

CLIMATE CHANGE AWARENESS AND RISK PERCEPTION AMONG FINANCIAL INSTITUTIONS EMPLOYEES IN KUALA LUMPUR

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Article Info:

Article history:

Received date: 11.03.2021

Revised date: 21.03.2021

Accepted date: 11.04.2021

Published date: 10.06.2021

To cite this document:

Zulfaka, A., & Kassim, S. (2021). Climate Change Awareness And Risk Perception Among Financial Institutions Employees In Kuala Lumpur. *Journal of Tourism, Hospitality and Environment Management*, 6 (23), 22-34.

DOI: 10.35631/JTHEM.623003.

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Abstract:

Climate change is happening, extreme events related to it are on the rise globally, and Malaysia, for sure, will not be spared from the effects of the phenomenon. For the past few years, numerous studies attempted to explore public awareness and educating the public about climate change. Realising that the global financial industry has started to play an important role in fighting climate change since it interconnects with all sectors, this study was conducted to explore the awareness and risk perception among financial institutions' employees in Kuala Lumpur. The result found that most of the respondents were acknowledged climate change as a threat to the environment and were also aware of the impacts of climate change on the stability of the financial systems as a whole. Knowledge about climate change seemed to play an important role in creating awareness and risk perception among the financial industry employees. This study's findings have important implications for Malaysia's financial institutions so that they are made aware of these issues and able to be ready to support the mandate given by the regulators to effectively frame climate change adaptation strategies as a risk management process. As a result, it is crucial to coordinate outreach programmes and training organised by respective organisations to increase climate change adaptation knowledge levels and enhance employees' ability to foster climate change understanding and meet a significant portion of the Malaysian public.

Keywords:

Climate Change, Awareness, Risk Perception, Financial Institutions, Employees

Introduction

Climate change is currently in the spotlight of researchers, policymakers, regulators, and financial players. According to the World Economic Forum's Global Risks Report 2020, environmental crises are among the top five global risks, with climate action failure ranking first among them in terms of effects. Furthermore, in 2019 the U.N. Climate Action Summit also highlighted that climate change is becoming an increasingly important international response component. Another recent study looked at how climate change could impact 22 different economic sectors under two scenarios: global temperatures rose 2.8 degrees Celsius from pre-industrial levels by 2100, and if they increased by 4.5 degrees Celsius. Climate change impacts on these 22 industries could cost the US \$520 billion per year, according to the report, if the higher-temperature scenario prevails. If we can keep it to 2.8°C, it would cost \$224 billion less. In any case, the U.S. stands to suffer considerable economic losses due to climate change, followed by India.

Like all other countries globally, Malaysia also experienced warming and rainfall irregularities, particularly in the last two decades. Areas primarily affected in Malaysia include agriculture, forestry, biodiversity, water resources, coastal and marine resources, public health, and energy (Tang & Ho, 2018). The energy and waste management sectors are the major contributors to climate change. Further, this impacts the natural systems and resources, agricultural productivity, reduced growth, and labour productivity insecurity. This can be seen when Malaysia's agriculture sector shrank by 5.2% due to the El Nino drought in 2016, which jeopardises domestic food production and cause the prices to inflate. For example, the prices of fresh vegetables rose by 7.7% due to the irregularity in 2015. (Economic Development Annual Report, 2015). Other than that, the floods that hit Kelantan and Terengganu in 2014 had seen that almost 200,000 people were affected and displaced. Businesses and economic activities were disrupted, and they had to shut their operations temporarily. Due to this, banks have to bore moratoriums' costs on loan repayments provided to those affected by such disasters. These costs will keep on escalate if these climate-related events intensify.

The connection between climate change and financial services is clear as it brings significant financial risks for the financial sectors. Recognising what has come to be known in the impact on these occurrences towards financial institutions can be seen through the disruption in businesses' and counterparties' operations, supply chain, damaged property, reduced agricultural productivity, and many more. In fact, according to Lamperti et al. (2019), climate change increases the frequency of banking crises from 26 per cent up to 248 per cent as compared to rescuing insolvent banks, which will cause an additional fiscal burden of approximately 5 per cent to 15 per cent of gross domestic product (GDP) per year. Somehow, these crucial areas such as biodiversity, environmental sustainability, and climate change have had relatively little attention. There has still been a lack of evaluation tools for financial institutions to measure their environmental policies' impact effectively. Much research on climate change in Malaysia is dedicated to studying the effects of climate change rather than examining the general public awareness about climate change and how the risk could affect the financial and economic situation in this country. According to many previous reports, climate change strategies have been inadequate in sensitising people to the meaning and relevance of the issue and mobilising them to take action. (Westerhoff & Robinson, 2013).

Recognising climate change risks and their impacts on the stability of the financial system in this country, Bank Negara Malaysia (BNM) has released a discussion paper on Climate Change

and Principle-Based Taxonomy, aiming to provide a broad overview of climate change and its effect on the financial system. Importantly, this document's objectives are to increase awareness and serve as a guide to promote the detection and classification of economic practices by financial institutions that could help achieve climate change goals. BNM and the Securities Commission (S.C.) have also begun to lead the newly created joint committee on climate change (JC3), which aims to enable the Malaysian financial sector to move toward a low-carbon economy while also assisting companies in transitioning to sustainable practices that will protect and heal the planet.

To make environmental and social impact compensation structures possible, it will be necessary to connect the financial institution employees starting at the board, senior management, and even the managerial level with holistic training tools to build awareness about the impact of climate change caused by the financial sector. It will also be necessary to build awareness among the institution's employees. For various factors, assessing the financial institution's employees' knowledge and perception of climate change's effects as financial risk is important. First and foremost, the financial sector needs greater adaptability. As a simple example, if they could understand how climate change can threaten the financial system's stability, they will apply appropriate actions to reduce climate risks and increase public concern about climate change through financing activities. In order to have effective and efficient information for this support group, it is essential to understand its preference for climate change source information.

Second, a financial institution's employee can be a good change agent, with a potential job as a climate change messenger. Some researchers have successfully engaged with financial professionals and policymakers in the area of banking and investment. Nevertheless, very few empirical studies have considered how financial institutions' employees interpret and respond to climate change. Even though previous research was conducted to capture this target group's perception in a similar scope, it was somehow organised in a small setting. Therefore, it is essential to come out with an outcome in a broader context. Considering the whole background, the perception of employees who work under the financial industry regarding climate change as financial risk is essential to prepare financial institutions on climate change impact.

Hence, this study investigates the awareness and perceptions of the employees' climate change risks in financial institutions. This study will also make a significant contribution to climate finance science, especially in terms of making recommendations for practical action aimed at raising public awareness of climate change at the same time examining the different kinds of information that are to be used to create awareness and promote the understanding of climate risk among the financial institution's employees in Kuala Lumpur.

Literature Review

Awareness and Knowledge on the Impacts of Climate Change

Several factors determine and describe the engagement of the financial institution's employees in creating a climate-friendly community. Their ability and willingness to contribute to the development of a climate-friendly world is determined by their understanding of climate change, its causes, and its consequences. (Metag et al., 2017). This knowledge is crucial to making informed and well-considered decisions about one's behaviour (Taber & Taylor, 2009).

Lorenzoni & Pidgeon (2006) stated that most individuals relate to climate change through personal experience, knowledge, the balance of benefits and costs, and trust in other societal factors. In terms of general public understanding of climate change, observable changes such as temperature rises and precipitation decreases significantly affect public perceptions. (Rankoana, 2020). Communication also affects how people think about climate change in society. Since climate change is an unobtrusive issue, abstract, complex, and not directly perceivable (Moser, 2014), the views are usually made based on the news media's information or interpersonal communication (Metag et al., 2017). This is supported by Lee et al. (2015), where public knowledge and other important factors related to risk perceptions illustrate the need for each country to develop its climate communication strategy. However, Korkmaz (2018) agreed that education level has contributed to the awareness level towards climate change.

Most people, for whatever reason, do not have a good understanding of climate change and how it affects our society. As a result, people rely on communities' local knowledge to make prediction and long-term assessments of climate change in the face of uncertainty (Asuquoa and John, 2007).

Attitude towards Climate Change

An additional factor contributing to the awareness of climate change among the public is the attitude towards climate change. Boyes & Stanisstreet (2012) stated a so-called knowledge-behaviour gap that could not ascertain the direct interaction between knowledge and behaviour. This is because the behaviour is also influenced by having a positive attitude towards climate change and taking action.

In other studies, Geir et al. (2010) demonstrate climate change attitudes through a survey of college students in China and Norway, finding that college students in both countries agree that China and Norway governments should make more significant efforts to minimise greenhouse gas emissions. Meanwhile, in a study conducted by Yu et al. (2013), China's community is satisfied and confident with government actions and the policy influence to address climate change. However, there are still exist some wait-and-see attitudes.

Risk Perception towards Climate Change

Climate change is a structural risk that impacts the financial industry and all other aspects of the global economy. According to Malaysia's central bank (BNM 2019), climate change and its impacts can be categories into three types of risks: physical risk, transition risk, and liability risk. Climate-related events destroy infrastructure, reduce production, and interrupt trade, posing a physical danger. Meanwhile, transition risk emerges from the transition to a lower-carbon economy, which may necessitate substantial policy, legal, technical, and market adjustments to meet climate change mitigation and adaptation requirements. Physical and transition risks are considered when assessing liability risk.

According to Environmental Impact in Islamic Finance Report 2018, many Muslim-majority countries, including Malaysia, Indonesia, Morocco, Jordan, Pakistan, and the United Arab Emirates, as well as multilateral institutions working within this country, have recently undertaken or financed projects to combat climate change, expand renewable energy generation, develop sustainable transportation and enhance policies around environmental sustainability.

The public's understanding of risk concerning climate change's potential implications is critical. Besides shaping climate policies, Risk perception is critical in adaptation and mitigation activities and influencing climate policies (Lujala et al., 2015). Meanwhile, Bord et al. (1999) explore the connection between risk perceptions and willingness to address climate change, and the survey includes risk perception and climate change awareness measures.

Based on the literature above, it is shown that most of the previous studies are about the relationship between the awareness and knowledge on the impact of climate change, their attitude, and the risk perception towards climate change.

Research Methodology

Research Design and Sampling

This study was conducted using a quantitative research approach. The target population was the financial institutions' employees in the commercial city of Kuala Lumpur, Malaysia. The researcher created a questionnaire to obtain data from the subjects as the research instrument. The survey was conducted thoroughly online. The particular reason for the circumstance was the limited access due to the re-imposition of Malaysia's movement control order. A total of 84 sample size respondents over various financial institutions, including investment house, insurance, and Takaful operators, financial association in Malaysia to answer the questionnaires for research and analysis.

Data Collection Method

The multiple-choice questions in the questionnaires used a Likert scale to figure out the climate change awareness, attitude of the employees, their risk-perception towards climate change, and the accessibility to climate change information sources. The questionnaire is divided into five sections. Section A collects the respondents' necessary demographic information such as gender, age, educational background, working experience, etc. This will enable the researcher in a preliminary analysis. At the same time, section B consisted of some set of questions tailored explicitly to examining climate change's impact among the financial institution's employees in the general framework. Section C concerned the respondent's attitude towards climate change (6 questions), section D inquiries about climate change risk-perception. Lastly, Section E covers their preference of the sources of information about climate change. To elicit the respondent's exact answers, each of the questions in this section will use a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Data Analysis and Interpretation

The data from the questionnaire were then evaluated using statistical methods through IBM SPSS Statistics 26. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to present each respondent's demographic information. The summary of reliability statistics, also known as Cronbach's Alpha coefficient, was used to determine the variables' relationship.

Results and Analysis

Six statistical items are examined in Table 1, min, max, the mean, and standard deviation, in which each item reflects specific characteristics of the variables. For example, the mean reflects the average behaviour of the corresponding variable in the sample, whereas the standard deviation will show its distribution. Age is one of two groups: Millennials (between 23-38) and

Gen Y (39-54 years old). Next is the education background that equals one of the other four groups: SPM/Certificate, Diploma, Degree, and Postgraduate, which cover Masters and PhD holders. The type of financial institutions is conventional institutions (commercial bank, investment bank, the insurance company, and investment house) and Islamic financial institutions (Islamic bank, Takaful operator, Islamic financial advisory and training institutions, and development financial institutions). Lastly is the position background: executive level, Non-Executive, Managerial level, and Senior Management level.

Table 1: Demographic Data (N=84)

Variable	N	Min	Max	Mean	Std. Deviation
Gender	84	1	2	1.62	0.489
Age	84	1	2	1.10	0.295
Education Level	84	1	4	2.93	0.788
Type of Financial Institutions	84	1	8	3.24	2.714
Position	84	1	4	2.05	0.579
Working Experiences	84	1	4	1.45	0.999

Table 2 below reports demographic measures. Of the 84 respondents in this study, 52 out of 84 (61.9%) were female, and the remaining 32 respondents (38.1%) are male. Respondents in the age group of 23-38 years old were the majority, with 75 persons (89.3%). This was followed by 39-54 years old, with 9 (10.7%) respondents. Moreover, among the 84 respondents, 8 (9.5%) of the respondents were SPM/certificate holders, following by 56 (66.7%) of them are Bachelor holders, while the other 15(17.9%) respondents were postgraduates, either Masters or PhD holders. On the other hand, through the distribution of the questionnaires, most of our respondents are from the Executive level (62 respondents, 73.8%), followed by the Non-Executive and Managerial level which both are 10 (11.9%), and those who are from the Senior Management level only two respondents (2.4%).

Last for the working experience tenure, 68 (81%) are from the 1-5 years of working experience group, 9 (10.7%) are from 15 years and above, followed by 11-15 years' group which are 4 (4.8%) and lastly 6-10 years (3, 3.6%).

Table 2: Demographic Data (N=84)

Variable	Frequency	Percentage (%)
Gender		
Male	32	38.1
Female	52	61.9
	84	100%
Age		
23-38 years old	76	90.5
39-54 years old	8	9.5
	84	100%
Education Level		
SPM/Certificate	8	9.5

Diploma	5	6.0
Degree	56	66.7
Masters/PhD	15	17.9
	84	100%
<i>Type of Financial Institutions</i>		
Commercial Bank	36	42.9
Islamic Bank	15	17.9
Investment Bank	2	2.4
Development Financial Institutions (DFIs)	8	9.5
Insurance Company	2	2.4
Takaful Operator	3	3.6
Investment Company	4	4.8
Financial Advisory/ Research House/Training Centre/ Regulator	14	16.7
	84	100%
<i>Position</i>		
Non-Executive	10	11.9
Executive	62	73.8
Managerial	10	11.9
Senior Management	2	2.4
	84	100%
<i>Working Experiences</i>		
1-5 years	68	81.0
6-10 years	3	3.6
11-15 years	4	4.8
15 years & above	9	10.7
	84	100%

Table 3 below determines the level of climate change awareness among the financial institution employees in Kuala Lumpur. The awareness level of climate change among the respondents was generally good. The result indicated that 81 (96.4%) agreed that change is real and happening, while only one person disagreed. Meanwhile, 32 (38.1%) agreed that climate change is a natural phenomenon and we can't do anything about it, while 28 (33.4%) of the respondents have disagreed. The other 24 (28.6%) were not sure about this statement. 78 (92.8%) respondents also believed that climate change effects are already being felt in Malaysia while only one person thinks oppositely. It can be seen that 30 (35.7%) of the respondents agreed that climate change is only because of industries' pollution, while 33 (39.3%) disagreed. Other than that, about 59 (70.3%) respondents acknowledged that the recent floods and drought in this country are due to climate change, while the other 11 (13.1%) still disagreed. Lastly, 69 (82.8%) of the financial institution employees agreed that climate change caused increased weather events such as typhoons, floods, droughts, hurricanes, heat waves, and wildfires worldwide.

Table 3: Determining the Level of Climate Change Awareness

Question	Classification	N=84	%
<i>Climate change is real, and it is happening</i>	Yes	81	96.4
	No	1	1.2
	Not Sure	2	2.4
<i>Climate change is a natural phenomenon; we can't do anything about it</i>	Yes	32	38.1
	No	28	33.4
	Not Sure	24	28.6
<i>The effects of climate change are already being felt in Malaysia</i>	Yes	78	92.8
	No	1	1.2
	Not Sure	5	6
<i>Climate change is only because of the pollution from industries</i>	Yes	30	35.7
	No	33	39.3
	Not Sure	21	25
<i>Recent floods and drought in this country are due to climate change</i>	Yes	59	70.3
	No	11	13.1
	Not Sure	14	16.7
<i>The worldwide increase in extreme weather events such as typhoons, floods, droughts, hurricanes, heatwaves, and wildfires caused by climate change.</i>	Yes	69	82.2
	No	3	3.6
	Not Sure	12	14.3

Table 4 below determines the level of the attitude of the employees towards climate change. The result indicated that about 82 (97.6%) agreed that they see climate change as an immediate and urgent concern, while only one person (1.19%) disagreed. Meanwhile, 71 (84.5%) agreed that it should be mandatory to reduce energy usage if it reduces climate change, while 11 (13.1%) respondents disagreed, and the other 2 (2.4%) were not sure about this statement. Next, 74 (88.1%) of the respondents feel that it is a moral duty to do something about climate change while only two persons think oppositely. It can be seen that 75 (89.3%) of the respondents agreed that they would promote a green environment and participate in it, while 2 (2.4%) respondent disagreed. Other than that, 65 (77.4%) of the respondents are willing to make personal sacrifices for the sake of the environment, while the other 4 (4.8%) are not willing to do so. Lastly, 35 (41.7%) of the financial institution employees in Kuala Lumpur agreed that they are willing to be unemployed if their job caused the environmental problem. However, 24 (28.6%) out of 84 respondents are unwilling to do so, while the other 25 (29.8%) others are not sure.

Table 4: Determining the Attitudes of the Employees towards Climate Change

Question	Classification	N=84	%
<i>I see climate change to be an immediate and urgent concern</i>	Yes	82	97.6
	No	1	1.19
	Not Sure	1	1.19
<i>It should be mandatory to reduce energy usage if it reduces climate change</i>	Yes	71	84.5
	No	2	2.4
	Not Sure	11	13.1
<i>I feel a moral duty to do something about climate change</i>	Yes	74	88.1
	No	2	2.4
	Not Sure	8	9.5
<i>I will promote a green environment and participate in it</i>	Yes	75	89.3

	No	2	2.4
	Not Sure	7	8.3
<i>I am willing to make personal sacrifices for the sake of the environment</i>	Yes	65	77.4
	No	4	4.8
	Not Sure	15	17.9
<i>If my job caused the environmental problem, I'd rather be unemployed</i>	Yes	35	41.7
	No	24	28.6
	Not Sure	25	29.8

Table 5 shows the risk perception towards climate change among the financial institution employees in Kuala Lumpur. The results interpreted that 69 (82.1%) agreed that climate change is supposed to concern Malaysia's financial institution's sector, while the other 3.6% disagreed. Meanwhile, 66 (78.5%) respondents believed that climate change could increase the operating costs due to the vulnerability of its operations area. Still, only 2 (2.4%) of the respondents disagreed, while 19 (16%) were unsure. Other than that, 60 (71.4%) acknowledged that many businesses' income would decrease due to climate change impacts while the other 18 (7.2%) disagreed, and the other 6 (21.4%) were neutral. Additionally, it can be seen that most of the respondents agreed that financial institutions should integrate climate considerations into financial risk management, while only one respondent disagreed. Lastly, about 64 (76.1%) agreed that financial institutions should appoint staff or teams to manage climate change's financial risk to its assets, while only one person disagreed. Somehow, 19 (22.6%) of the respondents were not sure about this stand.

Table 5: Risk Perception towards Climate Change

Question	Classification	N=84	%
<i>Climate change is supposed to be a concern for the financial institution's sector in Malaysia</i>	Yes	69	82.1
	No	3	3.6
	Not Sure	12	14.3
<i>Climate change can increase the operating costs due to the vulnerability of its area of operations</i>	Yes	66	78.5
	No	2	2.4
	Not Sure	16	19
<i>Many businesses income will decrease due to climate change impacts</i>	Yes	60	71.4
	No	18	7.2
	Not Sure	6	21.4
<i>The financial industry plays an essential role in achieving a low carbon and fighting climate</i>	Yes	64	76.2
	No	4	4.8
	Not Sure	16	14.3
<i>Financial institutions should integrate climate considerations into financial risk management</i>	Yes	71	84.5
	No	1	1.2
	Not Sure	12	14.3
<i>Financial institutions should appoint staff or teams to manage the financial risk of climate change to their assets.</i>	Yes	64	76.1
	No	1	1.2
	Not Sure	19	22.6

This study also revealed the methods for the respondents to obtain access to information on climate change. The result shows that almost 77.44% of the respondents said their primary

climate change information sources are from the internet and websites. It is not surprising that our societies used to get most of the latest news and updates through social media or online news in the digital era. This is followed by 26.2% of the respondents where they were provided information and awareness of climate change through documentaries on television. Since climate change is a global phenomenon, such platforms can affect societies worldwide, and media prominence is evident.

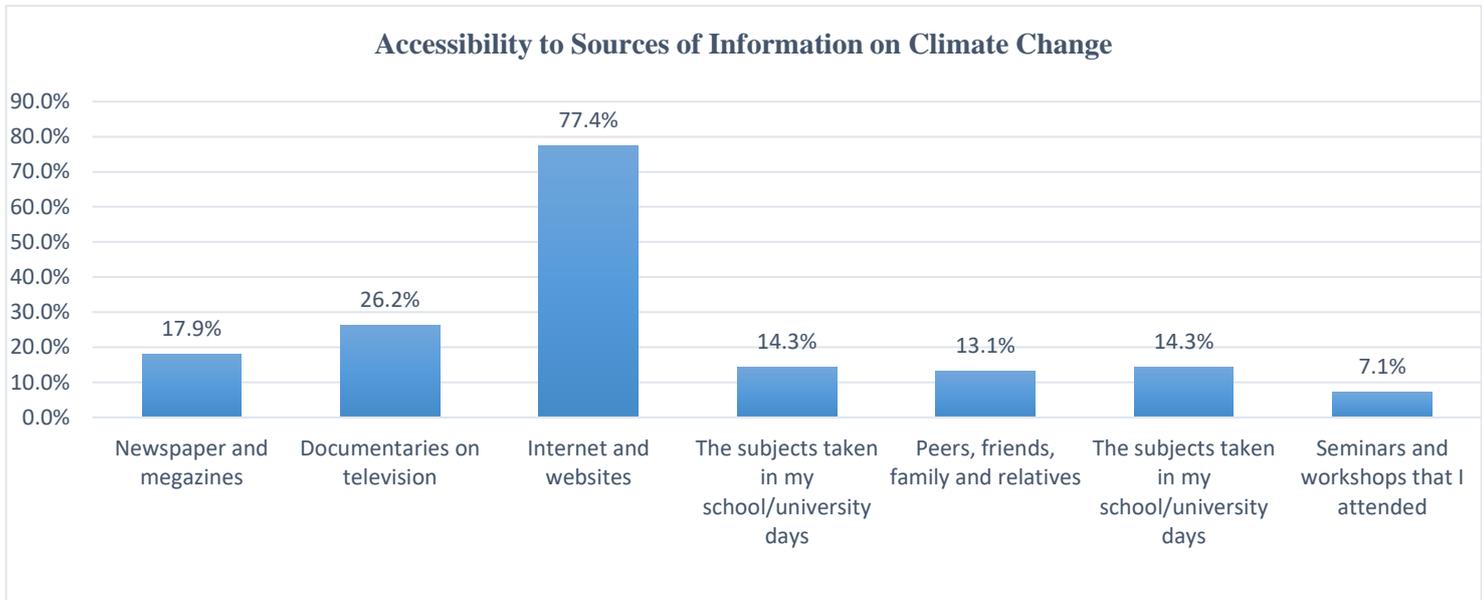


Figure 1: Accessibility to Sources of Information on Climate Change

The overview of reliability statistics is shown in Table 6 below. The Cronbach's Alpha testing was used by way of the most well-accepted reliability test tools practical by the social researcher. According to Sekaran & Bougie (2016), a questionnaire considers attaining a high level of reliability when the value of Cronbach's Alpha exceeds 0.70. The closer the Cronbach's Alpha value is to 1.0, the higher the internal consistency reliability of the questionnaire.

The estimation results reveal that the financial institutions' attitudes towards climate change have the strongest relationship with the dependent variables (0.825) and their risk perception on climate change (0.854). Somehow, the scale for knowledge on climate change impacts provides the opposite direction below the reliability level (0.565).

Table 6: Summary of Reliability Statistics

<i>Construct</i>	<i>Cronbach's Alpha</i>	<i>Number of items</i>
Knowledge on the Impacts of Climate Change	0.565	6
Attitudes Towards Climate Change	0.825	6
Risk Perception On Climate Change	0.854	6

Conclusion and Recommendations

This study discussed the awareness and risk perception among financial institution employees in Kuala Lumpur. As the first known study carried out in Malaysia to determine awareness and risk perception of financial institution employees in the country, the results provide insight into how knowledgeable our financial industry employees are regarding awareness and risk perceptions on Malaysia's climate change. Since this study explores the level of awareness, attitudes of the employees, risk perceptions on climate change, and the accessibility to sources of information on climate change, the findings may give an insight into future actions. Overall, the awareness level of climate change among the respondents was generally good. Somehow, the study further buttressed the point that a strong relationship exists between financial institutions employees' level of awareness and their perception of climate risk. However, there is the need to enlighten the entire public on climate change issues and their consequences.

One of the main findings of this study is that most financial institution employees acknowledged that global climate change is happening. The effects are already being felt in Malaysia but not aware of its problems and how to tackle them. In addressing the country's climate change issues, most of the employees in this study also believed that climate change is an immediate and urgent concern for Malaysia's financial institution's sector. This is in line with BNM's governor speech during the Regional Conference on Climate Change in 2019. The financial institution can no longer be passive about climate change and its effects.

While this study found a large percentage of the financial institution's employees who are agreed that the financial institution should integrate climate considerations into financial risk management, the majority also agreed that the financial institutions should appoint staff or team to manage the financial risk of climate change to its assets. Hence, it is recommended that more rigorous efforts of additional training for staff and management on climate change or sustainable finance. It can be done by expanding SME presence to focus on environmental and climate change impacts to guide adaptation strategies. This can also begin within the areas of business. There are already several actions being taken by some of the financial institutions in Kuala Lumpur, such as renewable energy financing that offered a lower profit rate for hybrid car and residential properties under the Green Building Index. Somehow this is to encourage people to take sustainability and climate change issues more seriously.

Additionally, the financial sector's journey in combating climate change activities cannot confer lasting benefits unless environmental considerations and climate ecosystem-related awareness are protected as integral parts of the planning and decision making. The sector has come a long way, but it is clear that much works need to be done, both by the industry and government. One of them is the appropriate treatment of climate risks within the prudential and supervisory framework for the regulators and government's financial institutions, such as increasing its engagements with individual financial institutions to understand better how they consider climate risk management approaches. These actions combined will help redirect the large pool of private-sector financial flows towards activities supporting a low carbon and climate-resilient world.

Nevertheless, these results should be confirmed in future studies, especially regarding ensuring a larger and more representative sample. Future studies can examine the effect of climate change among the group from the non-financial sector. There is also a scope for further research on business approaches to identify effective strategies and proactive practices of financial

institution responses to Malaysia's climate change issues as the first step of climate change strategies and actions.

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