฿ 392,433,890.00	฿ 2,754,795,236.00
฿ 5,403,327,574.50	฿ 4,097,626,277.96	฿ 549,083,688.25	฿ 3,677,249,037.69
฿ 1,649,266,442.94	฿ 1,453,039,510.29	฿ 115,584,360.51	฿ 548,121,375.10
฿ 900,041,469.00	฿ 645,367,371.00	฿ 59,010,651.00	฿ 171,697,062.00
฿ 8,611,426,000.00	฿ 8,283,726,000.00	฿ 430,304,000.00	฿ 406,150,500.00
฿ 3,084,278,147.00	฿ 2,814,864,607.00	฿ 781,847,681.00	฿ 862,690,320.00
฿ 3,569,307,914.00	฿ 2,309,420,401.00	฿ 239,716,845.00	฿ 1,749,962,003.00
฿ 821,000,082.00	฿ 838,937,281.00	฿ 8,244,405.00	฿ 737,152,276.00

Control Variable Industry Type	Industry Type	Company Inception	Foreign Subsidiary	Foreign Branch Office
0	Services	2004	0	0
0	Financials	1971	0	0
0	Technology	1992	0	0
1	Resources	1981	1	0
1	Property & Construction	1989	1	0
1	Property & Construction	1988	0	0
0	Services	1964	1	0
1	Resources	1986	1	0
1	Resources	1985	1	1
0	Services	1990	1	0

1	Industrials	1988	0	0
1	Property & Construction	1904	1	0
1	Property & Construction	1989	0	0
0	Agro & Food Industry	1988	0	0
1	Property & Construction	1980	1	1
1	Industrials	1968	1	0
1	Industrials	1967	1	1
1	Property & Construction	1989	0	0
0	Technology	2013	0	0
1	Consumer Products	1963	0	0
0	Services	2003	0	0
1	Resources	2007	1	0
1	Industrials	1965	1	0
0	Financials	1982	0	0
0	Agro & Food Industry	1985	0	0
1	Property & Construction	2006	0	0
0	Financials	2004	0	0
0	Financials	1986	1	0
1	Resources	2013	1	0
1	Industrials	1995	0	0

0	Technology	1978	1	0
1	Industrials	1978	1	0
0	Financials	1992	1	0
0	Technology	1995	0	0
1	Resources	1981	1	0
1	Resources	1978	0	0
0	Technology	2015	0	0
0	Technology	1988	0	0
0	Technology	1982	1	0
1	Industrials	1958	0	0
1	Consumer Products	1993	1	0
1	Property & Construction	2012	0	0
0	Services	1983	1	0
1	Property & Construction	2010	0	0
0	Services	1988	1	0
0	Agro & Food Industry	1978	0	0
0	Services	1991	1	0
0	Financials	1998	1	1
1	Property & Construction	1982	1	0
0	Services	1988	0	0
0	Financials	2008	0	0

1	Property & Construction	1991	0	0
0	Services	1982	0	0
1	Consumer Products	1973	0	0
1	Property & Construction	2003	1	0
1	Industrials	1972	0	0
0	Agro & Food Industry	1980	0	0
1	Property & Construction	1985	1	0
1	Industrials	2014	1	0
1	Property & Construction	1975	0	0
0	Technology	1973	1	0
1	Resources	1988	0	0
1	Property & Construction	2008	0	0
0	Services	1980	1	1
1	Industrials	1999	0	0
1	Resources	1995	0	0
1	Property & Construction	1995	1	0
0	Technology	1989	1	0
1	Industrials	1995	1	0
0	Agro & Food Industry	1954	0	0

1	Property & Construction	1993	0	0
1	Property & Construction	1913	1	0
1	Consumer Products	1953	0	0
1	Industrials	1963	1	0
1	Resources	1996	0	0
1	Property & Construction	1974	1	0
1	Industrials	1973	0	0
1	Industrials	1994	0	0
0	Agro & Food Industry	1973	1	1
1	Resources	1986	0	0
0	Financials	1942	0	0
1	Resources	1992	0	0
1	Industrials	1985	1	0
0	Technology	1985	1	0
1	Industrials	2003	0	0
0	Technology	2005	0	0
1	Property & Construction	1988	0	0
1	Resources	1972	1	0
1	Industrials	1973	1	1
0	Agro & Food Industry	2001	1	0
0	Services	1946	0	0

0	Services	1959	0	1
0	Agro & Food Industry	1982	1	0
1	Industrials	1991	0	0
0	Services	1964	0	0
1	Industrials	1992	0	0
0	Financials	1972	1	0
0	Agro & Food Industry	2004	0	0
0	Agro & Food Industry	1987	1	0
0	Financials	1957	0	1