



Risks and Corporate Sustainable Investment: Perspectives of Corporate Top Management

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ABSTRACT:

Developing countries, especially, are still confronting remarkable challenges in ensuring sustainable development. Numerous industries are still not feeling guilty in producing negative spillover effects, affecting thousands of people and numbers of casualty. It is critical to delve into the roots, especially on risks or uncertainty, pushing the industries into sustainable development, directly from the perspectives of corporate decision-makers or top management themselves; i.e. the Chief Executive Officers. The objective of this paper is to examine how significant the uncertainty or risk, as well as the integration of other possible causes: aspects and criteria, in enhancing the effectiveness of the corporations in their sustainable investment. Other possible causes include religiosity and behavioural biases, government roles, institutional pressures and competitive or industrial surroundings. The model will be used to examine which core factors affect the investment by decision-makers for sustainable development and its dimensions: environment, social, and governance. Applying the Fuzzy Decision-Making Trial and Evaluation Laboratory (DEMATEL) method based on Fuzzy Delphi to handle the interrelationships among the attributes, this paper would be able to make a recommendation on the effective actions and policies to be taken by the relevant parties in enhancing corporate sustainable investments. The model is integrating institutional theory, behavioural theory and real options theory which have been studied separately before and have not produced comprehensive results. The findings of the risks and other related drivers affecting sustainable investment would be beneficial to policymakers in strategizing appropriate measures to enhance corporate sustainability so that sustainable development goal 2030 will be easily & effectively achieved, especially in developing countries, like Malaysia.

1. Introduction

Employee Sustainability issues continue to receive extensive attention in developing countries. The issues encompassing environment, social and governance, are substantial as they are articulated by the 2030 Agenda for Sustainable Development. War, climate change, an increasing number of people suffering from hunger, food insecurity, increasing carbon emission, income and gender inequality are among the challenges to achieve sustainable development.

Carbon emission shows an increasing trend for the past decade, worst during these recent years, especially due to the wars, Russia-Ukraine and Israel-Palestine. Indeed, global CO₂ emissions could peak as soon as 2023, instead of as expected 2025. Global emissions of

carbon dioxide (CO₂) from fossil fuels and industry have increased by 45% from 25.668 billion tonnes in 2001 to 37.124 billion tonnes in 2021. In Malaysia, carbon emissions have skyrocketed by 91% from 134 million tonnes in 2001 to 256 million tonnes in 2021 [1]. Electricity and heat production, transportation and manufacturing industries and constructions are the main sectors identified to contribute high emission of CO₂ in Malaysia. This issue is alarming since it creates severe spillover effects, such as, climate change problem. Climate change results in an increase in global temperature, a rise in sea level, unstable rainfall patterns and deterioration of food supplies and water supplies.

Two pollution incidents in Pasir Gudang, Johor, Malaysia in March and June 2019 have proved further the severe impact of chemical toxic pollution. In March,



the illegally dumped waste into Sungai Kim Kim caused severe breathing problems to approximately 5,000 people. Thus, 111 schools were closed, and costs of RM6.4 - RM10 million were incurred to clear the waste. Three months later, another air pollution occurred, which caused 475 schools to close down [2]. The inhalation problem of the first incident was related to seven chemicals (Methane, Hydrogen chloride, Acrylonitrile, Acrolein, Benzene, Xylene, and Methyl mercaptan), generated from industry activities, and then interacted with other chemicals and sunlight [3]. Pasir Gudang itself is an industrial area, with more than 2,500 factories and 257 of them are chemical based industries [3]. Industrial chemicals are potential to produce toxic gas. Thus, the risk of future contamination is still remained. These incidents not only pose risks to the environment but worse risks to the society. These incidents highlight the potential losses and impacts of not dealing adequately with the sustainability-related risks in business operations and investments.

Despite of already having several efforts implemented to solve these environment, society and governance (ESG) issues, these similar matters still remain. The Sustainable Development Goal 2030 (SDG 2030), put forward by the United Nations, has outlined 17 important keys that need to be addressed in order to achieve sustainable development by the year 2030. The government and authorities must have already put such rules, regulations and laws related to sustainability in placed. In addition, investors are now very concerned about sustainability by integrating the sustainability issues into their investment criteria. Thus, many organizations publicly announce their responsible investment by signing the internationally recognized United Nations Principles for Responsible Investment (UNPRI). The number of signatories for (UNPRI) [4] has grown to 5,319 in December 2022 from 63 signatories in 2006 when it first launched. An increasing trend in responsible investing indicates the importance of implementing and evaluating investment strategy based on ESG considerations. Another reason for enhancing the corporate sustainability investment is to mitigate the business risk that may arise from the potential disruption of operations, supplies or reputational damage thus reducing operational costs.

Real capital investments are important for a transition to a more sustainable economy as well as for economic

development [5]. An enormous amount of capital funds is required to achieve this goal. However, are the companies and industries willing to allocate their investment on sustainable development: environmental, social and governance (ESG), knowing that they cannot expect much of the returns? There are risks or uncertainty with respects to sustainable investments that has the potential to negatively affect a company's financial welfare. Could this be the reason why the sustainability issues and problems still persist?

Therefore, this paper is to examine how significant the risks or uncertainty in influencing the decision makers of a corporation, in contributing more or less in the ESG investment initiatives. Since how much involvement and how much capital would be allocated for these sustainable matters are to be decided by corporates' top managements, it is crucial to question those decision makers themselves on what could be the major drivers affecting their decisions on corporate sustainable investment. Moreover, the decision makers, which include the chief financial officer (CFO) or chief executive officer (CEO), must be from established corporations which already awarded as the best firms demonstrating a leading approach to addressing ESG risks. Those are the firms included in the Financial Times Stock Exchange 4Good Bursa Malaysia (FTSE4GBM) Index, with 4 stars. This would enable us to know exactly what are the causes, roots or drivers that could really influence and motivate those decision makers of 4 stars FTSE4Good corporations on their decisions on sustainable investment. We are also to know how significant the risks or uncertainty are to those decision makers, and how those risks interrelated with other drivers. Other drivers to be explored too are institutional pressures, competitive/industrial surroundings, government roles, moral values and behavioural biases.

This study will integrate few theories to develop a new framework for enhancing the sustainability of corporate investment. The related theories integrated together are the real options theory, institutional theory, generational theory of behavioural biases, and contextual perspectives theory. There could be numbers of drivers which could affect decision makers in their investment decisions. Should they be focusing on sustainable investment or not could be influenced by real options theory, the possibility for corporations to delay



investment when facing higher uncertainty and wait for more information about market conditions [6], and institutional pressures which could be due to regulative pressures, normative pressures, and, or, or cultural-cognitive pressures [7]. Corporate decision makers may also depend on the level of understanding the financial anomalies at a collective level (generational theory of behavioural biases), as well as the contextual behaviour.

2. Literature review

Prior studies, generally, have been focusing on the factors or determinants affecting investment decisions by the investors. Very few are studying on the factors contributing to investment decisions involving sustainability, especially from the perspectives of corporate top managements. Corporate sustainable investment (CSI) is an investment by the corporations on sustainability-related investment initiatives that simultaneously contribute to environmental, social and governance (ESG) goals [8]. It is a multidisciplinary research field that integrates sustainability and corporate investments. Earlier research on CSI is preceded by corporate green investment, corporate ethical investment, and corporate social investment or widely known as corporate social responsibility. Moreover, many of these studies concern on the impact of those sustainability initiatives on firms' performances, whereas, this paper analyses the drivers that influence the corporate top management decisions on their corporate sustainable investment.

In terms of drivers or factors influencing firms' investment or sustainable investment decisions, the literature review indicates that risks or uncertainties [9]-[12], institutional pressures [7], [13], [14], government roles [15]-[18], competitiveness [9], behavioural biases [8], [19], [20], and moral values or religiosity [21] are the significant drivers. The question is to what extent each of these drivers affect those corporate decision makers. How significant could risks or uncertainty influence the decision made on CSI?

Risk or uncertainty could be one of the drivers affecting the decision makers in their investment decisions. Risk is defined as “the probability of an event occurring together with its consequences” [22] or “uncertainty that matters” [23]. Risk is categorized as global risk, country risk, and firm-specific risk. Global risks could be contributed to investment decisions through various

sources such as geopolitical risk. Geopolitical risk is broadly defined as the risk associated with war, political upheavals, inter-country tensions and terrorism which is a rare and low probability event. As geopolitical risks elevated, corporations make a decision to reduce planned investments [24]. Another source of global risk is uncertainty in crude oil prices. Previous studies show that crude oil price uncertainty has a negative impact on corporate investment expenditures [25], [26]. On the other hand, the high belief in climate risk or climate change has given positive impact to ESG score [10], SDG reports [27], and environmental awareness [28]. Reference [29], however, claims that Covid-19 pandemic has no significant impact on both returns and volatility of ESG index.

Country risk, such as political, economic, exchange-rate, and technological risk, is widely known as uncertainties associated with investment decisions in a particular country. Country's political turnover, especially the changes of government officials, leads firms to significantly reduce corporate investment, particularly when the new official is an outsider appointed by a higher-level government [30]. The effect of political turnover on corporate investment is stronger for state-owned enterprises, capital intensive firms, and firms deemed locally important. Changes in economic policy [31], economic downturn [11], inflation and exchange rates [12] are also found to have significant impact on corporate investment and green investment, respectively. The firm-specific risk, for examples, cash-flow uncertainty, poor returns [11] and financial constraints [32], also has been found to reduce tangible investment significantly.

The institutional pressures are found to have significant influence on adoption of green initiatives [9], sustainable investment [10], and investment [7] decisions. Reference [7] suggested that corporations' decisions are greatly influenced by three institutional mechanisms, namely regulative, normative, and cultural cognitive.

Government also plays a significant role in sustainability, mainly in terms of its regulations and incentives, as claimed by studies in China [15], Russia [16], Scotland [33] and the European Union (EU) [17]. Government policies, especially green finance policy in China, are found to be closely related to the



environment [18]. Government incentives are also able to encourage sustainable investment in the private sectors [16].

Behavioural biases may also influence corporate investment decisions. Prior studies claim that corporations often do not undertake investment initiatives that provide economic, environmental and social goals because they experience cognitive barriers [19] and [8]. According to the behavioural theory of the firm, when corporate managers are making decisions, they sometimes cannot consider all possible alternatives because of their limited knowledge and cognitive processing capacity [19] and [8], CEOs' market sentiment [34], and optimistic (pessimistic) about future cash flows [20].

An investigation into the role of religion on corporate sustainable investment is extremely limited. Reference [21] business owners who perceive that their religious beliefs are high are more likely to contribute more to socially responsible investment.

3. Methodology

The respondents for this study consist of a group of experts who are among the corporate top management or corporate decision-makers, in three main economic sectors in Malaysia: agriculture, industry and services. They were consulted to verify the drivers, which have been categorized as aspects and criteria by using fuzzy Delphi method. The collected responses in this study are taken into account the drivers which could influence the top management, in their meetings on investment decision-making. The firms chosen in this study are top leading public listed companies in the FTSE4GBM list with the highest ESG rating of 4 stars. These firms are really serious in ESG and sustainable investment, making them recognized as high ranking ESG firms.

From content analysis of literature review, significant drivers: aspects and criteria, affecting firms' investment are extracted. Table 1 shows those selected drivers: aspects and criteria, used in the analysis, which could affect the decisions on sustainable investment. From the results of fuzzy Delphi, some insignificant aspects and criteria were removed, leaving only 4 aspects and 11 criteria. Those 4 aspects and 11 criteria which were found to be valid and significant with corporate sustainable investment, are then been analysed by using

a multi-criteria decision making (MCDM) method called fuzzy Decision-Making Trial and Evaluation Laboratory (DEMATEL) technique.

DEMATEL technique managed to solve many global complex problems in scientific, political and economic domains by considering experts' judgements. DEMATEL is useful in analysing the cause-and-effect interrelationships among the aspects and criteria in a specific domain [35].

Table 1. Aspects & Criteria

Aspects	Criteria
A Uncertainty/ Risks	A1 Global Risks
	A2 Country Risks
	A3 Firm-specific Risks
B Institutional Pressures	B1 Regulative
	B2 Cultural Cognitive
	B3 Normative Pillar
C Competitive/ Industrial Surroundings	C1 International Market
	C2 Competition
	C3 Networking
D Government Roles	D1 Government Regulations
	D2 Government Incentives
	D3 Rule of Law
E Moral Values	E1 Religious/Ethical Principles
	E2 Religion Code of Conduct
	E3 Purpose of Life
F Behavioural Biases	F1 Overconfidence
	F2 Loss Aversion
	F3 Herding Effect
	F4 Anchoring

Next are the definitions for all six aspects which are to affect corporations top managements' decisions. Uncertainty or risks are any uncertainty with respect to



sustainable investments that has the potential to negatively affect company's financial welfare. Institutional pressures are to obtain and increase of legitimacy within the organizational fields by conforming to rules, traditions, and norms of the corporation related to its sustainable investment. Competitive/ industrial surroundings mean the activity or condition of striving to gain or win in sustainable investment by defeating or establishing superiority over others, or be part of the industry/group. Government roles are government interventions, incentives and rule of law in affecting sustainable investment decisions. Moral Values are individual's beliefs about what is right or wrong, or good and bad, and provides a guide to his or her behaviour related to sustainable investment, while behavioural biases are Irrational beliefs or behaviours that can unconsciously influence decision-making process in sustainable investment.

Each of those aspects have their own criteria. Next are the definitions of those criteria. Criteria for aspects of uncertainty or risks are global risks, country risk and firm-specific risks. Global risks are risks that hit the whole world which could affect the decision in adopting sustainable investment. For examples: global recession, pandemic, global warming. Country risks are risks specific in a country, like Malaysia, that could affect the decision in adopting sustainable investment. For examples: political risk, recession, interest rate, inflation rate. Firm-specific risks are risks faced that are unique in a particular company or industry which could affect the decision in adopting sustainable investment. E.g.: management issue, resource, competition, company's performance or financial risk

For institutional pressures, we have regulative, cultural cognitive and normative pressures. Regulative means rules, policies or sanctions within own firm emphasizing on corporate sustainability investment. Cultural cognitive is imitation of certain schemes, frames or behaviours that have diffused in a given social context within own firm because they are generally understood and accepted to adopt corporate sustainable investment. Normative pressures are professionalization, guidelines, values and norms of conduct set by own firm that persuades decision maker to adopt corporate sustainable investment.

International market, competitive pressures and networking are the three criteria for competitive or industrial surroundings. International market deals with a system of institutions, rules or procedures relating to the exchange of goods and services between organizations across borders, while competitive pressure is a situation in a market in which firms independently strive for the patronage of investors in order to achieve a particular business objective. Networking is the interconnection between firms in an industry locally and globally.

Government roles' criteria are: government regulations, which include policies, rules, laws or sanctions exerted by the government on a company regarding corporate sustainability; government incentives, which include incentives, assistance or subsidies provided by the government to encourage companies to adopt corporate sustainable investment. For examples: Green Investment Tax Allowance and MySDG Fund. Rule of law is the strength and impartiality of the legal system as well as the order element in the country's judicial system related to sustainability.

Criteria for moral values consist of religious or ethical principles, religion code of conduct and purpose of life. Religious or ethical principles are defined as individual principles based on religious fundamental teachings, moral values or ethics that guide decision makers to adopt sustainable investment. Religion code of conduct means rules, laws or guidelines outlined by religion in terms of finance, operation and management in corporate sustainable investment. For examples: prohibition of usury, corruption, oppression, and fraud. Sustainable investment could be adopted to fulfill the purpose of life, the third criteria for moral values. For examples: God's blessings, the hereafter, all deeds will be compensated - good or bad, ibadah & khalifah.

There are many criteria for behavioural biases, but only 4 most common biases are selected. Those are overconfidence, loss aversion, herding effect, and anchoring.

Using the identified drivers, a questionnaire was developed and distributed to the respondents to address their linguistic preference towards the core aspects and criteria. There are five linguistic references as shown in Table 2.



Table 2. Linguistic terms and the corresponding triangular fuzzy number of five-point likert scale

Linguistic terms	Very low influen- ce (VL)	Low influen- ce (L)	Moderate influen- ce (M)	High influen- ce (HI)	Very high influen- ce (VHI)
Corresponding TFNs	(0, 0, 0.25)	(0, 0.25, 0.5)	(0.25, 0.5, 0.75)	(0.5, 0.75, 1.0)	(0.75, 1.0, 1.0)

4. Results

Fuzzy Delphi

Aspects

Taking into consideration the institutional theory, behavioural theory and real options theory, this paper has been integrating the Uncertainty/Risks, Institutional Pressures, Competitive/Industrial Surroundings, Government Roles, Moral Values, and Behavioural Biases as the possible drivers in influencing the corporate top managements' decision on corporate sustainable investment.

The Fuzzy Delphi results in Table 3 shows the significant of Uncertainty/Risks as aspects which could influence the corporate top management in their decisions on sustainable investment. Other than Uncertainty or Risk, Institutional Pressures, Competitive/Industrial Surroundings, and Government Roles, are other significant aspects for corporate sustainable investment decision making.

Table 3. Fuzzy Delphi: Results on Aspects

Aspects	S	Results
A Uncertainty / Risks	0.684744	Accepted
B Institutional Pressures	0.669951	Accepted
C Competitive/ Industrial Surroundings	0.674162	Accepted
D Government Roles	0.783735	Accepted
E Moral Values	0.530424	Unaccepted
F Behavioural Biases	0.333333	Unaccepted

Uncertainty or risks are the second aspects which have significant influence on corporate sustainable

investment decisions, after government roles. When corporations or decision makers have greater confidence on the risk or uncertainty that they could encounter, then they have more confidence in spending their capital on sustainability. In other words, they have to go into sustainable investment when they are more certain on the lost or damaged they have to deal with if they have not done anything on sustainable investment. This shows the greater awareness and sensitivity of those corporate top management on sustainability. These results are consistent with the findings of [10], [27], and [28], when they are dealing with climate risk or climate change. The results indicate the assurance of the damaged or loss to be encountered in relation to the weather or environmental issues by the corporate top management. The greater the environmental risks, the greater the contributions on corporate sustainable investment. These results are not consistent with the common findings between geopolitical risks and investment decisions in general. Common findings state that the greater the geopolitics risks, the lower the planned investment [24]. The uncertainty of crude oil price also negatively affects the corporate investment [25]-[26].

Government interventions, incentives and rule of law in affecting sustainable investment decisions seem to be the major factor in influencing the top management in their investment decision on sustainability. Individual's beliefs about what is right or wrong, good and bad, and provides a guide to his or her behaviour related to sustainable investment, which represent moral values or religiosity is too weak to influence people. Government roles, which are more direct and external, with its regulation and law, could be the greatest influencer, as compared to something which is more indirect and internal matters, like moral values or religiosity.

Competitive or industrial surroundings, and institutional pressures are other important aspects to look into, in order to ensure of commitment by the corporations on sustainable investment. Generally, we can say that the corporate top managements have been significantly considering the government enforcement, the risks and uncertainty on the benefits and loss of focusing on sustainability, the survival in a competitive market, and last but not least the pressure for the corporations to conform sustainability to rules, traditions and norms in its organization.



Criteria

Fuzzy Delphi results on criteria for corporate sustainable investment in Table 4 portrays the acceptance of 11 out of 19 criteria. The last column in Table 4 indicates the rank level from the very high influence (1) to low influence (10). Those criteria not listed in Table 4 are not the significant causes for corporate sustainable investment. Among those accepted criteria, all the three criteria for uncertainty or risks are reported as significant causes affecting the decisions by corporate top management in their sustainable investment.

Among the three criteria for uncertainty or risks, country risks turn up to be the highest influencer for corporate sustainable investment. Those corporate top management has been considering the uncertainties or risks associated with a country greater than those of global and firm-specific risks. Indeed, country risks is the second criteria, after government regulations, which could determine the sustainable investment of a corporation. The country risks could include political risk, recession, interest rate and inflation rate. This result is consistent with the findings of other literature [11], [12], [30], and [31].

Table 4. Fuzzy Delphi: Results on Accepted Criteria

	Criteria	F_j	Ranks
A1	Global Risks	0.6742	4
A2	Country Risks	0.7725	2
A3	Firm-specific Risks	0.6742	4
B1	Regulative	0.6742	4
B2	Cultural Cognitive	0.6375	10
B3	Normative pillar	0.6700	7
C2	Competition	0.6375	10
C3	Networking	0.6503	8
D1	Government regulations	0.7954	1
D2	Government Incentives	0.6465	9
D3	Rule of Law	0.6958	3

Both global risks and firm-specific risks are ranked number 4 in influencing the decision makers on sustainable investment. Joining the same rank is regulative under institutional pressures. Global risks and firm-specific risks are each representing risks that hit the whole world and risks that are unique to a particular firm or industry, respectively. Examples of global risks are global recession, Covid-19 pandemic, global warming, and examples for firm-specific risks are management issues, resources, and firm's performances. Thus, the results indicate that firm's performances, firm's financial risks, and other firm's matters have similar impact as global risks to corporate top management in their decisions for sustainable investment.

Fuzzy Delphi results for criteria have also rejected the criteria under moral values or religiosity and behavioural biases. Government roles, specifically, government regulations, ranked no 1, are the main aspect and criteria affecting corporate top management investment decisions on sustainability. Government regulations are policies, rules, laws or sanctions exerted by the government on a company regarding corporate sustainability. Government incentives, with rank number 9, are not crucial enough in influencing the decision makers on sustainability, but Rule of Law is, rank number 3.

Next other significant criteria in determining the corporate decision makers on sustainable investment are normative pillar under institutional pressures, networking under competitive surrounding, cultural cognitive under institutional pressures and market competition under competitive or industrial surroundings.

Fuzzy DEMATEL

Aspects

Table 5 shows the main findings of the study using fuzzy DEMATEL in analysing the cause-effect interrelationships between the aspects that could influence the corporations' top managements to incorporate sustainability in their investment decisions. The positive values in the (R-D) column are called cause drivers that lead to corporate sustainable investment directly. These drivers could be used to develop long-term measures. Thus, as shown by the



results in Table 5, those corporate top management concludes that the uncertainty or risks and government roles are the most affecting factors leading to corporate sustainable investment decisions. The primary causal aspect is government role, followed by uncertainty or risk.

Table 5. Fuzzy DEMATEL: Results on Cause-Effect Relationships between Aspects

Aspects	D	R	(R+D)	(R-D)	Cause/Effect
A Uncertainty	14.39	14.28	28.67	0.10	Cause
B Institutional pressures	12.15	12.98	25.13	-0.82	Effect
C Competitive environment	12.65	13.66	26.31	-1.00	Effect
D Government	14.80	13.08	27.89	1.71	Cause

Drivers with negative values in the (R-D) column in Table 5 are called effect drivers. These drivers are influenced by causal drivers, which then lead the corporate top management to decide on sustainable investment. Those effect drivers or the influenced drivers are institutional pressures and competitive or industrial surroundings. Thus, institutional pressures and competitive surroundings are influenced by government roles and risks, which lead to corporate sustainable investment decisions.

The (R+D) column in Table 5 indicates the value of each aspect. The bigger the value, the stronger the contribution of that driver to corporate sustainable investment. Thus the rank from the strongest aspect to the lowest aspect are risks, followed by government roles, then competitive surroundings and institutional pressures. Key measures for policy or enforcement in encouraging sustainable investment among corporations should be based on these ranks.

Criteria

Table 6 below portrays the cause-effect relationships between criteria for uncertainty or risks using Fuzzy DEMATEL analysis. Global risks and country risks have positive value of (D-R), which making them the

cause criteria. Handling these risks would lead those corporate top managements to sustainable investment. Long-term measures could be developed by using these criteria. While the global and country risks are the cause criteria, the firm-specific risks are the effect criteria. These firm-specific risks criteria are influenced by global and country risks as well as other cause criteria, which then lead to corporate sustainable investment. In terms of the degree of contribution of those risks to corporate sustainable investment, global risks give the greatest impact. Second goes to country risks and followed by firm-specific risks.

In relation to other criteria, government regulations turn up to be strongest cause criteria to corporate sustainable investment and followed by the rule of law as the second strongest cause criteria. Then only global risks and country risks play their parts in influencing corporate top managements. Even though quite significant numbers of government regulations and rule of law are already in place, there are still issues on sustainability. Thus, government and the authorities have to strengthen the enforcement to ensure of less or no sustainability issues and to encourage firms to invest or spend more for sustainability. The criteria for competitive surrounding and industry pressures remain as effect criteria.

Table 6. Fuzzy DEMATEL Results: Cause-Effect Relationships between Criteria on Corporate Sustainable Investment

Criteria	D+R	D-R	Cause/Effect
A1 Global Risks	7.486	0.262	Cause
A2 Country Risks	7.343	0.406	Cause
A3 Firm-Specific Risks	7.031	-0.840	Effect
D1 Government Regulations	7.862	0.733	Cause
D2 Government Incentives	6.609	0.571	Cause
D3 Rule of Law	7.721	0.476	Cause



5. Conclusion

Corporate sustainable investment has rapidly emerged as an important approach to being responsible to environment, society and governance. Certain amount of capital or investment need to be put aside for sustainability. Since the impact of such sustainability initiatives are uncertain, thus this paper seeks to examine the views of corporate decision makers, i.e top management, in order to examine to what extent the uncertainty or risks could affect the decisions of corporate top managements on sustainable investment. A set of 3 criteria for uncertainty or risks aspect has been analysed together with other 16 criteria of 5 aspects, which are institutional pressures, competitive/industrial surroundings, government roles, moral values, and behavioural biases, by using Fuzzy Delphi and Fuzzy DEMATEL methods. From a total of six aspects, uncertainty or risks and three other aspects of drivers are considered as the most significant elements that have significant influence on corporate sustainable investment. The other three aspects are government roles, institutional pressures, and competitive or industrial surroundings. Among three criteria of uncertainty or risks, global risks and country risk are having direct influence on corporate sustainable investment. Firm-specific risks are the effect criteria, which are influenced by other causes and then lead to sustainable investment decisions.

For policy implication, the impact of global and country risks related to sustainability issues must be made visible to the firms. The awareness of the firms' decision makers and the rules enforcement could lead to greater commitment from the firms for sustainability. The emphasis on the impact to firms' performances, i.e. firm-specific risk, should also be highlighted so that those firms are strongly motivated to contribute on sustainability.

This study makes several significant contributions to the domain of corporate sustainable investment by identifying the major attributes, aspects and criteria, from the perspective of corporate top managements or decision makers themselves. The findings of this paper could assist the authorities in the making of an effective policy, rules and regulation, as well as its enforcement on sustainability.

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