ORGANIZATIONAL FACTORS THAT AFFECT THE PREPAREDNESS AND AWARENESS OF SME TOWARDS NATURAL DISASTER

BY

HEE GUO MING
LEE ZHENG HORNG
TAN KAR BIN
TAN KHENG YANG

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DECLARATION

We hereby declare that:

(1) This UKMZ3016 Research Project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

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Name of Student:	Student ID:	Signature:
1. Hee Guo Ming	10UKB03111	
2. Lee ZhengHorng	10UKB05493	
3. Tan Kar Bin	11UKB000572	
4. Tan Kheng Yang	10UKB02736	

Date: _____

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SME	Small and Medium Enterprise
GDP	Gross Domestic Product
IBM	International Business Machine
SPSS	Statistical Package for Social Science

PREFACE

To be successful or even survive in the competitive business industry nowadays, firms are suffering and putting a lot of effort in order to at least endure the harsh condition. Small and Medium Enterprises (SME) in particular, are the ones that need more attention compare to the large multinational firms as it serves as driver that supports and even improve the economy.

Other than competing with other firms, SME are also subject to survive natural disasters. Natural disasters are non-man-made, unpredictable events that are able to negatively affect SMEs.

In Malaysia, SME in different countries and states face different natural disasters and it includes floods, drought, lightning and wildfire based on the country's climate. Even though there are not much cases reported in Malaysia regarding on firms suffering from natural hazards, it is an irregular possibility that might affect the performance of SMEs in Malaysia, hence in turn affecting the economy of the country.

Due to this reason, it is important to conduct research in this area. By understanding more on what, how and why information about natural disasters preparation are disseminated, SMEs in Malaysia are able to better cope with the pre and post event of natural disasters.

Hence, being able to anticipate the consequences of natural disasters, SMEs will able to better prepare and brace for incoming damage that might have done worse harm when they are not even informed of the basic information on natural hazards. In addition, policy makers are also able to implement legitimate rules and law to better regulate and support the firms affected by natural disasters.

ABSTRACT

Natural disasters are becoming more frequent due to the major adverse event resulting from natural processes of the Earth. Large organizations have the potential to survive natural disaster because of their huge financial base and resources but problem becomes severe when to SMEs. . SMEs are the backbone of every economy; they are small in size but large in numbers. In Malaysia, SMEs' contribute 32% of GDP and employ 59% of workforce.

As SMEs contribute significantly to the Malaysian economy, the government and related authorities should understand the related factors that impact on their risk reduction activities. This research focuses on the organizational factors that influence the preparedness and awareness of SME towards natural disaster.

Through the use of latest version of SPSS, 190 sets of valid questionnaires collected are analyzed. From the results generated, it was found that information received and risk perception of firm is affecting preparedness and awareness of SME towards natural disaster.

At the end of this research, limitations of this research and suggestions for future research are provided. This research is hope to contribute to those who wishes to utilize it.

CHAPTER 1

RESEARCH OVERVIEW

1.0 Introduction

This chapter provides an overview of the research. Chapter one covers the research background, problem statements, research objectives, research questions, hypotheses of study, significance of study, chapter layout and conclusion.

1.1 Research Background

Due to rising population, climate change, and environmental degradation, natural disasters are increasing in frequency. Natural disaster is the consequence of the combination of a natural hazard and human activities, human vulnerability, and caused by the lack of appropriate emergency management, which leads to financial, structural, and human losses. While it may not be earthquakes, volcano or tsunami's that Malaysia businesses face, but landslide, flash flooding, lightning and strong winds are all natural disasters that have the potential to create damage to the businesses. For instance, potential loss for property, stock, documentation and information may lead to loss of money.

Small and medium enterprises are businesses whose revenues and number of employees are maintained below a certain standard. The abbreviation '***SME***' is used to describe them. Every country has its own definition of what is considered a small and medium-sized enterprise. In Malaysia, the new definition of SME is endorsed in July 2013. the definition has been simplified under two categories, namely: for manufacturing sector, sales turnover not exceeding RM50 million or full-time employees not exceeding 200 workers; while services and other sectors, sales turnover not exceeding RM20 million OR full-time employees not exceeding 75 workers.

Small and medium enterprises in particular are often affected directly and indirectly from the very same disasters faced by large companies. They tend to have fewer resources than their large counterparts with which to plan, respond and recover. As a result, they have limited opportunities to recover from any adverse condition and their ability to turnaround their business quickly from a loss to profit. Preparedness is the state of being ready for some situation. It depends on having access to and the ability to use necessary resources. Awareness refers to the state of having knowledge and cognizance. In order to identify the factors that influence the preparedness and awareness for natural disaster of SMEs, research has to be conducted.

1.2 Problem Statement

Statistics from the US Federal Emergency Management Agency (FEMA) indicate that around 40% of businesses do not survive at all after a natural disaster, that 25% fail after the first year and that a disturbing 95% of small to medium businesses will never recover.(Federal Emergency Management Agency, 2010). Compared to large companies, small and medium-sized businesses are more vulnerable to natural hazards due to limited resource, knowledge, and planning & experience gaps. They are always left out or given minimal attention.

According to Census of Establishments and Enterprises (2011), a total of 645,136 SMEs create 97.3% of total business establishments in Malaysia. The results showed that 90% of the establishments were in the Services sector, 5.9% in the Manufacturing sector3.0% in the Construction sector. The remaining was in the Agriculture sector, 1.0% and Mining & Quarrying, 0.1%. (Department of Statistics Malaysia, 2012). Besides, SMEs contribute 32% of Gross Domestic Product (GDP), 59% of employment and 19% of exports.(Bank Negara Malaysia‘s SME Survey, 2005). Apart of this, the Malaysian government is targeting the SMEs to contribute 40% to the country’s gross domestic product (GDP) by 2015. (The Star Malaysia Online, 2013). There from, the influence of SMEs on Malaysian economy cannot be disregarded.

The 2011 floods in Thailand affected 557,637 SMEs and 2.3 million workers lost their jobs, according to the Office of Small and Medium Enterprises Promotion in Thailand. Thus, the preparedness and awareness for natural disaster of SME should not be overlooking as it will give large impact on the Malaysian economy as well. To raise the awareness of SMEs regarding the natural disaster issues, policy makers must have a clear understanding on what are the factors that contribute to the preparedness for natural disasters by the SME.

Number of researches had been done in the past on how does natural disaster impact on the businesses, specifically large companies only. The factors that had been identified for the preparedness and awareness are classified into three categories which are individual characteristics, government influences and organizational factors.

Researches on SMEs preparedness and awareness for natural disaster are inadequate as there are only small numbers of researches done in the past. Due to the nature of organization size and structure of SMEs are different with large companies, therefore our studies will be focusing on the organizational factors that impact on the preparedness and awareness for natural disaster of SMEs.

Our research is conducted by using quantitative methods whereby both primary and secondary data are collected through survey questionnaire, published books and journals to support our findings.

1.3 Research Questions

1.3.1 Do information received have significant relationship with the preparedness and awareness of SME towards natural disaster?

This question helps to determine whether there is a significant relationship between information received and SMEs preparedness and awareness for natural disaster.

1.3.2 Do types of firm have significant relationship with the preparedness and awareness of SME towards natural disaster?

This question helps to determine whether there is a significant relationship between types of firm and SMEs preparedness and awareness for natural disaster.

1.3.3 Do risk perception of firm have significant relationship with the preparedness and awareness of SME towards natural disaster?

This question helps to determine whether there is a significant relationship between risk perception of firm and SMEs preparedness and awareness for natural disaster.

1.4 Research Objective

This research aims to identify, examine and analyze the organizational factors that influence the preparedness and awareness for natural disaster of SMEs.

1.4.1 General Objectives

The primary objective of this research is to gain an in-depth understanding and clearer view on how organizational factors would affect the SMEs preparedness and awareness for natural disaster.

1.4.2 Specific Objectives

(i) To examine whether information received will affect the SMEs preparedness and awareness for natural disaster.

(ii) To examine whether types of firm will affect the SMEs preparedness and awareness for natural disaster.

(iii) To examine whether risk perception of firm will affect the SMEs preparedness and awareness for natural disaster.

1.5 Hypotheses of Study

Subsequent of reviewing relevant literature, hypotheses that are corresponding to the sub-research questions are developed as follows:

1.5.1 FIRST HYPOTHESES

H_0: Information received has no significant relationship with preparedness and awareness of SME towards natural disaster.

H_1: Information received has significant relationship with the preparedness and awareness of SME towards natural disaster.

1.5.2 SECOND HYPOTHESES

H_0: Types of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster.

H_1: Types of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.

1.5.3 THIRD HYPOTHESES

H_0: Risk perception of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster.

H_1: Risk perception of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.

1.6 Significance of the Study

This proposed research project is significant as it can be contributed to the policy makers, employers, employees and the SMEs fraternity in order to gain a deep and clear understanding on the organizational factors that influencing the SMEs preparedness and awareness for natural disaster. By understanding the factors, SMEs will be able to have better understanding in this aspect as well as coping measures. Besides, this research is expected to create an opportunity to examine and investigate Disaster Risk Management's impact to the SMEs, the society and the economy at large.

1.7 Conclusion

This chapter outlines about the different organizational factors that affect the preparedness and awareness of SMEs towards natural disaster, research objectives, research questions, hypotheses and significance of the study.

Explanation of Terms Used

1. Small and Medium Enterprises (SMEs)

Broadly, the definition has been simplified under two categories, namely:

- Manufacturing : Sales turnover not exceeding RM50 million OR full-time employees not exceeding 200 workers; and
- Services and other sectors : Sales turnover not exceeding RM20 million OR full-time employees not exceeding 75 workers.

The details by size of operation are as follows:

Table 1.1: Explanation of SME

Category	Micro	Small	Medium
Manufacturing	Sales turnover **not exceeding RM300,000** OR full-time employees **not exceeding 5**	Sales turnover from**RM300,000 to less than RM15 million** OR full-time employees from **5 to less than 75**	Sales turnover from**RM15 million to not exceeding RM50 million** OR full-time employees from **75 to not exceeding 200**
Services & Other Sectors		Sales turnover from**RM300,000 to less than RM3 million** OR full-time employees from **5 to less than 30**	Sales turnover from**RM3 million to not exceeding RM20 million** OR full-time employees from **30 to not exceeding 75**

A business will be deemed as an SME if it meets either one of the two specified criteria, namely sales turnover or full-time employees whichever is lower. The details of the definition are as follows:

Classification of sectors covered

- ***Manufacturing*** – refer to physical or chemical transformation of materials or components into new products.

- ***Services*** – refers to all services including distributive trade; hotels and restaurants; business, professional and ICT services; private education and health; entertainment; financial inter-mediation; and manufacturing-related services such as research and development (R&D), logistics, warehouse, engineering etc; and

- ***'Others'*** refer to the remaining 3 key economic activities, namely Primary Agriculture, Construction, Mining & quarrying. Classification of economic activities for purposes of definition will be based on the Malaysian Standard Industrial Classification (MSIC) 2008 codes. However, the list of activities is not exhaustive and may be subject to amendments from time to time.

2. Natural Disaster

According to Dictionary.com, natural disaster is any event or force of nature that has catastrophic consequences, such as avalanche, earthquake, flood, forest fire, hurricane, lightning, tornado, tsunami, and volcanic eruption.

1.8 CHAPTER LAYOUT

This research consists of five chapters.

1.8.1 CHAPTER ONE: INTRODUCTION

Chapter 1 provides a brief and clear understanding on the focus, aim and content of research. It covers research background, problem statement, research questions, research objectives and significance of study.

1.8.2 CHAPTER TWO: LITERATURE REVIEW

Chapter 2 consists of literature review, theoretical models, conceptual framework, proposed tested hypotheses and conclusion. It reviews all the related organizational factors that affecting the SMEs preparedness and awareness for natural disaster.

1.8.3 CHAPTER THREE: METHODOLOGY

Chapter 3 illustrates research design of methodology of data collection, sampling design, the research instrument, constructs and measurement, data processing, data analysis and a conclusion.

1.8.4 CHAPTER FOUR: DATA ANALYSIS

Chapter 4 illustrates the finalized output of the research study by describing and interpreting the data. All the data output are processed by SPSS software version II. Descriptive analysis, scale measurement and inferential analysis have been applied.

1.8.5 CHAPTER FIVE: DISCUSSION AND CONCLUSION

Chapter 5 provides reasons and clarifications to the analysis of interpretation. It is the overall summary of statistical analysis discussion of major finding, conclusion of the research problem, implication of study and recommendation for future research objectives.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter includes and summarizes all the data collected from journals, articles and books. This is to make sure that all the important factors that have been found in the previous studies that have effect on the problem are ignored. This literature review acts as a base for the theoretical framework that aid in developing the hypothesis. Discussion on the independent variables that will affect the dependent variables will be emphasized in this chapter.

2.1 Review of the Literature

2.1.1 Preparedness and Awareness towards Natural Disaster

The ultimate goal of business planning for disaster preparedness and recovery is to ensure the survival of an organization. . (Haddow, Bullock & Coppola, 2008). Preparedness is the state of being ready for some situation It depends on having access to and the ability to use necessary resources. Preparedness is typically understood as consisting of measures that enable different units of analysis—individuals, households, organizations, communities, and societies—to respond effectively and recover more quickly when disasters strike. (Sutton& Tierney, 2006).

Other than that, preparedness activities are also to ensure that the necessary resources for responding effectively in the event of a disaster are in place, and that those who facing and responding to it know how to utilize the resources.

Awareness refers to the state of having knowledge and cognizance. It is the extent of common knowledge on disaster risk, the factors that results the disasters and the prevention that can be taken, individually and collectively which aims to reduce the exposure and vulnerability to hazards. According to Nix-Steveson (2013), awareness is the first step that leads to action or response. Awareness is the key to activate interest. When human's interest is rise up, it will lead to attention, and attention can prompt action. (Nix-Stevenson, 2013).

It should also gives emphasis on the pre-disaster management issues rather that only on post-disaster reconstruction and management. Disaster education helps in building up the public disaster awareness. For example, it can be done through organizational training, planning, public relations, information system and others. It is also supported that an efficient awareness program is to raise the level of awareness of employee's role before, during and after the disaster event. (Hermann, 2008).

It means building awareness and undertaking preparedness leads to disaster risks reduction. Hence, disaster awareness is not only the precondition but also the first step of current disaster management. (Shaw, Mallick& Islam, 2013).

2.1.2 Information Received

Information received can comprise of depiction on the environmental threat and its possibility to harm to the society, instructions and recommendations to response to natural hazards (Burby, Steinberg, &Basolo, 2003; Mileti et al., 1992; Tanaka, 2005).Information regarding on how to prepare for natural disasters can be received through several different medium that includes television, radio and Internet (Kuppuswamy, 2014).

Kapucu (2006) says that in managing a disaster, the vital test for management is to communicate and exchange information in intricate and unpredictable surroundings. Another aspect is that if government plays a role in planning and preparing to handle natural disasters, which include disseminating information, a firm will actually feel that those preparations are sufficient and firms will be less likely to implement preparedness actions (Basolo, Steinberg, Burby, Levine, Cruz & Huang, 2009).

Another study that focuses on how information can affect preparedness is that information disseminated should be done at the right time, form, and medium (Coyle & Meier, 2009; Denning, 2006; Gunawardene& Noronha, 2007) .

On a contradiction, it is reported that information on preparing for natural disasters risk might affect a persons' actions if the information is received a number of times through different source (Mileti& Darlington, 1997; Mileti, Fitzpatrick, &Farhar, 1992).

Peguero (2006) also said that an effective distribution of information on preparing for disasters can reduce the risk of firm from natural threats and disasters.
Studies has also proved that the rate of communications, the way information is utilized and the skill of a person to actually assess and come up with a response to

improve impending effectiveness can affect natural disaster preparedness (Mileti&Kuligowski, 2006).

However, there are not sufficient studies to effectively determine what kind of information that is truly able to affect, whether to improve or downgrade the preparedness of firms towards natural disaster.

To further improve the confirmation of this variable, a study by Bolger (2003) actually depicts that obtaining precise and consistent mitigation information will lead to effective disaster planning and eventually becoming the salvation for surviving disasters.

Besides, it is also showed in past study where information obtained that exhibit commonality to past events is able to help people to make swift decisions with somewhat little cognitive effort (Hanh, Rall& Klinger, 2003).

H_0: Information received has no significant relationship with preparedness and awareness of SME towards natural disaster.

H_1: Information received has significant relationship with the preparedness and awareness of SME towards natural disaster.

2.1.3 Types of Firm

Hanna & Walsh (2008) said that SME are firms that are agile and reactive to external opportunities. However, due to their limitations on resources, these firms are vulnerable to many threats (Hanna & Walsh, 2008).

Other than ownership, organizational type also encompasses profit or nonprofit organizations (Promsri, 2014). In terms of nonprofits organizations, Fowler, Kling & Larson (2007) mentioned that the owners who experienced disasters are more concerned compared to those who did not. However, small nonprofit organization might not be willing to prepare to embrace natural disaster. (Fowler, Kling & Larson, 2007).

Another type of firm is described in terms of alliance. Whitley (2000) says that this form does only involve the collaboration and authority sharing in a few vital areas such as training, union negotiations, technological development and technical standards rather than ownership interests' fusion (Whitley, 2000)

SME with different organizational type have different way of coping with natural disasters. Chikoto, Sadiq& Fordyce (2012) said that a firm with higher income base would implement a more improved precautions compared to firms with fewer resources. On the other hand, they also mentioned that firms such as private corporations rely on their goods and services sales, public agencies would rely on revenue on tax and nonprofits organizations would depends on charity offerings as a source of revenue. In all being said, these firms also face difficulty in raising funds to prepare for natural disasters (Chikoto, Sadiq& Fordyce, 2012).

Besides, in terms of type of firms, one of the elements is property ownership. Han &Nigg (2011) said that compared to those who rents or lease the business building, an owner of the business building concerns more on the effect of natural disasters and would more likely to take part in preparedness activity (Han &Nigg, 2011). To support this statement, Burby, Steinberg &Basolo (2003) stated that people who rent buildings tends not to at least take sufficient precaution steps to brace natural disaster impact. This is because the renters move frequently compared to the owners. Hence, this shows that renters only focus on what benefits they can reap in the short run as long as the building that they stay in is operable, ignoring any steps that can be taken to protect the building.

Furthermore, between privately own and publicly traded firms, publicly traded firms are able to include more aspect when planning for natural disasters preparedness as compared to privately own firms due to fewer resources available for privately own firms (Gallo & Christensen, 2011).

Another finding indicates that family-owned business or firms are more careful and tends not to take risks. (Memili, Chrisman & Chua, 2011) said that family firms have high level of ownership and the owners tend to be risk adverse. It is

also stated that family-owned business are also stingy. This is due to the usage of the family fund that is belonged to the family themselves and these funds are often not spread among a numbers of shareholders. Hence, this will restrict their latitude of activities, causing them not to embark on high risk business (Memili, Chrisman & Chua, 2011)

H_0: Types of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster.

H_1: Types of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.

2.1.4 Risk Perception of Firm

According to Short (1984), risk can be refers as the possibility of some future negative event that may happens. The early analysis was done by engineers, economists, mathematicians, and scientist by using quantitative analysis of accessible data and hypothetical models if data were absent, to determine how much risk may coming and how those risks were best managed.

According to Bourque, Regan, Kelley, Wood, Kano, Mileti (2012), although risk perception is not an adequate predictor that influence preparedness, but it does significantly affect the preparedness in some way.

Based on a long and multiple research history of other people on risk perception, risk perception has been use as dependent variable, independent variable, or moderating variable to forecast a series of behavior like action response to risks or prepare for future disasters.

Besides, risk perception also has been used to examine its affection to actual behaviors and intentions to alter the behavior toward risks that may happen. (Bourque, et al, 2012).

Alfred (2010) had pointed out that risk perception serves as a moderating variable that affect the preparedness and mitigation. Information received or information observed will increase or decrease the perception risk toward disaster that motivates preparedness and mitigation.

The perceived level of certainty surrounding predicted outcomes affecting the preparedness activity toward risk or the risk mitigation strategies. (Solvic, 1987). Besides, based on the finding of Solvic, Fischhoff, Lichtenstein (1987), they found that the adoption of action by individuals to avoid or decrease the risk increases when their perception of risk increases in a predominant finding.

By referring to the research of O'connor, Board, Fisher (1999), they verified that risk perception was an important factor that contributes an explanation to the variance of behavioral intentions related to climate change. It has the power to influence the changes in behaviors or action.

On the other hand, based on a finding of Setbon, Raude, Fischler, Flauhault (2005), it indicated that risk perception has a direct link relationship to risk reduction behaviors like actions response to risk or preparedness activities.

According to Martin, Martin, Kent (2009), they did a research on the relationship of perceived risk of homeowners to the risk reduction behaviors has demonstrated that when the risk perception increased, homeowners are more likely to implement risk reduction actions or activities to protect themselves and their property. The result is consistent with the finding's result of O' Connor et al. (1999).

Besides, based on the finding of Lin, Shaw, and Ho (2007), they found that the hazard mitigation activities (preparedness to reduce the risk of hazard) are linked with risk perception and other factors.

According to Donahue, Eckel, Wilson (2013), they indicated that if people can prepare better if their risk perceptions are correct. The preparedness level has a significant relationship with the degree of risk they perceived.

H_0: Risk perception of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster.

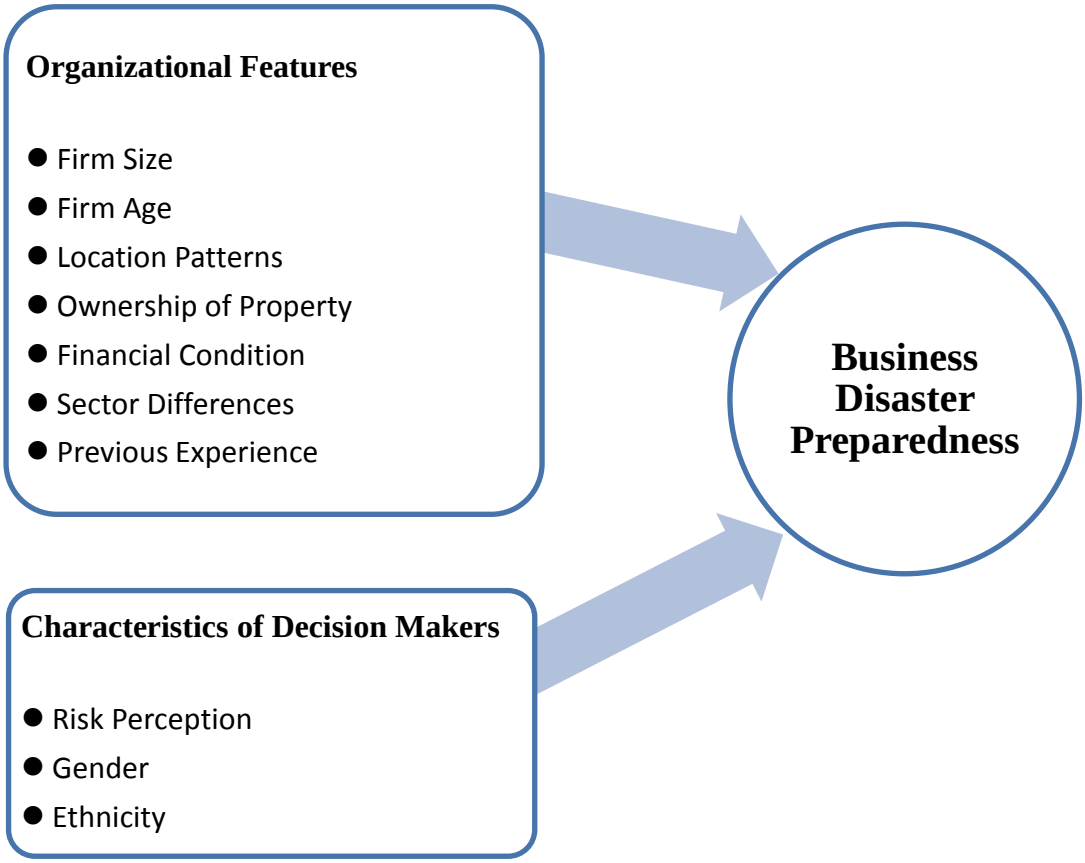
H_1: Risk perception of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.

2.2 Review of Theoretical Models

Han &Nigg (2011)

As we proceed through the literature review, the independent and dependent variables that was developed are based on studies done by Han &Nigg (2011). According to Han &Nigg (2011), there are two groups of independent variable which are organization features that may include firm size, age, locations pattern, ownership of property, financial condition, sector differences and previous experiences individual point of view that includes the most significant factor which is risk perception and little emphasis on gender and ethnicity.

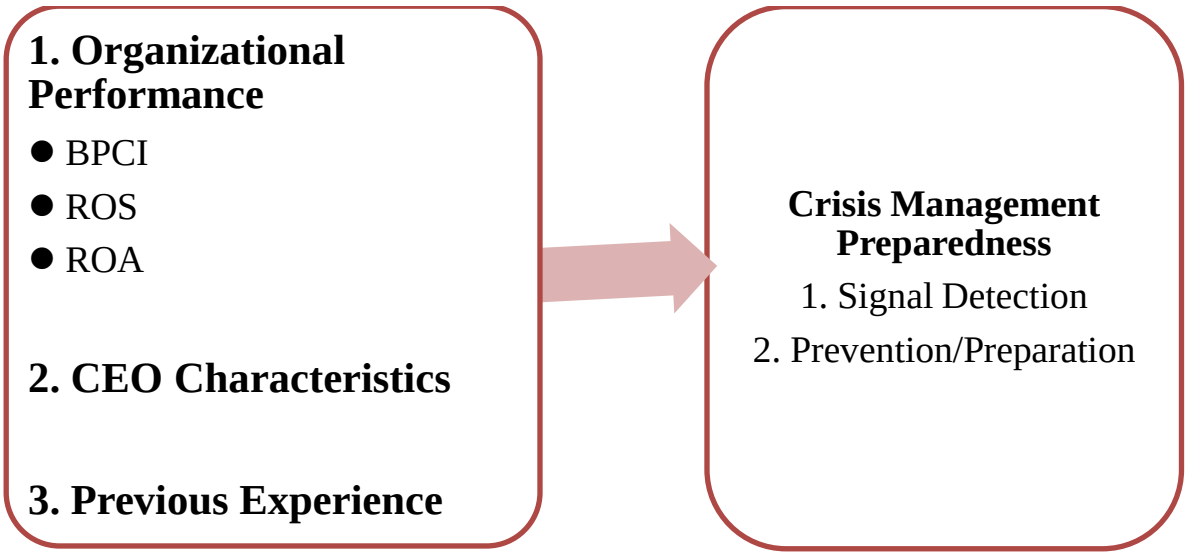
Figure 2.1: Theoretical Framework by Han and Nigg(2011)



Farooq, Sulaiman&Abideen (2014)

Another significant study that is highly related to our studies is from Farooq, Sulaiman&Abideen (2014). In this report, the context covers SMEs in Malaysia which provide insights for our research. In their study, the independent variables are organizational performance, CEO characteristics and previous experience which are similar to the studies done by previous authors mentioned above.

Figure 2.2: Theoretical Framework by Farooq, Sulaiman&Abideen (2014).

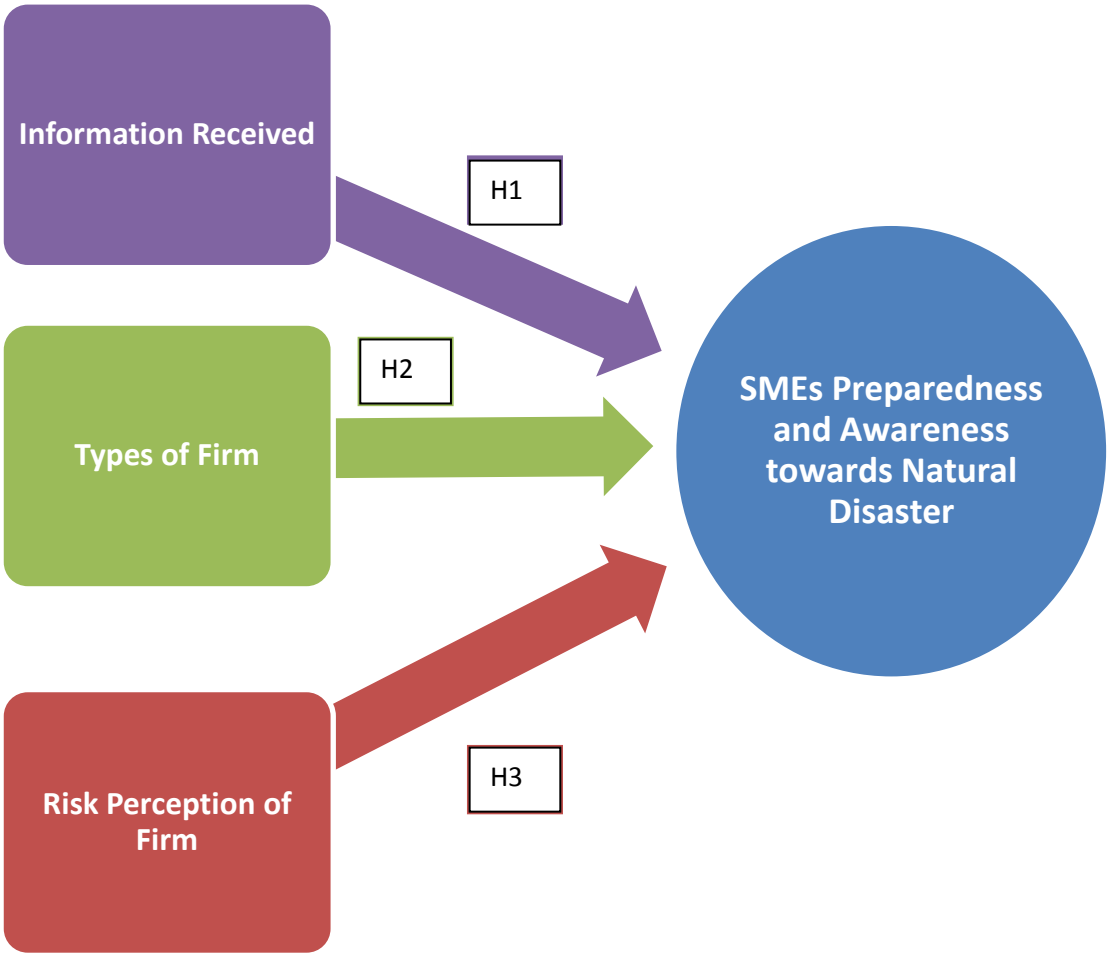


2.3 Proposed Conceptual Framework

Hence based on the studies mentioned above, we have concluded our conceptual framework.

Figure 2.3: Proposed Framework Model

Organizational Factors



2.4 Conclusion

In this chapter, we have discuss about the 3 major factor that are categorized as independent variables which are the **information received by firm, types of firm** and **risk perception** are conducted.

As discussed above, firm type encompasses in terms of profit and nonprofit type of organizations, property ownership, privately or publicly traded firms and family-owned businesses. As different type of firms have different type of resources base, this will affect the preparedness level taken by the firms. As for information received by firms, this section talks on the amount, type, frequency and even the medium used to transfer the information to the firms. These aspects on information received and the way the information is assessed by an individual is going to affect what action is to be taken in order to prepare for natural disaster. Moving on to the risk perception where this refers to the probability of undesirable occurrence that might happen in the future. Risk perceptions are often used as moderator to measure motivation or demotivation of preparedness level where it has effect on action to be taken.

In the next chapter of methodology, a few tests will be run in order to justify the hypothesis developed above.

CHAPTER 3

METHODOLOGY

3.0 Introduction

The research methodology is a systematic approach that is used for the collection and analysis of data. The research methodology is defined as a planned, scientific and value-neutral discussion within the body of a research project.

This chapter also provides a clear picture of the data collection method, sampling design, fieldwork, operational definitions of constructs, measurement scales and the data analysis that are used in this research project. The main research question to be focused on is:

3.1 Research Setting

According to Burns and Grove (2009) define, ‘’A research design as a blueprint for conducting a study with maximum control over factors that may interfere with validity of the findings.’’. Parahoo (2006) describes a research design as ‘’ A plan that describe how, when and where data are to be collected and analyzed. Quantitative research was used in this research for the purpose of identifying the variables that will affect the SME awareness and their ability to cope with natural disasters issues. According to Hair et al (2007), quantitative data is a measurement in which the characteristics of something are represented by numbers directly.

According to Hair et al (2007), descriptive research is used to obtain data that describe the characteristics of a population and to determine the reason that contribute to that particular characteristics or situation. In this study, descriptive design will also be conducted in order to describe the preparedness and awareness of small and medium businesses towards natural disaster risk such as flood, fire

and lightning strike and determine the degree to the independent variables (Information Received, Types of Firm and Risk Perception of Firm) are associated.

Descriptive research involves collection of data to test the hypothesis or to answer the questions concerning the subjects of the study. One of the best approach is to rely on the questionnaire that consists of specific questions that as the respondents to select them from a fixed number of choices. In order to examine the organizational factors that affecting the preparedness and awareness of SME towards natural disaster, a set of questionnaires have been distributed to all SMEs in Klang Valley area.

3.2 Sampling Design

According to Zikmund (2003), sampling is the process of using a small number of items or parts of a large population to make conclusion about the whole population. Sampling design is a design, or a working plan, that specifies the population frame, sample size, sample selection, and estimation method in detail. In this section, the researchers discuss about whom and how many respondents have been participated in the questionnaires.

3.2.1 Target Population

The target population is the combination of all elements which share the common set of characteristics. The Small and Medium Enterprises (SMEs) from all sectors are the target population for this research. Researchers would have the sample size about 210 respondents to involve in this survey.

3.2.2 Sampling Frame and Sampling Location

Sampling frame is the list of all the elements in the population from which the sample is drawn. Frame is needed so that everyone in the population is identified so they will have an equal opportunity for selection as a subject (element). Sampling location will be conducted at Klang Valley due to the availability of various sectors of SMEs.

3.2.3 Sampling Elements

Sampling elements is a single member or unit of target population about which information will be acquired. In this research, the researchers choose individual candidate as respondents to answer the questions. The respondents are owner, manager, business strategist or staff of the SMEs.

3.2.4 Sampling Technique

The two main methods used in survey research are probability sampling and non-probability sampling. In probability sampling, researchers used random selection of element. Then, a carefully selected sample will lead to the researcher to generalize from sample results to the population from which the sample is selected. Thus, a probability sampling method was chosen over non-probability sampling method because it is more accurate to remove conscious and unconscious sampling bias.

We used simple random sampling which is the basic sampling method. First, we make a numbered list of all the SMEs location that available in Klang Valley area and randomly choose some locations, and then 210 questionnaires were distributed to the chosen area SMEs. The researchers decide their sample size is 210 after the collection of questionnaires and combine all the responses from the samples. The researchers aim is that, if the sampling were to be repeated many times, the expected value of the results from the repeated samples would be the same as the result we would get if the researchers surveyed the whole population. The researchers using simple random sampling method because they know each sample probability getting can easily calculate sampling error for the results. The researchers can easily provide a measure of the quality of the sample design and survey results from the sampling error more accurately.

3.2.5 Sampling Size

A total of 210 questionnaires will be prepared and distributed to the SMEs in some selected locations in Klang Valley. Before the formal survey is conducted, an adequate pilot test of 30 questionnaires will be carried out. This is to identify potential problems with the methods, logistics, and the questionnaire which leads to the validity and accuracy of the questionnaires. After the collection of questionnaires, there were 20 incomplete questions which our sample size become 190.

3.3 Data Collection Method

In this research, data collection was done through both primary and secondary sources.

3.3.1 Primary Data Collection

Primary data are data gathered and assembled specifically for the project other than the one at hand. (Zikmund, 2003). These resources have not been previously published and it is generally fresh and collected for the first time. The primary basis of data collection used is the distribution of questionnaires survey method. 210 copies of questionnaires were issued and distributed and to be completed by the SMEs that we have chosen.

This data collection method was being chosen due to large amounts of information can be collected from a large number of people in a short period of time and in a relatively cost effective way. Researchers are also available to clarify and give explanation to respondents when they have any enquires. Besides, the use of fixed responses questions will reduce the variability in results which may cause differences among interviewers. When data has been quantified, it can be used to compare and contrast other research and may be used to measure change which is relatively eased to carry out.

3.3.2. Secondary Data Collection

Secondary sources are data gathered and recorded by someone else prior to and for a purpose other than the current project. It is either internet or external in term. In our research, primary data is collected through distribution of questionnaire while secondary resources such as journals are used to support the research study.

Secondary resources were obtained through the use of Internet Online Journals. Due to the ease of access and reliability, majority of the secondary data are from E-databases such as ProQuest provided by UTAR Library Services. Researcher manage to access to relative online journals and research articles to be used to support our research findings and reinforce our results. Other than that, researcher also used some search engine such as Google and Yahoo in the process of collecting information. All the secondary data will be used as a supporting material in this research study.

3.4 Research Instrument

We used self-administered method which is questionnaire and survey. We chosen this method as it relatively quickly to collect information and could cover large sample sizes and large geographic areas. Moreover, questionnaires reduce bias because of the uniform question presentation and the results are easy to analyze.
The questionnaire is designed in English and Malay, both languages and it consists of a cover page and 4 sections.

Cover Page

This includes the researchers' background and research objectives are written clearly on the cover page. It is also stated that the information provided by the respondents will also be kept confidentially. Hence, without the exposure of the respondent's identity they could provide the most accurate and related information that might help in our research.

Section A : Natural Disasters Information

Section A consists of questions related to the factor that affecting the preparedness and awareness of SMEs towards natural disasters which include variable such as information received. Question that to understand the previous experience of the firm also used in descriptive analysis.

Section B : Firm Preparedness Activities from Natural Disasters

This section focuses on the firm's preparedness for disaster events. It includes independent variable and dependent variable. The independent variable is the risk perception of firm while the dependent variable is the preparedness and awareness of SME towards natural disaster. The independent variable is required to be answered in interval scale questions which is in have done, plan to do, not done and unable to do.

Section C : Natural Hazard Risk Reduction

This section obtains information such as the risk reduction activities that the firms take to protect their businesses. It also includes question for variable such as risk perception of the firm.

Section D : General Information

In section D, respondents are required to answer questions such as role in the business, the period of business operating, ownership type and category/sector of the business.

3.5 Constructs Measurement

3.5.1 Interval Scale

Researchers use interval scale to measure how the variables affect the preparedness and awareness of the SMEs towards natural disaster. It is also known as the metric scale which can be used in Pearson's Correlation Coefficient analysis and Multiple Linear Regression analysis. An interval scale differences between points on the scale can be interpreted and compare meaningfully.

For example in Section A: Natural Disasters Information. Likert scale method show how the respondent concern about the statement. Five options are provided for the respondents to select from Extremely Concerned, Very Concerned, Concerned, Somewhat Concerned and Not Concerned.

Table 3.1 : Example of Likert Scale

Measurement	Numerical
Not Concerned	1
Somewhat Concerned	2
Concerned	3
Very Concerned	4
Extremely Concerned	5

3.5.2 Nominal Scale

According to Zikmund (2013), nominal scale is the simplest form of scale in which the numbers or letters associated to object serve as the labels for identification or classification. It is used for labeling variables, without any quantitative value which is also called the non-metric scale.

Table 3.2: Example of Nominal Scale

Ownership type: o Sole Trader o Family Business o Board of Owners o Part of a Franchise o Enterprise Group o Others

3.5.3 Ordinal Scale

Ordinal scale is a scale that only arranges objects or alternatives according to their magnitudes. (Zikmund, 2013) . Ordinal Scale is used to measure the business Annual Average Sale and the business operating period.

Table 3.3: Example of Ordinal Scale

What is the business' average annual sale (RM)? o Less than RM300,000 o RM300,000 – RM2,999,999 o RM3,000,000- RM19,999,999

3.6 Data Processing

Researchers then randomly distributed the 30 copies of questionnaires to the SMEs as pilot test. The results of the pilot test allowed researchers to proceed to distribute the following 210 questionnaires to other SMEs. All of the questionnaires were collected back and the valid questionnaires were 190. The rest of 20 was marked invalid due to incomplete information from respondents or respondents provide contradict answer such as select over one selection in some questions.

Finally, researchers used the SPSS20 for data processing. Researchers downloaded the SPSS 20 software from IBM official website and follow the instruction of the used of SPSS 20.

3.7 Data Analysis

Statistical Package for the Social Science (SPSS) is a comprehensive and flexible statistical analysis and data management solution which can be used to generate tabulated reports, plots of distributions, descriptive statistics and conduct complex statistical analyses. The results of all tests will be used to support the hypotheses of the research. In addition, SPSS 20 helps to save time for working out scores, calculations in data, and avoid in making inevitable errors that will occurs during the processes.

3.7.1 Reliability Analysis

According to International Business Machine (IBM) Knowledge Centre, reliability analysis refers to the calculation of commonly used measures of scale reliability.

The reliability analysis provides the overview frequency and percentage of different group of data to judge reliable of those data.

Besides, information such as the relationship between individual items in the scale can also be determined. Thus, the researchers can determine the correlation of the items in the questionnaires.

Cronbach's Alpha is used in the reliability test by averaging the coefficient that results from all possible combination of split halves. The reliability measures the coefficient ranging in size from 0.00 (no consistency) to 1.00 (perfect consistency). The greater the alpha coefficient, the greater the internal consistency among the items. According to Sekaran (2003), Cronbach'sAlpha value must be greater than 0.5.

3.7.2 Pilot Test

Pilot test is a way of collecting data from ultimate subjects of the research project to serve as a guide for the large study (Zikmund, 2013). Pilot test need to be done to complete the reliability analysis. Pilot testing involves the use of a small number of respondents to test the appropriateness of the questions and their comprehension. It is essential to pilot test the questionnaire in prior to ensure that the questions are understood by the respondents and there are no problems with the wording or measurement. Besides, it is to ensure that the questionnaire meet the research objective and helps to clarify the validity and reliability of the questionnaires. Table 3.4 shows the pilot test reliability test results based on the feedback received.

Table 3.4: Reliability Test on Pilot Test

Variables	Cronbach's Alpha	Number of items
Information Received	0.853	23
Types of Firm	0.606	5
Risk perception of Firm	0.752	12
Preparedness and Awareness of SME	0.849	37

** Data generated by SPSS 20*

Based on the Table 3.4 above, researcher had distributed 30 sets of survey to examine the reliability of the variables. As result, the reliability is acceptable as the entire variables have a minimum Cronbach's Alpha of 0.606. According to Sekaran (2003), the variable is considered valid and reliable if the Cronbach's Alpha value more than 0.5. Besides, according to Babbie (1992), the Cronbach's Alpha is classified into a few categories. 0.90-1.00 is excellent, 0.70-0.89 is good, 0.30-0.69 is average, and 0.00-0.29 is poor result. Since the results of the pilot test are all above average, therefore researchers decided to continue to distribute the survey to other potential respondents for further study.

3.7.3 Frequency Statistics

Frequency analysis aims to transform data into an easier way for the researchers to understand the order, interpret, and control data to provide descriptive information. Moreover, frequency analysis is used to calculate frequency distributions and averages. For example, pie chart and bar chart are used to show the analysis outcome in percentage in the findings.

In statistics, frequency refers to the number of times occurs in a particular variable's category while frequency statistics are the frequencies list for each variables category. Frequency distribution is commonly used to categorize information so that it can be interpreted quickly in a visual way. For example, it helps researchers to organize and summarize the survey data in a tabular format, interpret the data, and detect outliers (extreme values) in the survey data set.

By understanding how the data distributed across the categories of each variable, frequency statistics helps researcher to select the appropriate analyses as well as to interpret the selected analyses.

3.7.4 Pearson Correlation

Pearson correlation was also used to measure the linear association between awareness and ability of SMEs to cope with natural disaster issues and its relationship with organizational factors. The relationship strength between them can be used to understand the vulnerability of small business to natural disaster risk which helps them to improve their coping measures.

Based on the rule of thumb, the value of coefficient beta is formed in few categories to determine the strength of relationship. This table is used as a guideline to understand the relationship between dependent variable and independent variables.

Table 3.5: Determinant of Pearson Correlation Coefficient

Value of the Correlation of Coefficient	Strength of the Correlation
1	Perfect
0.8-0.99	Very Strong
0.5-0.79	Strong
0.3-0.49	Moderate
0.1-0.29	Weak
0-0.99	Zero/No relationship

3.7.5 Multiple Linear Regressions

Multiple regression analysis is a powerful technique used for predicting the unknown value of a variable from the known value of two or more variables. With multiple regression analysis, we enter several independent variables into the same type of regression equation and predict a single dependent variable. This analysis is used to analyze the variable of the awareness and ability of SMEs to cope with natural disaster issues due to the variables might contribute toward the SMEs coping measures. Hence, linear regression enables us to evaluate the relative influence of several independent variables on the dependent variable.

The example of how multiple regression analysis equation as below:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3$$

a (Alpha) is the regression constant
X is the independent variable
b (Beta Coefficient) is the coefficient or multipliers that describe the size of the influence of the independent variable towards dependent variable.

CHAPTER 4

RESEARCH RESULT

4.0 Introduction

In this chapter, researchers combined and summarized the results gathered from the SPSS version 20.0. The results of analysis will be reviewed and presented with the relevant explanation and interpretation.

Several types of statistical tools have been used as follow; (1) Reliability Testing (which is used under Chapter 3 pilot testing), (2) Frequency Testing, (3) Pearson Correlation Analysis, and (4) Multiple Regression. Furthermore, the research questions and hypotheses are being revised. An in-depth analysis will be conducted throughout the examination of the data. The overall report analysis will be presented in the "Discussion" section in Chapter 5.

4.1 Reliability Test

In this research, researchers had distributed 210 questionnaires to potential respondents to answer. Total targeted sample size is 200 while only 190 sets of questionnaires were received back due to some limitations which are stated in chapter 5.

Table 4.1 Reliability Test on Actual Survey

Variables	Cronbach's Alpha	Number of items
Information received	0.812	23
Type of firms	0.636	5
Risk perception	0.876	12
Preparedness of SME towards natural disasters	0.728	37

Note. Data generated by SPSS version 20.0

From the table 4.1, the Cronbach's Alpha value for the risk perception is considered as good result which has a value of 0.876. Because according to the Babbie (1992), the Cronbach's Alpha is used to determine the reliability of the result. When the reliability index is 0.90-1.00, the result is excellent as the reliability is high. 0.70-0.89 is good, 0.30-0.69 is moderate, and 0.00-0.30 is poor result. Therefore, the results for information received, risk perception, and preparedness of SME towards natural disasters are good because they are all above 0.70 while the result for type of firms is moderately reliable as it has a value of only 0.636. According to Sekaran (2003), the value of the Cronbach's Alpha must exceed 0.5 so that it can only be considered as reliable. Therefore, it

can be concluded that the result of Cronbach's Alpha for all the variables are acceptable.

Table 4.2: Reliability Statistic

Cronbach's Alpha	Cronbach's Alpha based on Standardized Items	N of items
0.856	0.877	77

Note. Data generated by SPSS version 20.0

Besides, based on the table 4.2, the overall Cronbach's Alpha showed the value of 0.877 which is defined as good and reliable result by following the study of George and Mallery (2003). The overall Conbrach's Alpha must exceed 0.70 based on the rule of thumb. Although the types of firm variable has a lower Cronbach's Alpha value of 0.636, but since the overall Cronbach's Alpha is showing a good result, therefore the types of firm variable will be maintained as it would not influence the result of other variables.

4.2 Descriptive Analysis

4.2.1 Response Rate

To complete this research, there were 210 sets of questionnaires sent out to different types of small and medium enterprise in various sectors around Klang Valley areas. These questionnaires were distributed by implementing door-to-door distribution. Among the 210 sets of questionnaires, 190 sets were returned as valid showing the high effectiveness of door-to-door distribution method with a success rate of 90%. In the end, a total number of 190 sets of questionnaires were collected to conduct the research.

4.2.2 Role In Business

Figure 4.1: Role In Business

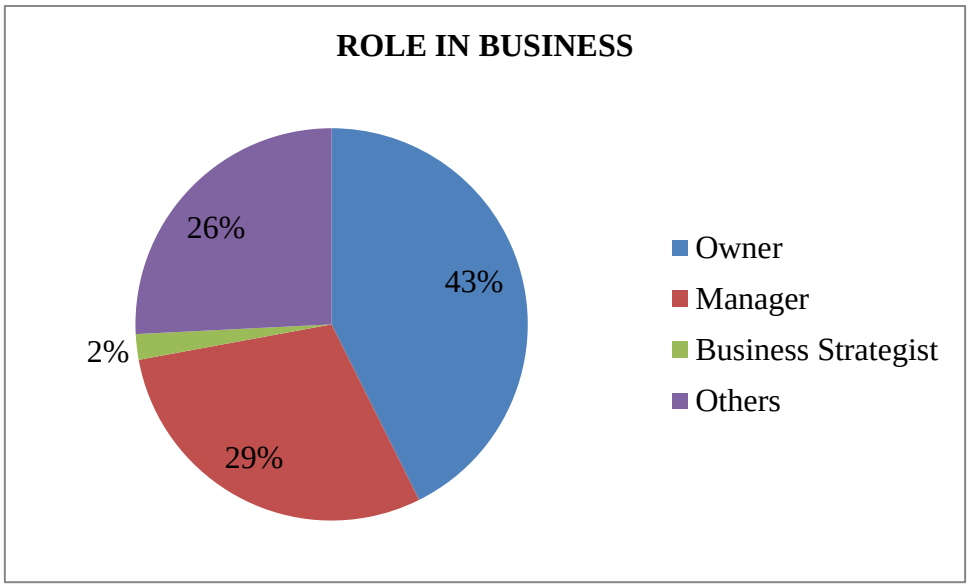


Table 4.3: Role In Business

	Frequency	Percent	Valid Percent	Cumulative Percent
Owner	81	43	43	43
Manager	56	29	29	72
Business Strategist	4	2	2	74
Others	49	26	26	100
Total	190	100	100	

Figure 4.1 indicates the role in business. Research shows that most of the respondents are owner of the business which consisted 43% of the total respondents with the head count of 81 persons. The least number of respondents came from business strategist which is only 2 percent of the total respondents with the head count of 4 persons. Manager is the second most frequent respondents

consisted of 29% with 56 persons followed by others which are 26% with 49 persons. The category of others includes staffs, technicians and other positions.

4.2.3 Business Operation Duration

Figure 4.2: Business Operation Duration

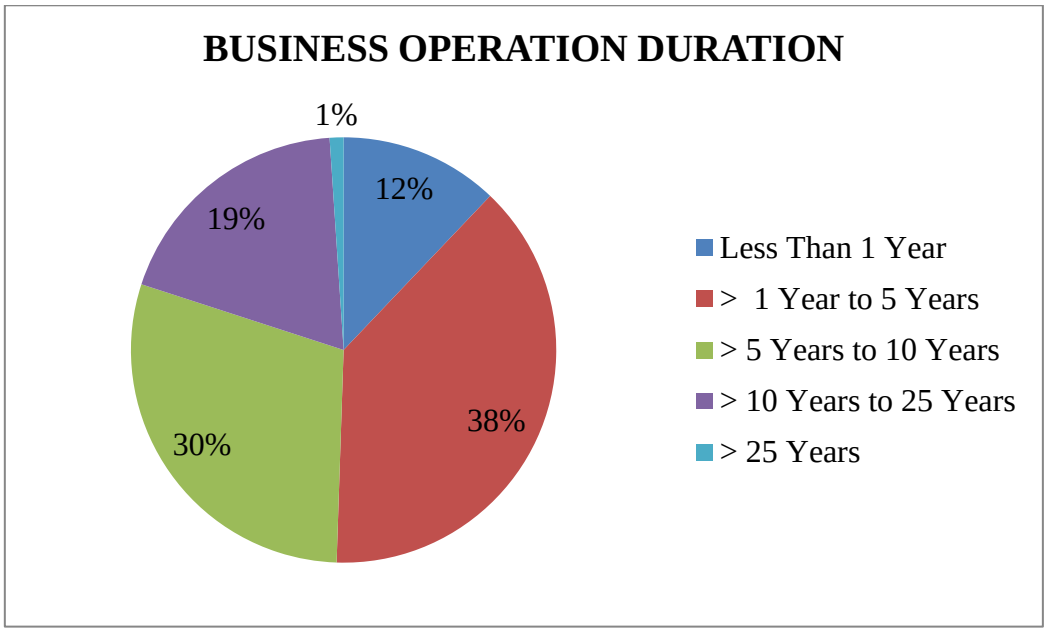


Table 4.4: Business Operation Duration

	Frequency	Percent	Valid Percent	Cumulative Percent
Less Than 1 Year	23	12	12	12
> 1 Year to 5 Years	73	38	38	50
> 5 Years to 10 Years	56	30	30	80
> 10 Years to 25 Years	36	19	19	99
> 25 Years	2	1	1	100
Total	190	100	100	

Figure 4.2 indicates that how long has the business been operating. Based on the figure, most of the organizations have operated one to five years which is 73 organizations (38%) whereas the least number of organizations have operated more than 25 years which is only 2 organizations (1%). 56 organizations (30%) have operated five to ten years and 36 organizations (19%) have operated ten to twenty five years followed by 23 organizations (12%) which have operated for less than one year.

4.2.4 Business Sector

Figure 4.3: Business Sector

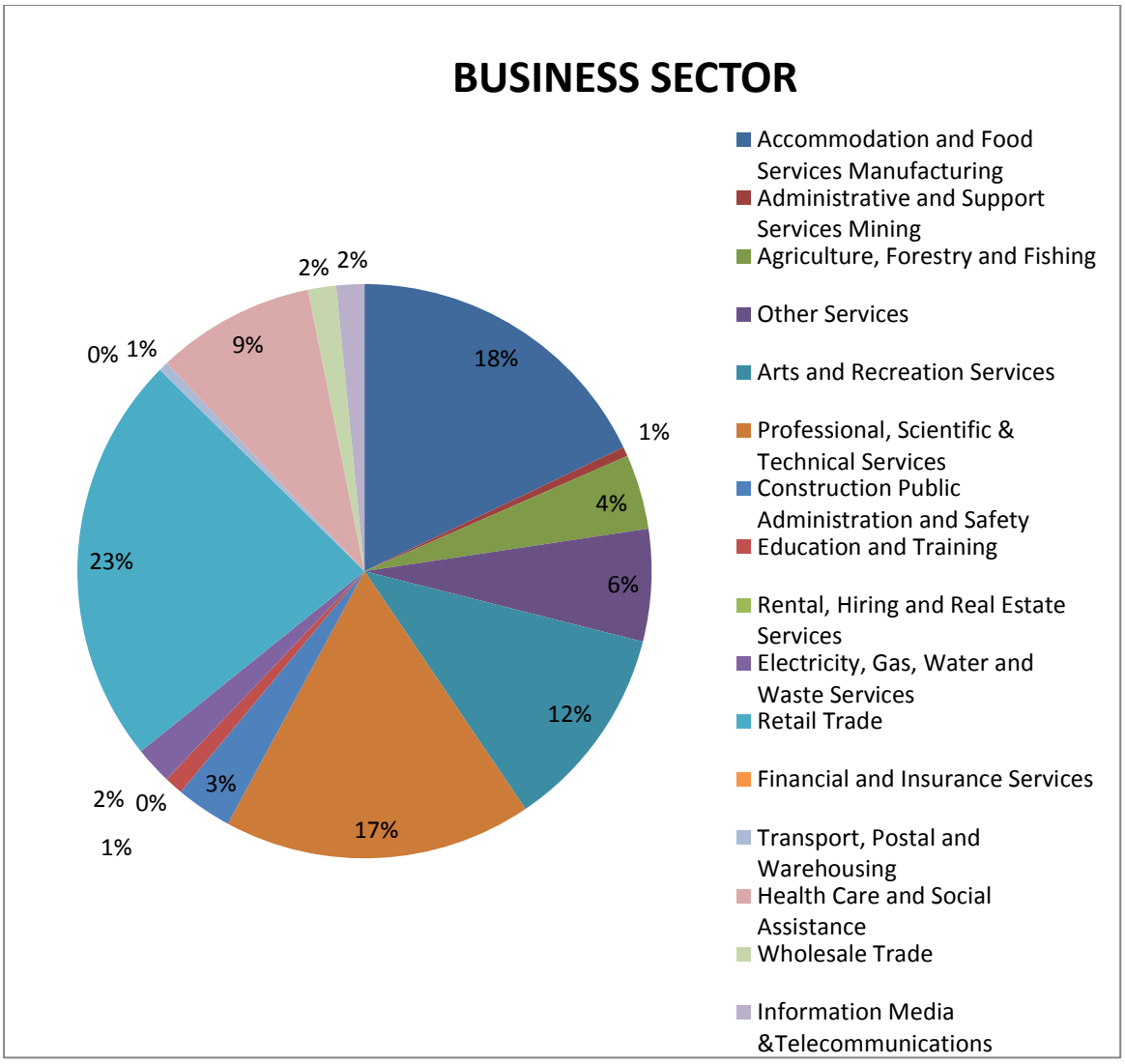


Table 4.5: Business Sector

	Frequency	Percent	Valid Percent	Cumulative Percent
Accommodation and Food Services Manufacturing	34	18	18	18
Administrative and Support Services Mining	1	1	1	19
Agriculture, Forestry and Fishing	8	4	4	23
Other Services	12	6	6	29
Arts and Recreation Services	22	12	12	41
Professional, Scientific & Technical Services	33	17	17	58
Construction Public Administration and Safety	6	3	3	61
Education and Training	2	1	1	62
Rental, Hiring and Real Estate Services	0	0	0	62
Electricity, Gas, Water and Waste Services	4	2	2	64
Retail Trade	44	23	23	87
Financial and Insurance Services	0	0	0	87
Transport, Postal and Warehousing	1	1	1	88
Health Care and Social Assistance	17	9	9	97
Wholesale Trade	3	2	2	99
Information Media &Telecommunications	3	1	1	100
Total	190	100	100	

Figure 4.3 shows the sectors that the targeted organizations involved in. Retail trade is the sector that targeted organizations mostly involved in, showing the result of 44 organizations (23%). The least sector involved is administrative and support services mining sector and the transport, postal and warehousing sector which result shows that there is only 1 organization (1%) from each of the sector.

There are 34 organizations (18%) involved in accommodation and food services manufacturing sector followed by 33 organizations (17%) involved in professional, scientific and technical services sector. 22 organizations (12%) involved in arts and recreation services, 17 (9%) of them involved in health care and social assistance sector and 12 (6%) involved in other type of sector. Agriculture, forestry and fishing sector consists of 8 organizations (4%), construction public administration and safety sector consists of 6 organizations (3%), electricity, gas, water and waste services sector gave the result of 4 organizations (2%) involving and information media and telecommunications involved by 3 organizations (1%). There are no targeted organization involved in the rental, hiring and real estate services sector and the financial and insurance services sector.

4.2.5 Natural Disaster Experience

Figure 4.4: Natural Disasters Experience

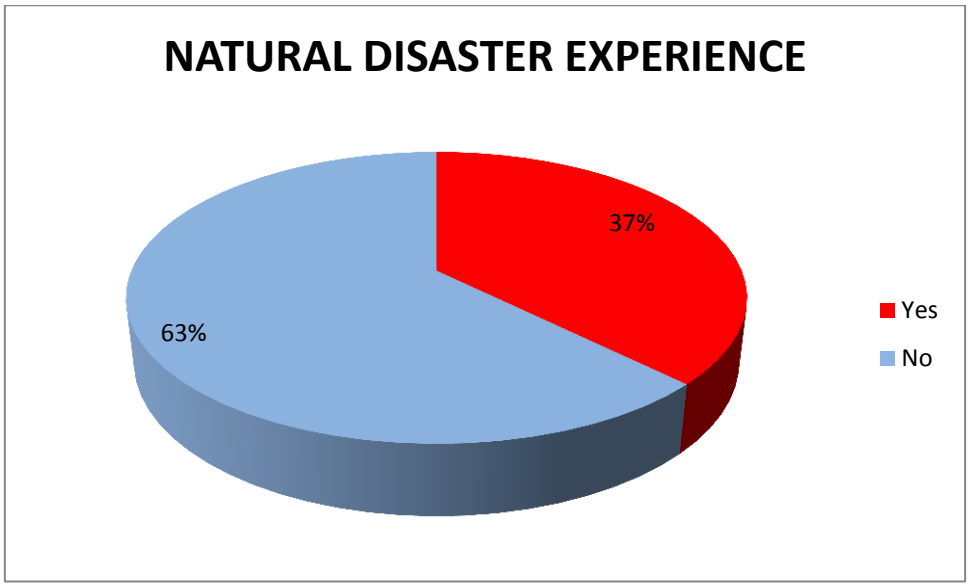


Table 4.6: Natural Disasters Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	71	37	37	37
No	119	63	63	100
Total	190	100	100	

Figure 4.4 indicates whether the targeted organization did experience natural disasters during the operation of their business. Result shows that most of them, 119 respondents (63%) did not experience any natural disasters before whereas the remaining 71 (37%) of them did experience before.

4.3 Pearson Correlation Analysis

4.3.1 Hypothesis 1

H_0: Information received has no significant relationship with preparedness and awareness of SME towards natural disaster.

H_1: Information received has significant relationship with the preparedness and awareness of SME towards natural disaster.

Table 4.7: Result of Pearson Correlation of First Variable

		Preparedness	Information received
Preparedness	Pearson Correlation	1.000	.189
	Sig. (2-tailed)		.004
	N	190	190
Information received	Pearson Correlation	.189	1
	Sig. (2-tailed)	.004	
	N	190	190

To test hypothesis 1, the information received variable is tested against the dependent variable which is the SME preparedness and awareness toward natural disasters based on 190 completed survey's result.

The result indicates that the correlation of information received and SMEs preparedness and awareness toward natural disasters is significant at 0.004 alpha levels. This means that there is a significant impact of information received towards the dependent variable.

According to the Pearson Correlation result, it shows a result of 0.189 of correlation sign. It is meaning that the information received is weakly affect the

SME preparedness and awareness toward natural disasters. Therefore, H_1 is supported; Information received has significant relationship with the preparedness and awareness of SME towards natural disaster.

4.3.2 Hypothesis 2

H_0: Types of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster.

H_1: Types of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.

Table 4.8: Result of Pearson Correlation of Second Variable

		Preparedness	Information received
Preparedness	Pearson Correlation	1.000	.085
	Sig. (2-tailed)		.122
	N	190	190
Information received	Pearson Correlation	.085	1
	Sig. (2-tailed)	.122	
	N	190	190

For the hypothesis 2, same test is used to test the relationship between types of firm and preparedness and awareness for natural disasters based on 190 respondents' result on the survey.

From the table, it indicates a non-significant 0.122 p-value from the Pearson Correlation analysis. Since the p-value is more than 0.05, therefore there is no significant relationship between the types of firms and preparedness and awareness for natural disasters.

Besides, the test shows a result of 0.085 of correlation sign on the Pearson Correlation test. The impact is too small or it can be indicated as there is no significant relationship between the types of firm and the SMEs preparedness and awareness for natural disasters. Therefore, null hypothesis is supported and alternative hypothesis is rejected; Types of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster.

4.3.3 Hypothesis 3

H_0: Risk perception of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster.

H_1: Risk perception of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.

Table 4.9: Result of Pearson Correlation of Third Variable

		Preparedness	Risk Perception
Preparedness	Pearson Correlation	1.000	.379
	Sig. (2-tailed)		.000
	N	190	190
Risk Perception	Pearson Correlation	.379	1
	Sig. (2-tailed)	.000	
	N	190	190

Same with the previous hypothesis, the hypothesis 3 is tested by using the Pearson Correlation analysis to find out whether there is a relationship between risk perception and SMEs preparedness and awareness toward natural disasters.

The result indicates that the correlation of risk perception and SMEs preparedness and awareness toward natural disasters is significant at 0.000 alpha levels. This

means that risk perception has significant impact toward the SMEs preparedness and awareness toward natural disasters.

According to the Pearson Correlation result, it also shows a result of 0.379 of correlation sign. It means that the risk perception is moderately affected the SMEs preparedness and awareness toward natural disasters. Therefore, $H_1$is supported; Risk perception of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.

4.4 Multiple Regression Analysis

Under this section, researchers used Multiple Regression Analysis to test the relationship of independent variables such as 'information received', 'types of firms', and 'risk perception' toward the dependent variable which is 'SMEs preparedness and awareness toward natural disasters'. A linear equation had formed between dependent variable and the independent variables.

Figure 4.5: Variables Entered/Removed[a]

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	**Risk Perception, Types Of Firm, Information Received[b]**	.	**Enter**

a. Dependent Variable: Preparedness

b. All requested variables entered.

Figure 4.6: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	**.400**[a]	**.160**	**.147**	**5.38143**

a. Predictors: (Constant), Risk Perception, Types Of Firm, Information Received

In the model summary, it showed an Adjusted R Square value of 0.147 which is meaning that 14.7% of the SMEs preparedness and awareness toward natural disasters could be explained by the independent variables; Information received, type of firms, and risk perception. However, the remaining 85.3% cannot be explained by these independent variables.

Figure:4.7 Anova

Anova Table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	**1026.789**	**3**	**342.263**	**11.819**	**.000[b]**
	Residual	**5386.521**	**186**	**28.960**		
	Total	**6413.311**	**189**			

a. Dependent Variable: Preparedness

b. Predictors: (Constant), Risk Perception, Types Of Firm, Information Received

From the Anova table, it showed a p-value of 0.000 which is less than 0.05 alpha level; This means that the independent variables do influence the SMEs preparedness and awareness toward natural disasters. Therefore researchers have rejected the null hypothesis and support the alternative hypothesis.

Figure 4.8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	**50.833**	**4.116**		**12.351**	**.000**
	Information Received	**.141**	**.095**	**.105**	**1.492**	**.000**
	Types Of Firm	**.235**	**.176**	**.090**	**1.332**	**.185**
	Risk Perception	**.229**	**.046**	**.349**	**4.999**	**.000**

From the coefficient table result, it indicated that risk perception is the most important factor that determines the SMEs preparedness and awareness toward natural disasters. It has a moderate influence to the dependent variable as the beta value is 0.349. The second important factor that contributes to the SMEs preparedness and awareness toward natural disasters is information received

which has a beta value of 0.105. The least important factor that affects the SMEs preparedness toward natural disasters is the types of firm. This factor has a beta value of 0.090 which is the lowest among all the three factors.

To better understand the multiple regression result, an equation can be formed by using the beta value in the unstandardized coefficients which are provided in the coefficient table.

This can be determined by using the equation below:

$$Y = A + B1X1 + B2X2 + B3X3$$

Whereas:

Y = SMEs preparedness toward natural disasterss

A = a constant, the value of Y when all X values are zero

X1 = Dimension of SMEs preparedness toward natural disasterss

B1 = Information received

B2 = Type of firms

B3 = Risk perception

Thus, the multiple regression equation is:

$$Y = 50.833 + 0.141X1 + 0.235X2 + 0.229X3$$

4.5 Conclusion

In conclusion, researchers concluded that Hypothesis 1 and Hypothesis 3 have a significant relationship with SMEs preparedness and awareness toward natural disasters based on the result generated from SPSS 20.0. The results have shown that risk perception is the most significant compare to the other variables. A further discussion will be covered in the next chapter.

CHAPTER 5

DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

In this chapter, researchers provided a summary of the statistical analysis, summary of scale measurement, and summary of inferential analysis which was carried out in chapter 4. Besides, this chapter also covered the discussions of the major findings, implication and limitation of the study, recommendation for future research, and a conclusion for the research.

5.1 Summary of Statistical Analysis

5.1.1 Descriptive Analysis

During this research, a total number of 210 sets of questionnaires were randomly sent out to SMEs in different sectors around Kuala Lumpur and Selangor area. However, a total number of 190 sets were received in complete information which are valid to be used in our research. This showed a healthy outcome as the success rate in questionnaire returning was 90% which is considered as a very high success rate in distributing questionnaire.

Among the 190 sets of valid questionnaire, most of the respondents are the owner of the firm, which is 81 respondents, followed by manager, 56 respondents and other role for example staff, which is 49 respondents. Only 4 respondents are business strategist. Based on the study of professor of strategy at the University of Technology, Sydney, Professor Timothy Devinney (2013), stated that the higher level of position of an individual in a firm tends to be more concern and understand about the firm where lower position level will not so concern about the

firm because they only have to understand and concern about their task matter. Therefore, most of the respondents are owners and managers of the firm followed by lower level staffs.

In terms of business operation duration, a study of SME's life cycle by Noel Jones (2012) stated that the average lifespan of many SMEs is only five years. Therefore, based on our collected questionnaire results, most of the firms had operated their business in the range of 1 to 5 years which have a total count of 73 firms. According to the same study which done by Noel Jones, it showed that the main reasons for a SME to close down in the first five years are poor management and insufficient of funds. It seems like many SMEs will be facing this crisis at the first five years but there are also SMEs which operated more than five years. Based on our result collected, there were 56 firms which operated for 5 to 10 years, 36 firms which operated 10 to 25 years and only 2 firms had operated for more than 25 years. These firms might have a good business plan and healthy financial status in order to keep their firm running for more than 5 years. However, there are also 23 firms just started their business which only operated for less than 1 year.

During the distribution of questionnaire, a various types of business sectors were targeted and the result turned out that most of the firms is involved in retail trade (44 firms) followed by accommodation and food service manufacturing (34 firms), professional, scientific and technical services (33 firms), arts and recreation services (22 firms), health care and social assistance (17 firms), agricultural, forestry, and fishing (8 firms), administration and safety (6 firms), electricity, gas, water and waste service (4 firms), wholesale trade (3 firms), information media and telecommunications (3 firms), education and training (2 firms), administrative and support service mining (1 firm), and also transport, postal and warehousing (1 firm). Besides that, there were also 22 firms involved in other sectors which are not so popular in Malaysia. However, there are no firms involved in rental, hiring and real estate services sector and financial and insurance services sectors during the distribution of questionnaire. Since out of 190 valid samples, most number of respondents is involved in retail trade. Therefore, it can be said that retail trade is the most number of business sector involved in Malaysia.

Lastly, this research also study about natural disaster experience by a firm. Since Malaysia is a fortunate country which free from major natural disasters, the expected outcome of the result is the most number of firms did not experience natural disasters. The result shown from the collected questionnaire was same as what had expected. Most of the firms, with the total count of 119, took up 63% among the total samples did not experience any natural disasters before whereas 71 firms which is only 37% among the total samples did experienced minor natural disasters before such as drought, haze, flood and others.

5.1.2 Summary of Scale Measurement

5.1.2.1 Reliability Statistics

According to the result of reliability test in chapter 4, the result has shown that the overall Cronbach's Alpha value is 0.877 which is a very good and reliable result according to the study of **George and Mallery (2003)**. Besides, all the variables showed a reliable result as all the variables have a Cronbach's Alpha which is more than 0.6 and above. Information received has a value of 0.812 (good strength of reliability), typed of firms has a value of 0.636 (average strength of reliability), risk perception has a value of 0.876 (good strength of reliability), and preparedness of SMEs toward natural disaster has a value of 0.728 (good strength of reliability). Risk perception has the highest reliability compare to other variables.

5.1.2.2 Descriptive Analysis

In this research, among 190 sets of valid questionnaire, the role in business, business operation duration, business sector and natural disaster experience were chosen to conduct descriptive analysis.

1. In the role in business, 81 (43%) respondents are the owner of the business, 56 (29%) respondents are manager, 4 (2%) respondents are business strategist and 49 (26%) respondents are other position in the firm.

2. For business operation duration, 73 (38%) firms had operated for 1 to 5 years, 56 (30%) firms had operated for 5 to 10 years, 36 (19%) firms had operated for 10 to 25 years, 23 (12%) firms had operated for less than one year and only 2 (1%) firms had operated for more than 25 years.

3. In business sector, there are 34 (18%) firms involved in accommodation and food service manufacturing, 1 (1%) firm involved in administrative and support service mining, 8 (4%) firms involved in agriculture, forestry and fishing, 12 (6%) firms involved in other services, 22 (12%) firms involved in arts and recreation services, 33 (17%) firms involved in professional, scientific and technical services, 6 (3%) firms involved in construction public administration and safety, 2 (1%) firms involved in education and training, 4 (2%) firms involved in electricity, gas, water and waste services, 44 (23%) involved in retail trade, 1 (1%) involved in transport, postal and warehousing, 17 (9%) firms involved in health care and social assistance wholesale trade and 3 (1%) firms involved in information media and telecommunications. There are no firm from rental, hiring and real estate services sector and financial and insurance services sector responded to our questionnaire.

4. For natural disaster experience, majority of the respondents, which is 119 firms which took up 63% of the total respondents never experience natural disaster before whereas 71 firms which is only 37% of the total respondents did experienced natural disaster before.

5.1.3 Summary of Inferential Analysis

5.1.3.1 Pearson's Correlation Analysis

According to the result of Pearson's Correlation analysis conducted in chapter 4, the correlation between the information received and SMEs preparedness toward natural disasters is 0.189 with the p-value of 0.004 and the correlation between the

risk perception and SMEs preparedness toward natural disasters is 0.379 with the p-value of 0.000. However, type of firms is not significant because the p-value is 0.122 which is more than 0.05. Therefore, the result indicated that information received and risk perceptions have a positive significant relationship with the SMEs preparedness toward natural disaster. The result also indicated that there is a negative or negligible relationship between the type of firms and SMEs preparedness toward natural disasters.

5.1.3.2 Multiple Regression Analysis

According to the result of Multiple Regression analysis conducted in chapter 4, the result shown an Adjusted R Square value of 0.147 which means that 14.7% of the SMEs preparedness toward natural disasters could be explained by the independent variables; Information received, type of firms, and risk perception. Besides, the Anova table shown a large F-ratio of 11.819 with a significant p-value less than 0.05 which means that the alternative hypotheses are accepted and it is a good model to describe the relationship between the independent variables (information received, type of firms, and risk perception) and dependent variable (SMEs preparedness toward natural disasters). Therefore, it proved that the independent variables can significantly explaining the SMEs preparedness toward natural disasters.

The multiple regression equation is:

$$Y = 50.833 + 0.141X1 + 0.235X2 + 0.229X3$$

Whereas:

Y = SMEs preparedness toward natural disasters

A = a constant, the value of Y when all X values are zero

X1 = Dimension of SMEs preparedness toward natural disasters

B1 = Information received

B2 = Type of firms

B3 = Risk perception

5.2 Discussion of Major Findings

Table 5.1: Summary of the Result of Hypothesis Testing

Hypotheses	**Supported**	**Not Supported**
H_0: Information received has no significant relationship with preparedness and awareness of SME towards natural disaster. H_1: Information received has significant relationship with the preparedness and awareness of SME towards natural disaster.	$\beta = 0.189$ $p = 0.004 < 0.05$	
H_0: Types of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster. H_1: Types of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.		$\beta = 0.085$ $p = 0.122 > 0.05$
H_0: Risk perception of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster. H_1: Risk perception of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.	$\beta = 0.379$ $p = 0.000 < 0.05$	

5.2.1 Relationship between Information Received and Preparedness and Awareness of SME towards natural disaster

H_1: Information received has significant relationship with the preparedness and awareness of SME towards natural disaster.

Based on the results from Chapter 4, it is shown that information received by SMEs does influence their preparedness towards natural disaster with a weak correlation coefficient value of 0.189 and a significant p-value of 0.01 which is lower than alpha value of 0.05.

As mentioned above in Chapter 2, information received can come from various sources which may involve the danger of environmental and its likelihood to harm the society together with directions and suggestions to react to natural hazards (Burby, Steinberg, & Basolo, 2003; Mileti et al., 1992; Tanaka, 2005).

This hypothesis is supported by Bolger (2003) where precise and consistent information on how to reduce natural disaster risks will help firms to make effective disaster planning. Other than that, Hanh, Rall & Klinger (2003) also conduct a study that supports this hypothesis, where they reported that information obtained by firms which shows resemblance to past events is able to assist in making decisions with little cognitive efforts. In other words, information received will ease firms to make decisions in preparation of natural decisions.

However, to justify the weak correlation value for this variable, Basolo, et al (2009) said that if the information received by firms are prepared by government in terms of planning and preparing to brace natural disasters, firms might be less prepared and might not willing to take any precautions due to the view that the information provided by government are sufficient.

Also, based on Coyle & Meier (2009), Denning (2006) and Gunawardene & Noronha (2007), information received can affect firms' preparedness if the dissemination is done at the right time, form and through the proper medium.

Hence, there are possibilities that these criteria are not met and this will affect firms' preparedness towards natural disasters.

As a result, preparation of SMEs to face natural disasters is affected by the information received provided the information received is in proper amount, type, medium and form. This indicates that information received is a variable with a probability of affecting SMEs preparedness negatively, hence supporting the weak correlation value.

5.2.2 Relationship between Types of Firm and Preparedness and Awareness of SME towards natural disaster

H_0: Types of firm has no significant relationship with the preparedness and awareness of SME towards natural disaster.

From the result in Chapter 4, it is shown that the Pearson's Correlation analysis shown an insignificant relationship between information received and risk perceived towards SMEs preparedness towards natural disaster.

With the p-value of 0.122 which is more than 0.05, it is a non-significant relationship towards the SMEs preparedness. Besides, with the correlation coefficient value of 0.085, it is almost no relation at all with the SMEs preparedness towards natural disaster. Therefore, null hypothesis is supported where types of firm does not influence SMEs preparedness towards natural disaster.

In chapter 2, it is mentioned that types of firms encompass the categories of ownership, profit or nonprofit, privately own or publicly traded firms and family own firms. This research does not support the studies of Han & Nigg (2011). According to them, business owners that actually owns the business building would feel more unease towards the natural disasters' effects and have higher probability to take part in preparedness activities compared to those who do not own the business building (Han & Nigg, 2011).

Hence, studies of Burby, Steinberg & Basolo (2003) is also not supported in this research because they reported that business owners who rent the business

building tend not to take adequate safety measure to face natural hazards' risks (Burby, Steinberg & Basolo, 2003).

Other than that, the study of Memili, Chrisman & Chua (2011) is also not justified in this research where they narrates that family own business have higher level ownership, thus, leads to higher level of risk adverse.

To support the test results of this variable, Hanna & Welsh (2008) said that SME are small firms with limited resources that caused them to be exposed with threats regardless of types of firm they belonged to (Hanna & Welsh, 2008).

Furthermore, Chikoto, Sadiq & Fordyce (2012) also said that SME firms rely on their goods and services sales, revenue on tax and sometimes charity offerings as the main incentives to implement proper or sufficient precautions to face natural hazards (Chikoto, Sadiq & Fordyce, 2012). Their study shows that this variable does not influence the SMEs preparedness towards natural disasters, hence supporting the null hypothesis of this variable.

5.2.3 Relationship between Risk Perception of Firm and Preparedness and Awareness of SME towards natural disaster

H_1: Risk perception of firm has significant relationship with the preparedness and awareness of SME towards natural disaster.

From the results in previous chapter, the outcome had shown that there is a positive relationship between risk perception of firm and preparedness and awareness of SME towards natural disaster which carries a correlation coefficient value of 0.379 and the p-value is <0.01 which is significant at the alpha value of 0.05.

According to Levitan (2004), risk refers to potential harm. Risk perception refers to the belief that held by the firm about the chance of occurrence of a natural disaster risk or about the extent, magnitude and timing of its effects.

To justify the moderate correlation, Alfred (2010) supported that risk perception serves as a moderate variable that affect the preparedness and mitigation. He mentioned that by enforcing perception of being at risk and recommends actions are effective, in return, increases the pre-disaster levels preparedness and mitigation. In addition, Cliff, Morlock, Curtis (2009) also support that here is a positive association between risk perception and preparedness.

Besides, according to the findings from Setbon, Raude, Fischler, Flauhault (2005), it is found out that when people have more perceived risk, the more they change their behaviors or preparation which shows a positive relationship between the two variables. Other than that, Donahue, Eckel, Wilson (2013) also proven that preparedness level has a significant relationship with risk perception. For example, how likely they think it is that a major natural disaster will happen to their business and how much they have thought about the consequences of the natural disaster.

As the result has shown that risk perception of firm is positively associated with the preparedness and awareness of SME towards natural disaster. Firms are more likely to prepare better when they have risk perception towards natural disaster. In conclusion, risk perception of firm does influence the preparedness and awareness of SME towards natural disaster in a moderate way.

5.3 Implications of the Study

This research has the significant contribution to the policy makers, employers, employees and the SMEs fraternity. We found that information received and risk perception of firm can positively affect the preparedness and awareness towards natural disaster among the SMEs. However, risk perception has a greater influence on preparedness and awareness to cope with natural disaster issues.

As mentioned above, risk perception is the belief that held by the firm about the chance of occurrence of a natural disaster risk or about the extent, magnitude and timing of its effects. It measures aspects such as how likely the firms think about the natural disaster will happen, how worried they are and how well the firms think they could recover from the major natural disaster. Besides, it also gives the picture of how likely it is that SMEs will follow the instructions given by other institutions, government officials and their reliance on them after the disaster. This helps the policy makers to understand the factors that would accelerate the development of SMEs on this respect. In order to transform the risk perception to risk reduction behaviors, the discussion of the practical application and suggestion on initiatives and possible solutions that the SMEs can adopt are needed. For the SME's employers, it is crucial to cultivate a risk reduction program to reduce their vulnerability to natural disaster.

Nevertheless, information received consists of the depiction of natural disaster risk to the business, instructions and precautions to respond to natural disaster. Knowledge and information regarding natural disaster risk reduction on businesses should be given. According to Kuppuswamy (2014), information on how to prepare for natural disasters can be received through several different mediums. However, it is important for the authorities to understand that dissemination of risk reduction information should be done at the right time, form and medium to be effective.

Since the importance of SMEs on the Malaysia's economy increases progressively, we recommend that the government and the related authorities should play a role through reports, presentation and recommendations that provide the scientific

evidence on the benefits of making disaster risk reduction a priority to SMEs. Hence, approaches to strengthen disaster preparedness and awareness are essential as it is to ensure the SME's growth as well as to the macro environment.

5.4 Limitations of the Study

5.4.1 Limited Geographical Coverage

Our sample collecting area was limited to Kuala Lumpur and Selangor area, mostly in Kuala Lumpur. This make our result biased towards the organizational behaviour in Kuala Lumpur and Selangor area because organization in other states may have different behaviour for preparedness towards natural disasters as the geographical condition is different too.

5.4.2 Time Consuming While Collecting Sample

Due to our target respondents are SME, online distribution might not recommended because online surveys may not be entertained by our respondents. Therefore, the only way to distribute our survey is to use door-to-door distribution method. This is very time consuming as we have to travel to different places and explain each question one-by-one to them as most of the respondents are too busy to read the question by themselves. Moreover, as mentioned above, we are targeting SME, they are not concentrating in one area, therefore, we may only get one or two samples in one area. So, we have to travel many places in order to get sufficient samples which is very time consuming.

5.4.3 Insufficient Secondary Data

Besides than collecting primary data which comes from our survey, we also have to search for secondary data in order to strengthen our reliability of primary data. Our research focus on how organizational factors affect preparedness towards natural disasters and Malaysia is a country that free from most of the natural disasters. Therefore, there are very limited journals can be found regarding to the preparedness towards natural disasters in Malaysia even though we utilized the

use of internet. We have no choice but to choose some journals which are based on other country's information which might be less reliable as there will be difference as other country's condition compared to Malaysia. So, we found that there were insufficient secondary data such as journals and information to support our data collected.

5.4.4 Weak Reliability Test

This limitation occurs where the data we collected from our respondents were quite similar. This is because since Malaysia is free from most of the natural disasters, most of the respondents did not experienced a natural disaster before. Therefore, most of them provided us the same data and information. When comes to reliability test of the data, we have obtained weak reliability results due to the similarity of the data.

5.5 Recommendations for Future Research

5.5.1 Larger Geographical Coverage

The sampling area should not restricted only in Kuala Lumpur and Selangor area as this will not make the result general enough because different places might have different outcome of result. Therefore, we recommend that the sampling area should expand to other states as the geographical condition might be different in other states. For example, places in other state might experience certain natural disasters which will not happen in Kuala Lumpur and Selangor area. Therefore, by expanding the sampling area to other state, the outcome will be more generous and biasness of result might be avoided.

5.5.2 Increase Sampling Size

Out of 210 sets of questionnaires, we only manage to get back 190 sets which are valid to be use in our research. The 20 sets of questionnaires does not have complete date so those were eliminated from the research. Therefore, the total number of questionnaire collected might cause the result of the research less

convincing and reliable. So, we recommend that we should increase the sampling size so that we will have more accurate average data and prevent mistakes in data ratio.

5.5.3 Improve Questionnaire Distribution Method

Throughout the research, we used door-to-door distribution method to distribute our questionnaire to SMEs around Kuala Lumpur and Selangor area. We found that this method is every time consuming and tiring although it gave us higher success rate of getting back the questionnaires. Another limitation by using door-to-door distribution method is we might not distribute our questionnaires to other states due to transportation problem and time constraint causes our result to be biased towards Kuala Lumpur and Selangor area. Therefore, we recommend using other distribution method such as sending out online questionnaire or interview the firms through telephone. These methods might reduce the success rate of returning the questionnaires but we could distribute the questionnaires to many more firms around whole Malaysia by utilizing the use of technology.

5.5.4 Use Multiple Languages In Questionnaire

Our questionnaire was designed only in English, therefore it created lots of problem during the distribution of questionnaire when we met respondents who can't understand English. Besides that, it also cost lots of time for us to translate each question one by one to those respondents who don't understand English. Since Malaysia consists of different races such as Malay, Chinese and Indian, we suggest that multiple language like Bahasa Malaysia, Chinese and Hindu could be added in the questionnaire so that the respondents can understand more clearly about the questionnaire. Besides that, we also suggest that simpler words to be used when setting the questionnaire. This will allow respondents to be more understand about the questionnaire and easier for them to answer.

5.6 Conclusion

In conclusion, there are many SMEs in Malaysia still do not have a clear picture about how important is to prepare against natural disasters. They are still unaware of the impact of natural disaster. Although Malaysia is free from major natural disasters, there are also minor one such as drought, haze, flood, lightning and others which may affect the running of their business. Most of the unprepared SMEs faced a huge lost after an unexpected disaster strike and when things comes to worst, they are unable to recover their business ended up closing down their business.

However, there are still SMEs do aware about this problem. They will do some preparation plan in order to prevent natural disaster or reduce the damage to minimum after disaster strike. These firms are more likely to sustain their business as they did preparation against natural disaster.

There are three factors playing important role for SMEs to increase their awareness of preparedness towards natural disaster. The first is type of firm. A larger firm tends to be more considerate about the preparedness as larger firm they have to ensure that their firm could operate in longer time.

Secondly is information received. The more information receive by the firm will increase the awareness of the firm towards natural disasters. Most of the firm did not prepare not because they not willing to do so but they are lack of information about how to prepare and how serious could be the impact of natural disaster. This factor will be improve as in this era, information can be easily get from different channels such as internet, social media, television, radio, newspaper and more.

Lastly is risk perception of the firm. This plays a critical role as if the firm does not have any risk perception, surely there will be no action taken to prevent natural disaster. This factor is closely related to the information received by the

firm as if there are no information received by the firm, it will not change the perception of firm towards natural disaster.

In this era, due to the effect of pollution, climate of the world is changing. There are more unexpected natural disasters happen in the word. Therefore, preparedness towards natural disasters plays an important factor for a firm to sustain their business. Thus, firms are encouraged not to ignore this problem in order for them to sustain their business in long run.

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APPENDICES

APPENDIX A

UNIVERSITI TUNKU ABDUL RAHMAN (UTAR)
FACULTY OF ACCOUNTANCY AND MANAGEMENT
ACADEMIC YEAR 2014
YEAR 3 SEMESTER 3

Dear respondent,

We are undergraduate students pursuing Bachelor of International Business (Hons) in Faculty of Accountancy & Management at Universiti Tunku Abdul Rahman (UTAR). As a final project for our degree, we are require to conduct a research with the title of "***Organizational Factors That Affect The Preparedness And Awareness of SME Towards Natural Disaster***". Therefore, your participation in this survey is very appreciated for us to complete our research project.

The purpose of this survey is to study on how organizational factors such as information received by the firm, types of firm, and risk perception of the firm will affect the preparedness and awareness of SME towards natural disasters. There are four sections in this questionnaire. You are required to answer **ALL** the questions in each section. Completion of this form will take you approximately **10 to 15 minutes**. All information you provide will be kept as private and confidential and solely use for academic purpose.

Your effort on completing this survey will be sincerely appreciated by us to complete our research project. Thank You.

Research Team Members:

1	HEE GUO MING	10UKB03111	014-9341673
2	LEE ZHENG HORNG	10UKB05493	012-6736873
3	TAN KAR BIN	11UKB00572	012-6256330
4	TAN KHENG YANG	10UKB02736	018-2988795

Natural Disaster Preparedness & Awareness Questionnaire

SECTION A

NATURAL DISASTER INFORMATION

A1. In the past have you or someone in your business experienced a natural disaster such as drought, haze, tsunami, flood, landslide, wildfire, severe windstorm, lightning or other types of natural disaster?

❑ Yes ❑ No *(Please proceed to question A3)*

A2. Which of the following natural disaster events have you or someone in your business experienced? (Please tick √ all that apply)

❑ Drought
❑ Haze
❑ Tsunami
❑ Flood
❑ Landslide
❑ Wildfire
❑ Severe Wind Storm
❑ Lightning
❑ Others *(Please Specify)*:

_____

A3. How concerned are you personally about the following natural disasters affecting your business?

Natural Disaster	Extremely Concerned	Very Concerned	Concerned	Somewhat Concerned	Not Concerned
Drought	❑	❑	❑	❑	❑
Haze	❑	❑	❑	❑	❑
Tsunami	❑	❑	❑	❑	❑
Flood	❑	❑	❑	❑	❑
Landslide	❑	❑	❑	❑	❑
Wildfire	❑	❑	❑	❑	❑
Severe Wind Storm	❑	❑	❑	❑	❑
Lightning	❑	❑	❑	❑	❑
Others(Please Specify): _____	❑	❑	❑	❑	❑

A4. Have you ever received information about how to make your business safer from natural disasters?

❑ Yes ❑ No *(If No, please proceed to Question 7)*

A5. If Yes, how recently?

❑ Less than 1 year
❑ > 1 to 2 years
❑ > 2 to 5 years
❑ > 5 years

A6. From whom did you last receive information about how to make your business safer from natural disasters? (Please tick √. You may tick more than one)

❑ News Media

❑ Local Council (Majlis Perbandaran)
❑ Insurance Agent or Company
❑ Utility Company
❑ Fire & Rescue Department (Jabatan Bomba & Penyelamat)
❑ Non-profit Organization

❑ Others *(Please specify):*

_____

A7. Who would you most trust to provide you with information about how to make your business safer from natural disasters? (Please tick √ all that apply)

❑ News Media

❑ Local Council (Majlis Perbandaran)
❑ Insurance Agent or Company
❑ Utility Company
❑ Fire & Rescue Department (Jabatan Bomba & Penyelamat)
❑ Non-profit Organization

❑ Others *(Please specify)*:

_____

A8. What is the most effective way for you to receive information about how to make your business safer from natural disasters? (Please tick √ all that apply)

Other Methods:

❑ Schools
❑ Outdoor Advertisements (Billboards, etc.)
❑ Books
❑ Postal Mail
❑ Fire Department (Jabatan Bomba & Penyelamat)
❑ Internet
❑ Pamphlets/Brochure
❑ Chamber of Commerce
❑ Public workshop/meetings
❑ Magazines
❑ Academic Institutions
❑ News
❑ Television
❑ Radio
❑ Others *(Please Specify)*:

_____

SECTION B

FIRM PREPAREDNESS ACTIVITIES FROM NATURAL DISASTERS

There are many things that you can do to prepare for a natural disaster or emergency event. What you have on hand when a disaster strikes, or are trained to do when a disaster strikes can make a big difference for business and safety in the hours and days following the disaster, whether it is a natural disaster or other emergency. Basic services, such as electricity, gas, water and telephones, may be cut off, or you may have to evacuate at a moment's notice. The following questions focus on your firm's preparedness for disaster events.

B1. Please tick √ ONE answer for each preparedness activity.

In your firm, have you or someone in your firm:

Preparedness Activity	**Have Done**	**Plan to Do**	**Not Done**	**Unable to Do**
1. Attended meetings or received written information on natural disaster or emergency preparedness?	❑	❑	❑	❑
2. Talked with members in your firm about what to do in case of a natural disaster or emergency?	❑	❑	❑	❑
3. Developed a "Firm Emergency Plan" in order to decide what everyone would do in event of a firm emergency?	❑	❑	❑	❑
4. Prepared a "Disaster Supply Kit" (Stored extra food, water, batteries, or other emergency supplies)?	❑	❑	❑	❑
5. In the last year, has anyone in your firm trained in first aid or Cardio-Pulmonary Resuscitation (CPR)?	❑	❑	❑	❑

B2. Building a disaster supply kit, receiving first aid training and developing a firm disaster plan are inexpensive activities that require a commitment. How much time (per year) is your firm willing to spend on preparing for a natural disaster event?

❑ 0-1 hour
❑ 2-3 hours
❑ 4-7 hours
❑ 8-15 hours
❑ 16+ hours
❑ Others *(Please specify)*:

_____

B3. What steps, if any, have you or someone in your firm taken to prepare for a natural disaster? (Check all that apply)

- ❑ Water
- ❑ Flashlights
- ❑ Batteries
- ❑ Battery-powered radio
- ❑ Medical supplies (First Aid Kit)
- ❑ Fire Extinguisher
- ❑ Smoke Detector on Each Level of The Firm
- ❑ Prepared a Disaster Supply Kit
- ❑ Received First Aid/CPR Training
- ❑ Made a fire escape plan
- ❑ Developed a Reconnection Plan: Where to Go and Who to Call
- ❑ Discuss Utility Cut-offs
- ❑ Premises Improvements
- ❑ Stock and Equipment Relocation
- ❑ Flood Defences
- ❑ Relocation of Business Premises
- ❑ Business Data Backup System
- ❑ Business Continuity Plan
- ❑ Reviewing Property Insurance
- ❑ Business Interruption Insurance
- ❑ Supply Chain Planning
- ❑ No steps have been taken *(Please elaborate)*:

_____
_____
_____

B4. Does your firm have insurance coverage for disasters for companies?

❑ Yes. *Please specify the type of cover:* _____

❑ No. *Please specify reasons*: _____

B5. What are the key barriers your firm faces in preparing/planning for future disasters and/or changes in climate trends? Please tick √. You can choose more than one category.

- ❑ Lack of knowledge about climate change to make informed strategic
- ❑ Lack of up to date information (such as extreme weather forecasts) to make
- ❑ Lack of finance
- ❑ Not our priority
- ❑ Never occurred to us to have one
- ❑ Lack of interest and priority from top management
- ❑ Lack of staff expertise in this are
- ❑ Others *(Please specify)*:

_____

B6. How would you rate your firm's understanding and awareness of the impact of natural disaster on business?

❑ Extremely concerned
❑ Very concerned
❑ Concerned
❑ Somewhat concerned
❑ Not concerned

B7. How would you rate the measures taken by your company to cope with natural disaster impact?

❑ Extremely concerned (>80%)
❑ Very concerned (60% - 80%)
❑ Concerned (40% - 59%)
❑ Somewhat concerned (20% - 39%)
❑ Not concerned (<20%)

SECTION C
NATURAL HAZARD RISK REDUCTION

Risk reduction activities are those actions you can take to protect your firm from natural hazard events, such as earthquakes, floods or tsunami. You can do non-structural modifications to protect your firm's contents against damage, often at minimal cost. You can also conduct structural retrofits to strengthen your firm's structure or skeleton, although modifications to a structure tend to be quite involved and generally require the expertise of a registered design professional (engineer, architect or building contractor).

C1. Did you consider the possible occurrence of a natural hazard when you bought/moved into your current firm?

❑ Yes ❑ No

C2. Would you be willing to spend more money on a firm that had features that made it more disaster resistant?

❑ Yes ❑ No

C3. How much money are you willing to spend to better protect your business and firm from natural disasters? (Tick √ only one)

❑ Less than RM1000
❑ RM1000 to RM2999
❑ RM3000 to RM4999
❑ RM5000 to RM6999
❑ > RM7000
❑ Others *(Please specify)*: _____

Question 4 includes non-structural and structural modifications that make your firm more resistant to

earthquakes. There are many measures that can be taken for other natural hazards, such as tornados and floods.

C4. What structural (e.g. building/physical) modifications or non-structural modifications for natural disaster have you made to your firm?

C5. Which of the following incentives, if any, that would motivate you to take additional steps to better protect your business and firm from a natural disaster? (Tick √ all that apply).

❑ Insurance Discount
❑ Low Interest Rate Loan
❑ Lower New Business Construction Costs
❑ Tax Break or Incentive
❑ None
❑ Others *(Please specify)*: _____

SECTION D
GENERAL INFORMATION

D1. What is your role in the business (you can choose more than one category):

❑ Owner
❑ Manager
❑ Business Strategist
❑ Others *(Please specify)*:
_____

D2. Please state the location of the business (you can choose more than one category):

❑ Selangor
❑ Wilayah Persekutuan
❑ Negeri Sembilan
❑ Johor
❑ Pahang
❑ Perak
❑ Kedah
❑ Pulau Pinang
❑ Perlis
❑ Terengganu
❑ Kelantan
❑ Sabah
❑ Sarawak
❑ Others *(Please specify)*:
_____

D3. How many people are employed in the business:

Total : _____
Permanent/Fulltime: _____

D4. How long has the business been operating?

❑ Less than 1 year
❑ > 1 year to 5 years
❑ > 5 years to 10 years
❑ > 10 years to 25 years

❑ > 25 years

D5. Ownership type:

❑ Sole Trader
❑ Family Business
❑ Board of Owners
❑ Part of a Franchise
❑ Enterprise Group
❑ Others *(Please specify)*: _____

D6. In which sector/s does (do) your business fall into?

❑ Accommodation and Food Services
❑ Administrative and Support Services
❑ Agriculture, Forestry and Fishing
❑ Other Services
❑ Arts and Recreation Services
❑ Professional, Scientific & Technical Services
❑ Construction Public Administration and Safety
❑ Education and Training
❑ Rental, Hiring and Real Estate Services
Manufacturing
❑ Mining
❑ Electricity, Gas, Water and Waste Services
❑ Retail Trade
❑ Financial and Insurance Services
❑ Transport, Postal and Warehousing
❑ Health Care and Social Assistance
❑ Wholesale Trade
❑ Information Media &Telecommunications

D7. What products and/or services does the business provide?

_____

_____

_____

D8. In what category does your business fall into?
❑ Manufacturing
❑ Services and Others

D9. What is the business' average annual sale (RM)?

Manufacturing	**Services & Others**
❑ Less than RM300,000	❑ Less than RM300,000
❑ RM300,000 – RM2,999,999	❑ RM300,000 – RM2,999,999
❑ RM3,000,000 – RM49,999,999	❑ RM3,000,000- RM19,999,999

D9. What type of support would you need to overcome your company's natural disaster preparedness?

_____

_____

[End of Questionnaire]

THANK YOU FOR YOUR TIME