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The Moderating Role of Government Policy on Contractors' Risk Attitudes in Malaysia Construction Companies

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Abstract: - *Contractors' risk attitudes influence their bidding decisions because of their exposure to uncertainties and competitions. The competing contractors may have, over time, developed different risk attitudes that are part of their own organizational culture. Different risk attitudes explain the peculiarity in how firms do their businesses. In a risky situation, individuals' perceptions have influence on their own risk attitudes. Organizational risk attitude operates within an organization and it defines the accepted and unaccepted risks. This is attributed to how people perceived the control over the intended behavior which relies on the availability of resources, competency, educational background, support from other people and past experience in the same project. Therefore, this study aims to identify the factors affecting contractors' risk attitudes and then determine the relationship with government policy. A total of 140 copies of questionnaire were randomly distributed to the construction companies in Malaysia. Out of the 140 copies of questionnaire distributed, 124 copies were returned. Conversely, 12 copies of the questionnaire were found to be unusable due to missing data or provided the same responses to all the questions. Thus, overall, 80% of the total copies of questionnaire were usable thereby making up an effective sample of 112. Smart PLS 3 for structural equation modeling was utilized in confirming the hypotheses developed for the study. The findings of this research confirmed that government policy (rules and regulations) played a moderating role in enhancing the factors affecting contractors' risk attitudes in construction companies in Malaysia.*

Keywords: - *Contractor's Risk Attitude, Organizational Control Theory, Government Policies, Individual Factors, PLS-SEM.*

1.0 Introduction

Malaysia is the 66th largest country that has a total land area of 329,613 square kilometres with a population of 31,048,034 (Ramlah, 2011). Peninsular Malaysia consists of 13 states and Federal Territory, Sabah Sarawak is situated on the island of Borneo. In Malaysia, the largest groups of Bumiputera are Malays. They are, according to the constitution, Muslims who exercise the Malay customs and culture while the non-Bumiputera is Chinese and Indian.

Malaysia is vigorously working towards achieving high-income status by 2020. This encompasses serious transformation of the economic structure. The government is a technologically advanced nation. Since independence, the Malaysian economy has execute experimental plans with five-year strategic thrusts. The strategic thrusts are aimed at making the nation to become a high-Income nation by 2020. In order to actualise the desired robust growth, it is therefore required that the country attain an average growth of 6.0 % in GDP per annum during the Tenth Plan Period. To attain this target, the construction sector is supposed to play significant roles in terms of policy preparation and implementations (Raza et. al 2014).

The construction sector in Malaysia plays an important role in enhancing the lives of the citizens which is also important to the development of the nation. In the meantime, construction companies in Malaysia have also increased the employment rate in the economy (Khan et al., 2014). Therefore, Malaysia has recognized the importance of the construction sector in transforming and developing the nation's socio-economic status. In the construction industry, there are experts in every phase of the construction process (Nima, 2001). In

fact, construction project has many phases that need to be fully completed on time and within the budget which is indirectly related to the economic development in Malaysia (Han et al., 2005).The studies of Jorge et al., (2008) revealed that the many processes in construction sector and its activities directly have great impact on all aspects of human lifestyle. Besides, changes in construction sector will affect other sectors that will in turn have influence on Malaysia's economy (Rameezdeen and Ramachandra, 2008).Hence; the construction industry can be considered to be the instrument of the Malaysian economic growth.

In addition, apart from the main economic sector, the significance of the construction industry is unique regardless of whether the country is underdeveloped, developing or developed. For instance, the construction industry is exposed to quarterly and annual statements of national accounts. The construction industry appears more than once in the national accounts: GDP, GNI and GFCF. The outputs are slowed done by gross output, capital formation and added value. More than half of GFCF contains construction outputs. The homes, offices, roads, factories, and shopping malls are all part of the outputs of the construction industry, among other capital or investment goods (Olanrewaju 2015).

In Malaysia, the construction industry is one of the biggest sectors that have significantly and rapidly contributed to the country's economic growth. Many construction projects in Malaysia in the process of initiating, planning, controlling, executing and closing have experienced high risks. The risk level during the construction phase is recognized as a risk higher than that of the economic sector. Risk is frequently found in some of the processes involved in project management among the construction companies. A researcher stated that though risk is inevitable in the construction industry, it can be either predicted or unpredicted (Hamimah, 2008). As stated in the Project Management Institute (PMI, 2008), risk is an uncertain condition which has a negative impact on the goal of a project.

Researchers in risk management in construction project have been concentrating on the factors contributing to the success of contractors in the companies, but little attention was given to the relationship between factors affecting contractors' risk attitudes (personal factor) in construction companies. In accomplishing this objective, a number of decision-making activities towards personal factor and contractors' risk attitudes in construction companies were examined in this research.

2.0 Literature Review

2.1 Factors affecting Contractors' Risk Attitudes

When a project goes wrong and fails to achieve its purpose, it is common to review the project to find out what made it fail in order not to repeat the mistake. Many times it can be quite easy to pin point reasons why a particular objective could not be accomplished. While it may be easy to respond to the question regarding the failure of a project, responding to the question concerning the successful completion of a project may be more complex. There is never one single simple answer to this question. Still, the question is important and needs to be asked in order to continuously discuss what drives building and road projects towards success by contractors (Nazirah 2010).

The literature on project-risk perceptions has focused on the differences among various groups (Chen and Partington, 2004; Zou et al., 2007; Adams, 2008) or on quantitative risk perceptions combining the consequences of risks with their likelihood (Lehtiranta, 2014). But less attention has been paid to the process of how decision-makers perceive risk. Risk perception has been found to be associated with people's beliefs, attitudes, judgments, and feelings. Individual characteristics have been considered as important factors affecting risk perception (Chauvin et al., 2007); these can be gender, age, education background and levels of income (Sjöberg, 2000, 2003), self-efficacy (Jani, 2011), confidence, locus of control and classical personality factors (Mullet et al., 2005; Alexopoulos et al., 2009). Previous research has identified a series of factors affecting risk perception (Chauvin et al., 2007), but has rarely

provided a comprehensive understanding of how people describe and perceive risk (Alexopoulos et al., 2009). Thus, this research aims to find out whether and how individual factors, personality traits influence contractors' risk attitudes in the construction companies.

The research of Vollrath and Torgersen (2002) showed that individuals with high levels of extroversion were inclined to engage in multiple, risky health behaviours. It seems that extroverts perhaps can accept deviant behaviours more easily than introverts. Additionally, extroverts often take risks because of their generalized needs for sensation (Zuckerman, 1994), which seems to be the goal of risk-taking behaviour (Soane and Chmiel, 2005). When facing multiple risks, extroverts will be at ease and perceive lower risk.

In addition, individual differences like the desire to control and tolerate uncertainty can be important predicating variables of risk perception (Myers et al., 1997). Labour is a major component of construction work in Malaysia. Unlike in the developed countries such as the UK, USA and Germany where operations on construction sites are highly mechanized, construction work in developing countries and in particular Malaysia, are still labour intensive. This agrees with a study carried out by Alinaitwe et al. (2007); the findings ranked incompetent workers and lack of experience of the workers as the two most significant causes of low productivity of construction workers in the developing countries.

Naik et al., (2015) confirmed that the educational background of contractors has been vital to the effectiveness and successful completion of construction projects. The quality of administrative personnel allocated to a contract reflects heavily on the total efficiency of a contractor's efforts. In addition, it has been established that contractors who have higher qualifications (degrees) and who are also members of a professional body, such as the Chartered Institute of Building and The Institution of Civil Engineers perform effectively well while supervising projects on the construction sites. Moreover, younger contractors show a significantly better performance in the construction site because, in addition to their academic qualifications, they are more likely to adapt to changes and have greater ambition for promotion than the older contractors.

Personal competencies represent an organized, controlled, determined, and effective manner, which include dutifulness, cautiousness, rationality, and orderliness (Goldberg, 1999). More conscientious individuals tend to engage in less risky health behaviour than other people do (Vollrath et al., 1999). Thus, conscientious individuals are likely to be cautious and rational in risky situations, and to make appropriate decisions in extreme situations. They can also control their risk taking tendencies better. Therefore, individuals who score higher on conscientiousness may perceive higher risks. In contrast to the functional competence approach, a number of US researchers, especially in the field of management, focus heavily on personal (or behavioural) competencies (Boyatzis, 1982; Klemp, 1980; Schroder, 1989; etc.). These include self-confidence, control of emotions and interpersonal skills. Personal competencies are often used in assessment centre settings to assist with recruitment or for assessing an individual's promotion potential. They are also commonly found in a company's specific competency frameworks.

The emotional stability dimension has different facets such as stability, calmness, impulse control, cool-headedness, and tranquillity. The essence lies in the idea of fearlessness in many situations (Chauvin et al., 2007). Emotionally stable individuals are less likely to be anxious or to demonstrate risky or impulsive actions. In other words, due to the traits related to stability and calmness, individuals will be more risk avoiding and thus perceive high levels of risk. It is therefore assumed in this study that individuals with higher levels of emotional stability would perceive higher levels of risk. (Dikmen, Birgonul, & Gur, 2007)

Competition and risk are two terms that are frequently used to describe the construction business. Competition in a market is developed by multiple competitors, who may behave differently under uncertain environments depending on their

own risk attitudes. Over time, organizations develop their own cultures. A firm's culture, especially its risk culture, defines its own approach to dealing with uncertainty (Hillson and Murray-Webster 2005).

2.2 Government Policy (Rules and Regulations) as Moderator

In this study, government policy (rules and regulations) refers to ways by which government regulates the price of building materials, rules on the qualifications of the contractors, work experience, professional competence, and health and safety legislation of workers during the construction process and approval of building documents. Niu (2008) examined the influence of government regulation on construction projects in China. The findings showed that government rules and regulations significantly influenced construction risks.

Consistent with prior studies of Aibinu&Jagboro (2002) and Iroegbu (2005) who examined the effects of construction risks in Malaysia construction projects, their studies showed that rules and regulations significantly influenced construction projects. Flanagan and Norman's (1993) result advocate that environmental intricacy and individual factors in the project would influence construction risks. Similarly, rules and regulations from the government may encourage construction companies and also enhance risk management (Lai, Ngai & Cheng, 2005).

Adeleke et al., (2017) also suggest that rules and regulations are positively related to proper control at work. For example, rules and regulations are connected with all aspects of construction activities, such as all protocols or measures that are involved before the initiation and closure of a project. Moreover, organizations that duly follow the prescribed rules and regulations by the government while procuring materials, drawing plans, or performing other activities involved in construction will record less occurrence of risk in the project.

2.3 Conceptual Framework

The concept behind this study is that there are some factors that affect an individual's risk attitudes in the construction industry. As a result, the researcher intends to identify those individual factors affecting risk attitude and then identify the relationship of those factors with contractors' risk attitudes among construction companies, as shown in Fig.1

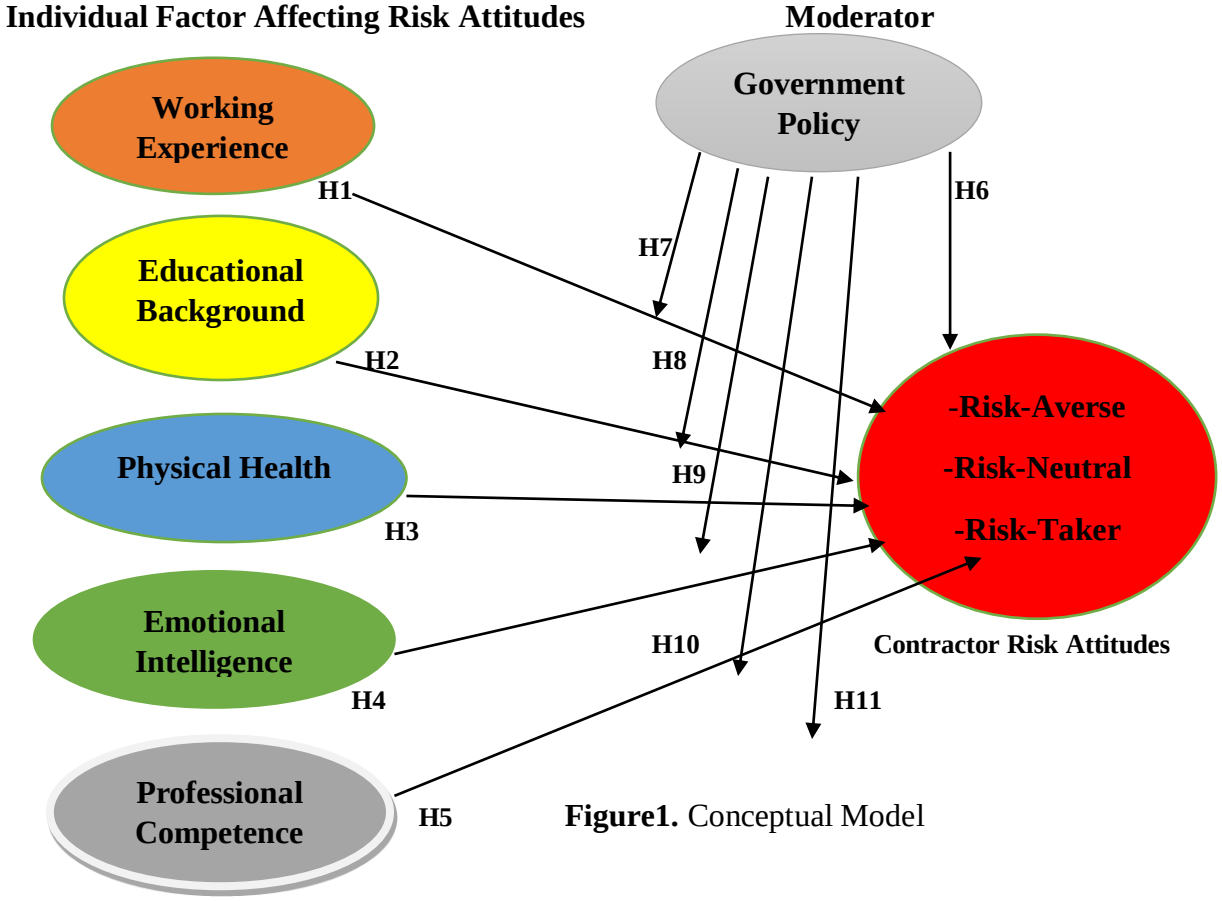

Figure1. Conceptual Model

2.4 Theory and Hypotheses Development

Organisational control theory demonstrates some theoretical underpinnings to support the relationship between government policies and factors affecting contractors' risk attitudes. The organisational control theory (Adeleke et al., 2018; Flamholtz et al., 1985; Jaworski, 1988; Ouchi, 1979; Snell, 1992) proposes that proper control established and applied by a government must theoretically be able to regulate risk occurrence on construction projects within the organization with the aids of proper monitoring, control and compensation among the stakeholders, contractors, project managers, team members and the organizations themselves.

Hence, the following hypotheses were developed based on the strong evidence provided by the literature, considering the influence of individual factors affecting contractors' risk attitudes.

H1. Work experience will significantly influence the contractors' risk attitudes in construction companies.

H2. Educational background will significantly influence the contractors' risk attitudes in construction companies.

H3. Physical health will significantly influence the contractors' risk attitudes in construction companies.

H4. Emotional intelligence will significantly influence the contractors' risk attitudes in construction companies.

H5. Professional competence will significantly influence the contractors' risk attitudes in construction companies.

H6. Government policy will significantly influence the contractors' risk attitudes in construction companies.

H7. Government policy will moderate the relationship between work experience and the contractors' risk attitudes in construction companies.

H8. Government policy will moderate the relationship between educational background and contractors' risk attitudes in construction companies.

H9. Government policy will moderate the relationship between physical health and contractors' risk attitudes in construction companies.

H10. Government policy will moderate the relationship between emotional intelligence and the contractors' risk attitudes in construction companies.

H11. Government policy will moderate the relationship between professional competence and the contractors' risk attitudes in construction companies.

3.0 Methodology

This research method was based on Structural Equation Modelling (SEM), and the research model was ascertained through the SmartPLS 3.0 software (Ringle, Wende, & Becker, 2015). PLS-SEM is an appropriate method that was used to assess the results in the current research because its algorithm permits the unrestricted computation of cause-effect relationship models that employ formative measurement models (Diamantopoulos &Siguaw, 2006). Therefore, the reflective approach was employed in this research. This study also focused on the G7 contractors that specialise in building, bridge and road construction projects in Malaysia construction industry.

3.1 Scale of the Questionnaire

Kulatunga and Udayangani, (2006) state that Likert scales are proper and widely used in the attitudinal measurement. The Likert scale is commonly used to measure activities, with a scale ranging from very low to very high. In this paper, the scale point is mapped out from 0.1 to 0.5 interval scale in order to quantify the risk attitudes of contractors in construction projects. The scale correspondingly represents respondents' attitudes from (0.1) very low that this factor has dramatic influence to (0.5) very high that this factor has dramatic influence.

4. Results

4.1 Response Rate

In order to achieve the proper response rate for this study, a total of 140 copies of questionnaire were randomly distributed to the construction companies in Kuantan Malaysia. Out of the 140 copies of the distributed questionnaire, 124 copies of the questionnaire were received with an equal percentage of 89%. Conversely, 12 copies were found to be unusable due to missing data or the supply of the same responses to all the questions. Thus, overall, 80% of the total copies of questionnaire were usable making a total of 112 sample size. Therefore, a response rate of 80% is considered adequate for the analysis in this study because a response rate of 30% is sufficient for surveys (Hair et al.2014; Sekaran, 2010).

The following are the demographic profile of the selected sample in terms of gender, age, education, job position, work experience and company's location: 15 respondents (13.4%) were females and 97 respondents (86.6 %) were males. The sample is spread out among the following age groups: 18 to34 were 45 (40.2%), 35 to 44 were 43 (38.4%), 45 to 60 were 20 (17.9%) and 4 respondents were 60 years above.

Contractors were 48(42.9%), contract managers were 20 (17.9%), architects were 17 (15.2%), project managers were 14 (12.5%) and engineers were 13 (11.6%). Regarding the qualification, the majority of the respondents (55.4%) had masters' degrees, 29 respondents (25.9%) were having bachelor degrees and, finally, 20 (18.0%) respondents were having PhD degrees.

From the experience level of the respondents, it was found that most of the respondents had moderate experience. A total of 48 (42.9%) respondents had 4 to 6 years' experience, followed by 39 (34.8%) having less than 3 years, 21 respondents (18.8%) having 7 to 9 years, and 4 respondents (3.6%) having above 10 years job experience.

In the case of job specialization and company's location, more than half of the respondents (70.5%) specialized in building projects, followed by 21 (18.8%) respondents who specialized in road projects and only 12 (10.7%) respondents specialized in bridge projects. The respondents located across Malaysia were50 (44.6%), followed by 36 (32.1%) that were within few states in Malaysia, 15 (13.4%) were in the international market and 11 (9.8%) respondents were in the local market area.

4.2 Assessment of Measurement Model (Outer Model)

In terms of analysis, PLS-SEM is a two-step process involving the assessment of the measurement and structural model (Hair et al.2017; Hair et al. 2011; Henseleret al. 2009). To organize measurement model, the study is reflected to affect the standard, which is anticipated by many researchers (Joseph F Hair, Ringle, Hult, Sarstedt& Thiele, 2017; Memon, Salleh&Baharom, 2017; Richter, Sinkovices, Ringle&Schlaegel, 2016; Rigdon2016). According to authors, composite reliability, outer loadings, Cronbach's alpha, Average Variance Extracted (AVE for convergent validity) and discriminant validity, which is determined by cross loading, Fornell–larcker criteria and heterotrait-monorail data ratio were assessed to examine the measurement models. The authors deleted 13 of 48 items because of loadings below the threshold. However, for the whole model, only 32 items were retained with the loading between 0.534 and 0.883, as shown in (Fig.2and Table 1).

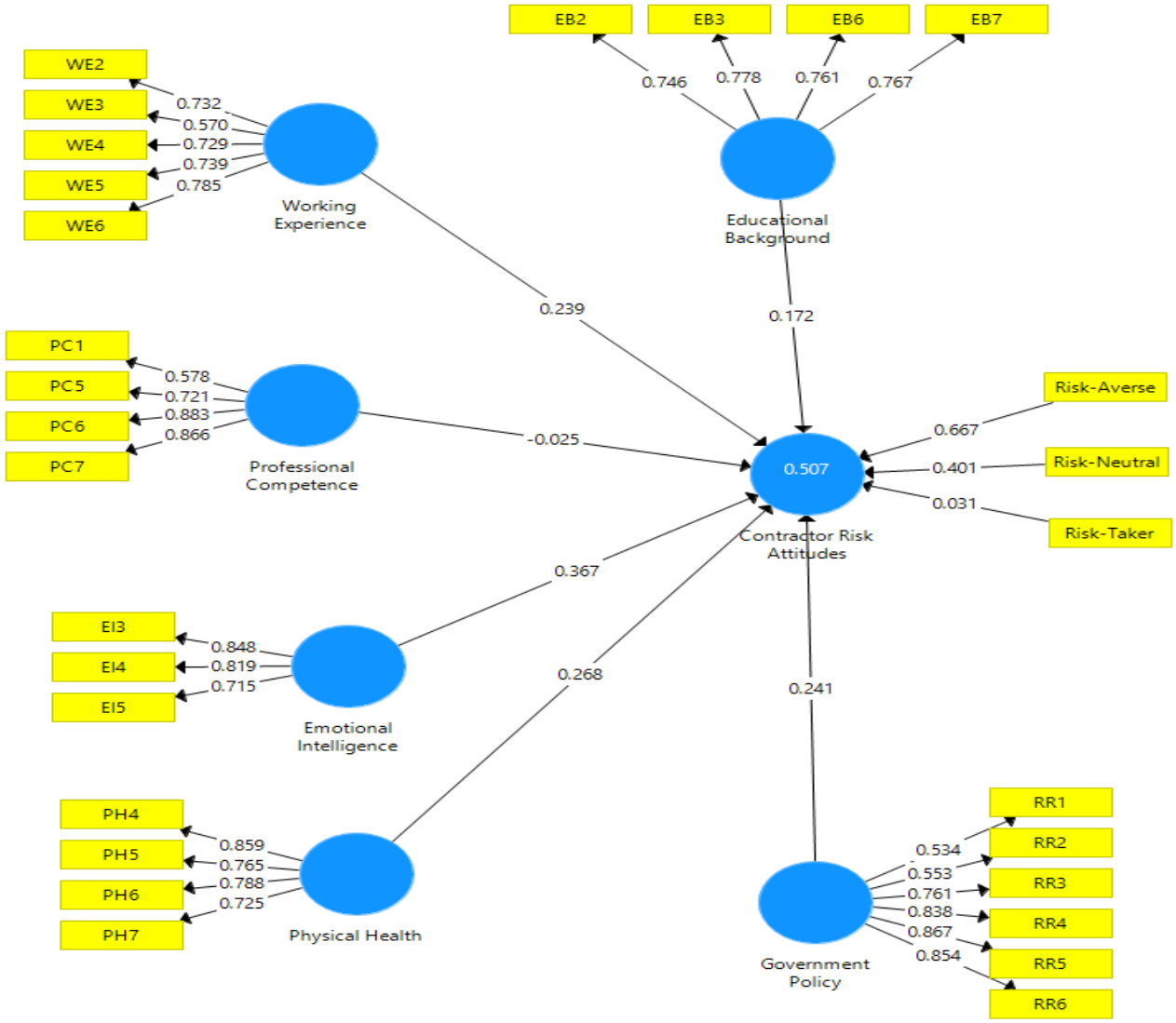

Figure 2: Evaluation of Measurement Model through PLS Algorithm (Modified PLS Path model).

4.3 Construct Reliability and Validity

This is in line with the criterion that Cronbach alpha coefficients of 0.60 is considered average reliability while a coefficient of 0.70 or higher indicates that the instrument has a high-reliability standard (Hair et al.2014; Sekaran, 2010). Hair suggests that the composite reliability coefficient should be at least .70 or more (Hair et al.2011).

Table 1: Construct Reliability and Validity

Construct	**Items**	**Outer Loading/Weight**		**Cronbach's Alpha**	**rho_A**	**CR**	**AVE**
	Risk-Averse	**0.667**					
Contractor Risk Attitudes	Risk-Neutral	**0.401**	**Formative**	**NA**	**NA**	**NA**	**NA**
	Risk-Taker	**0.031**					
	EB2	**0.501**	**0.746**	0.778	0.811	0.845	0.582
Educational Background	EB3	**0.215**	**0.778**				
	EB6	**0.324**	**0.761**				
	EB7	**0.277**	**0.767**				

	EI3	**0.451**	**0.848**	0.725	0.762	0.838	0.634
Emotional Intelligence	EI4	**0.524**	**0.819**				
	EI5	**0.263**	**0.715**				
	PH4	**0.442**	**0.859**	0.800	0.850	0.865	0.617
Physical Health	PH5	**0.296**	**0.765**				
	PH6	**0.324**	**0.788**				
	PH7	**0.192**	**0.725**				
	PC1	**0.228**	**0.578**	0.769	0.831	0.852	0.596
Professional Competence	PC5	**0.249**	**0.721**				
	PC6	**0.367**	**0.883**				
	PC7	**0.421**	**0.866**				
	WE2	**0.311**	**0.732**	0.780	0.806	0.838	0.511
	WE3	**0.137**	**0.570**				
Working Experience	WE4	**0.155**	**0.729**				
	WE5	**0.339**	**0.739**				
	WE6	**0.421**	**0.785**				
	GP1	**0.235**	**0.534**	0.855	0.795	0.880	0.559
	GP2	**-0.09**	**0.553**				
Government Policy	GP3	**0.179**	**0.761**				
	GP4	**0.264**	**0.838**				
	GP5	**0.318**	**0.867**				
	GP6	**0.342**	**0.854**				

Note: (CRA) Contractor Risk Attitudes, (EB) Educational Background, (EI) Emotional Intelligence, (PH) Physical Health, (GP) Government Policy, (WE) Work Experience, both NA (Not applicable) for formative scale.

4.4 Discriminant Validity

In this study, discriminant validity was evaluated using three criteria: cross-loadings, Forner-Lacker criterion as suggested by (Hair Jr et al., 2017). In assessing the cross-loadings, the outer loading of an item should be greater on its respective latent variable than its cross-loadings on other latent variables. Table 2 displays that outer loading of each indicator was greater on its respective.

Table 2: Cross Loading

Items	**EB**	**EI**	**GP**	**PH**	**PC**	**WE**
EB2	**0.746**	0.128	0.100	0.186	0.116	0.424
EB3	**0.778**	0.125	0.010	-0.151	0.079	0.392
EB6	**0.761**	0.224	0.102	-0.045	0.153	0.307
EB7	**0.767**	0.184	0.068	-0.038	0.055	0.203
EI3	0.226	**0.848**	-0.110	0.102	0.005	0.141
EI4	0.138	**0.819**	0.109	0.197	0.205	0.125
EI5	0.155	**0.715**	-0.060	-0.084	-0.001	0.085
GP1	0.016	0.029	**0.534**	0.476	0.369	-0.200
GP2	-0.070	-0.066	**0.553**	0.102	0.047	-0.142
GP3	-0.017	-0.088	**0.761**	0.184	0.236	0.032
GP4	0.128	-0.012	**0.838**	0.203	0.246	0.006

GP5	0.029	0.044	**0.867**	0.241	0.224	-0.093
GP6	0.159	-0.046	**0.854**	0.192	0.210	0.089
PH4	0.012	0.146	0.278	**0.859**	0.248	0.045
PH5	0.064	0.014	0.324	**0.765**	0.434	0.053
PH6	0.017	0.155	0.256	**0.788**	0.447	-0.038
PH7	0.028	0.045	0.156	**0.725**	0.428	-0.020
PC1	0.122	0.002	0.104	0.119	**0.578**	-0.004
PC5	0.066	0.068	0.380	0.370	**0.721**	-0.054
PC6	0.113	0.128	0.226	0.390	**0.883**	0.004
PC7	0.128	0.107	0.312	0.480	**0.866**	-0.027
WE2	0.298	0.140	0.015	0.133	0.059	**0.732**
WE3	0.293	0.167	-0.065	-0.100	-0.095	**0.570**
WE4	0.291	0.170	-0.060	-0.027	0.003	**0.729**
WE5	0.341	0.012	-0.044	0.068	-0.074	**0.739**
WE6	0.378	0.129	0.007	-0.063	-0.012	**0.785**

Note: (CRA) Contractor Risk Attitudes, (EB) Educational Background, (EI) Emotional Intelligence, (PH) Physical Health, (GP) Government Policy, (WE) Work Experience.

Table 3 shows that the correlations between the variables and the values of the square root of the average variances extracted. This clearly indicates that all the diagonal values are greater than the correlation among the variables, suggesting adequate discriminant validity (Fornell and Larcker, 1981).

Table 3: Discriminant validity results based on Fornell-Larker criterion

Items	**EB**	**EI**	**GP**	**PH**	**PC**	**WE**
Educational Background	**0.760**					
Emotional Intelligence	0.220	**0.796**				
Government Policy	0.100	-0.008	**0.748**			
Physical Health	0.040	0.127	0.331	**0.786**		
Professional Competence	0.140	0.109	0.333	0.465	**0.772**	
Working Experience	0.450	0.151	-0.026	0.020	-0.020	**0.715**

Note: (CRA) Contractor Risk Attitudes, (EB) Educational Background, (EI) Emotional Intelligence, (PH) Physical Health, (GP) Government Policy, (WE) Work Experience, both NA (Not applicable) for formative scale

4.5 Assessment of Structural Model (Inner Model)

A bootstrapping process with 5,000 interactions was performed to generate t-values and standard errors to confirm the statistical significance (Hair Jr et al., 2011). R2 measures the predictive accuracy of the model (Rng, Ramayah, and Amin, 2015) and represents the percentage of variance in the dependent variables as explained by the independent variables in the model (Hair Jr et al., 2011).But path coefficients (ß) indicate the degree of change in the dependent variable for each independent variable.

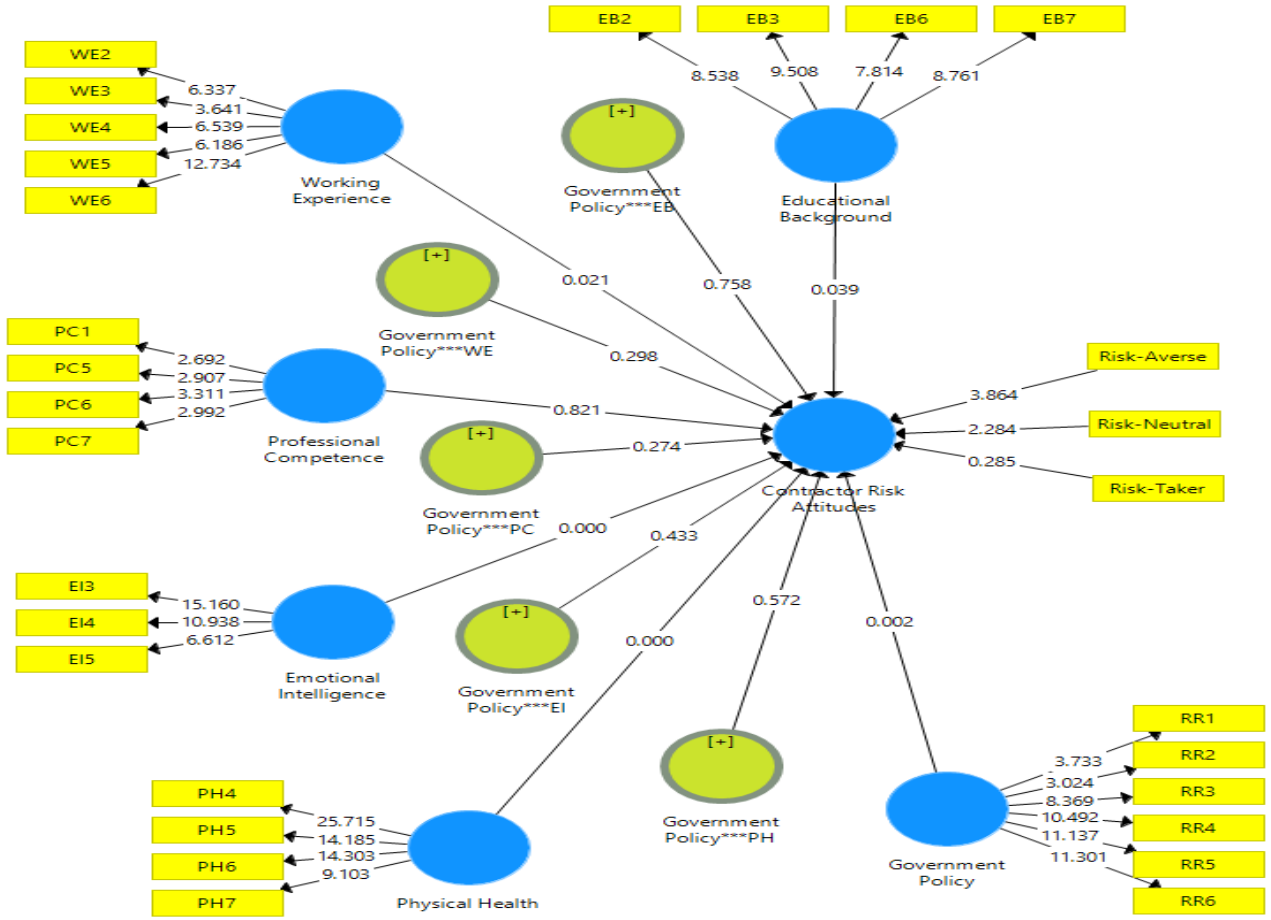

Figure.3: Evaluation of Structural Model through PLS Bootstrapping.

Table 4. Results of Bootstrapping for Structural Model Evaluation.

Hypothesis	Variables	Beta (ß)	T-Value	P-Value	Findings
H1	Work Experience -> CRA	0.081	2.924	0.004	**Supported*** **
H2	Educational Background -> CRA	0.079	2.152	0.032	**Supported*** **
H3	Physical Health -> CRA	0.075	3.933	0.000	**Supported*** **
H4	Emotional Intelligence -> CRA	0.075	4.717	0.000	**Supported*** **
H5	Professional Competence -> CRA	0.048	0.047	0.962	**Not Supported**
H6	Government Policy -> CRA	0.053	2.139	0.032	**Supported*** **
H7	Government policy***WE -> CRA	0.081	0.968	0.333	**Not Supported**
H8	Government policy***EB -> CRA	0.080	0.571	0.568	**Not Supported**
H9	Government policy***PH -> CRA	0.066	2.148	0.032	**Supported*** **
H10	Government policy***EI -> CRA	0.090	0.904	0.366	**Not Supported**
H11	Government Policy*** PC -> CRA	0.057	1.053	0.292	**Not Supported**

Note: ***Significant at 0.01 (1 -tailed), **significant at 0.05 (1 -tailed), *significant at 0.1 (1 -tailed), (CRA) Contractor Risk Attitudes.

In Table 4, the T-Values with each path coefficient were determined using the bootstrapping technique and P-Values were subsequently generated. The results showed that all individual factors affecting contractors' risk attitudes were directly significant. Therefore, result in Table 4 above indicates that work experience, educational background, emotional intelligence, and physical health possess a positive relationship with contractors' risk attitudes only professional competence has no significant with contractor risk attitudes. Hypotheses 7 to 9 predicted that government policy

(rules and regulations) had relationship between individual factor affecting contractors' risk attitudes in the construction companies. Result in Table 4 also revealed that government policy (rules and regulations) possess a positive relationship between only H8, physical health with contractors' risk attitudes ($\beta = 0.066$, $t = 2.148$, $p < 0.01$). The product term method which strengthens the relationship between the individual factors that affect contractors' risk attitudes strengthens the relationship positively (Figure. 4 to 6).

As the self-assessment showed high performance, this study revealed that the respondents criticized the current performance in construction companies, which is a reflection of the problem of the study. Also, the small values of standard deviation suggest that this perception is virtually agreed upon among most contractors and engineers in construction companies.

4.6 Testing Moderating Effect

The current study employed a product indicator approach with the use of PLS-SEM to discover the strength of the moderating effect of government policy (rules and regulations) on the relationship between factors affecting risk attitudes with contractors' risk attitudes in Kuantan Malaysian construction companies (Chin et al. 2003; Helm, Eggert, &Garnefeld, 2010; Henseler& Chin, 2010a; Henseler&Fassett, 2010b). The product term method is regarded as appropriate in the present study because the moderating variables are continuous (Rigdon, Schumacker, &Wothke, 1998). Henseler and Fassett (2010a) stated that the results of the product term method are normally superior or equal to the group comparison method, and so the authors always recommend the use of product term method (Adeleke et al., 2016).

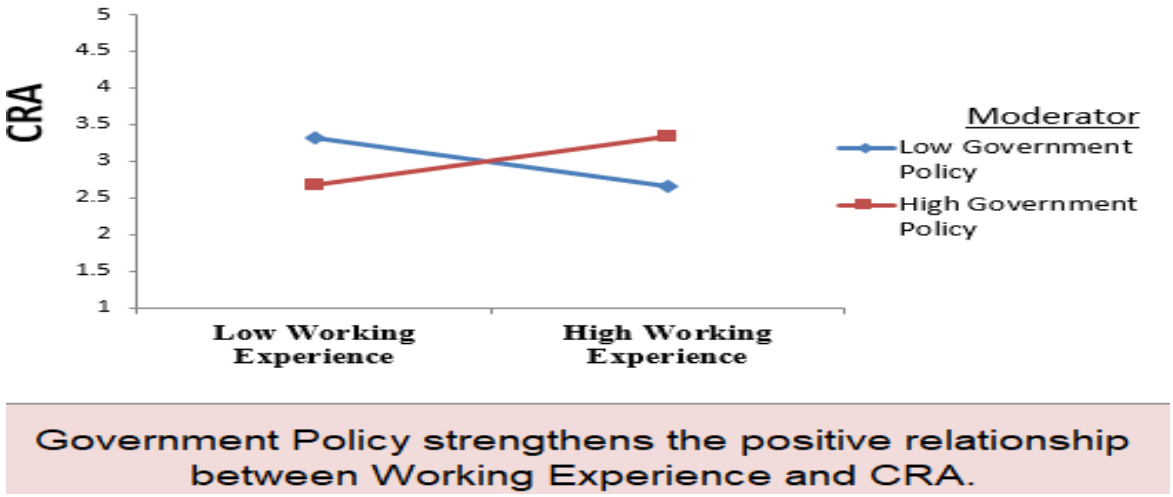

Figure 4: Interaction Effect of Rules and Regulations on Work Experience and Contractors' Risk Attitudes (CRA)

Government policy strengthens the positive relationship between work experience and contractors' risk attitudes among Malaysia construction companies. The result of the physical health was however statistically significant for contractors that had high obedience to rules and regulations than for contractors with low compliance with rules and regulations in construction companies.

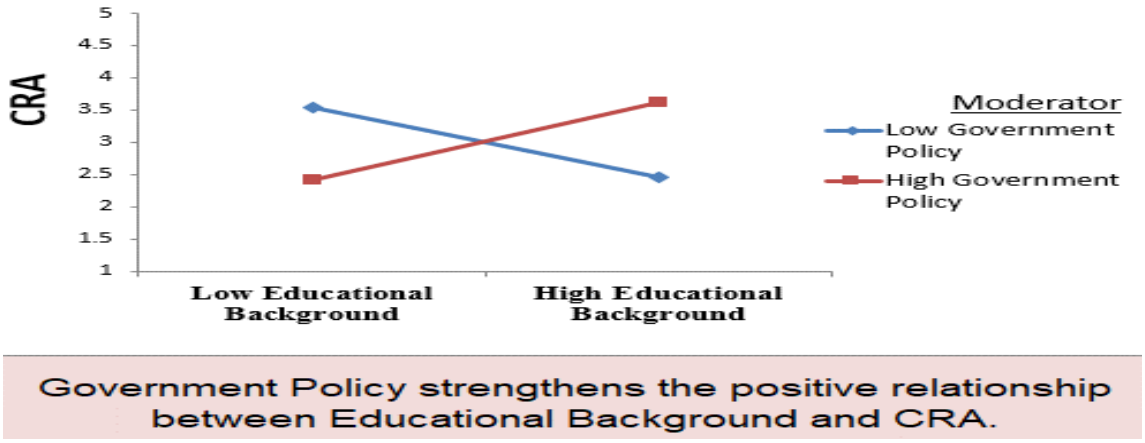

Figure 5: Interaction Effect of Rules and Regulations on Educational Background and Contractors' Risk Attitudes (CRA).

Government policy strengthens the positive relationship between educational background and contractors' risk attitudes among Malaysia construction companies. The result of educational background was however statistically significant for contractors that had high obedience to rules and regulations than for contractors with low compliance to rules and regulations in construction companies.

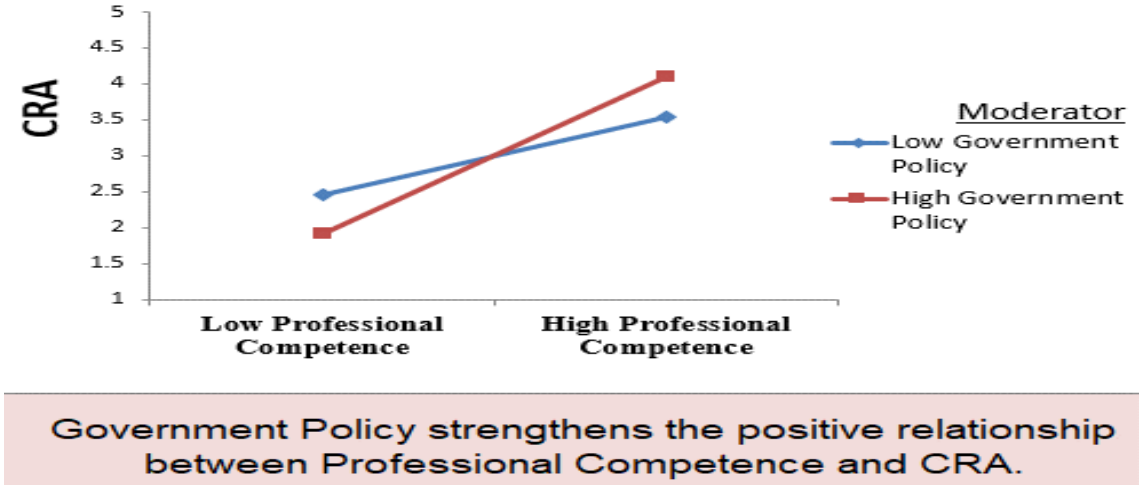

Figure 6: Interaction Effect of Rules and Regulations on Professional Competence and contractor risk attitudes (CRA)

Government Policy strengthens the positive relationship between professional competence and contractor's risk attitudes among Kuantan Malaysia construction companies. The result of professional competence however statically significant for contractors that have high obedience to rules and regulations than for contractors with low compliance with rules and regulations in construction companies.

Effect size: f^2

$$= \frac{R^{2model\ with\ moderator} - R^{2model\ without\ moderator}}{1 - R^{2model\ with\ moderator}}$$

According to Cohen (1988) andHenseler & Fassett (2010a), moderating effect sizes (*f2*) values of 0.35, 0.15 and 0.02 can be considered as strong, moderate and weak respectively. Nevertheless, according to Chin *et al.* (2003), effect sizes with

low values do not essentially mean that the moderating effect is insignificant. "Even a small interaction effect can be significant under utmost moderating conditions, if the resulting beta changes are significant, then it is paramount to take these conditions into consideration" (Adeleke et al., 2017).

Table 5: Strength of the Moderating Effects Following Cohen's (1988), Henseler, and Fassott's (2010) Guidelines

Endogenous Latent Variable	R-squared		f-squared	Effect Size
	Included	Excluded		
Government Policy	0.507	0.461	0.0933	Small

5.0 Discussion

The present literature on contractor risk attitudes showed that the results regarding the relationship between factors affecting contractors' risk attitudes are unpredictable (Wang et al., 2011). Most of the researches that have been conducted reported positive results (Kim, et al., 2015; Sathiskhkumar et al., 2015; Wiguna and Scott, 2005; Zou et al., 2007; El-Sayegh, 2008; Arawati, 2005; Flynn et al., 1995; Douglas & Judge, 2001; Kaynak, 2003; Yasin et al., 2004), and yet, some other studies reported opposite results (Wang et al ., 2011;Chao et al., 2015; Enshassi et al., 2008; Hlaing et al., 2008; Wang and Yuan, 2011; Qing et al., 2010). Due to this discrepancy and inconclusive results, some researchers such as Ehigie and McAndrew (2005); Li-Zi, (2014); Maria, et al., (2005) suggested that more research should be done about factors affecting contractors' risk attitudes in the light of some other potential influencing variables.

Hypothesis 1 of this study stated that work experience has a significant effect on the contractors' risk attitudes among Malaysia construction companies.As it is also reported in Table 4 above, work experience possessed a positive relationship with contractors' risk attitudes with this value:(β = 0.081, t = 2.924, p< 0.01). Result above indicates that work experience has direct relationship with contractors' risk attitudes in the construction companies. This is not surprising because it is the utmost expectations of every company to have experienced workers. The contractors who have extensive experience in the construction field can increase their standing as professionals in the construction project.

Hypothesis 2 stated that education background has a significant effect on the contractors' risk attitudes among Malaysia construction companies. As reported in Table 4 above, educational background element had significant effect on contractors' risk attitudes (β = 0.079, t = 2.152, p<0.01). It has been established that contractors who have higher qualifications (degrees) and who are also members of a professional body, such as the Chartered Institute of Building and The Institution of Civil Engineers perform effectively well while supervising projects on the construction sites. But contractors with little educational background would be less familiar with risk and less skilful to addressing the potential risks that might block the successful implementation of projects. Therefore the hypothesis (H2) of this study was not supported.

Hypothesis 3 predicted that physical health has a significant relationship with contractors' risk attitudes in Malaysia construction companies. Result also showed that there was positive relationship between physical health and contractors' risk attitudes (β = 0.075, t = 3.933, p< 0.01).The result of this hypothesis was significant because rules and regulations are very necessary in construction companies to meet specific performance standards for some products, health with safe surroundings for the workers and to force them to improve the quality of their product and the rate at which technology is used in the construction process. Also, rules and regulations will make contractors to be aware of the current health and safety legislation which govern their activities in the construction industry. In addition to this, physical health is one of the prequalification criteria for new workers in many companies.

Also, hypothesis 4 predicted that emotional intelligence has a significant effect on the contractors' risk attitudes among Malaysia construction companies.Result in Table 4 above also revealed that emotional intelligence possessed a positive relationship with contractors' risk attitudes ($\beta = 0.075$, $t = 4.717$, $p < 0.01$). Therefore, emotion can greatly influence contractors' attitudes toward risks because contractors carry morals that influence their thoughts, feelings, and actions; nevertheless, each individual possesses a unique conception of principles. It is the unique characteristic of morals that makes contractors' risk attitudes different.

Hypothesis 5 predicted that, Professional Competence has a significant effect on the contractor's risk attitudes among Kuantan Malaysia construction industry. Professional competence element has no significant effect on contractor risk attitudes ($\beta = 0.106$, $t = 0.227$, $p>0.1$), Therefore the hypothesis H5 of this study was not supported. Literature shows that when contractor become senior by age and more job experience they have more score on rules and regulation. But the result of this hypothesis was not significant because the respondents criticized the current performance of professional competence in construction companies which is a reflection and the reason why professional competence to be a relatively less significant factor for influencing contractors risk attitudes in construction industries. However, with the help of a moderator, the result of professional competence statically significant for contractors that have high obedience to rules and regulations than for contractors with low compliance with rules and regulations in construction industry.

The moderating effect of government policy between individual factor affecting contractors' risk attitudes was significant only in H8, physical health. According to the bootstrapping, H6, H7 and, H9 were not significant but the product term method which strengthens the relationship between the individual factor that affects contractors' risk attitudes was positive (Figures. 4 to 6). The result was however statistically significant for individuals with high obedience to rules and regulations than for individuals with low compliance to rules and regulations because it can be clearly seen that when government policy (rules and regulations) is high in the construction industry, contractors' risk attitudes is low and when government policy and contractors' risk attitude are both high, individual factor and contractors' risk attitude are significantly negatively correlated. That is to say, with the high level of government policy in construction companies, there is more significant positive effect of individual factor affecting risk attitudes and contractors' risk attitudes with the help of government policy to regulate and to control the behaviour and attitudes of contractors in the construction companies.

6.0 Research Implications and Limitation

The implication of this study to the academics is in three categories: individual factor affecting risk attitudes from the perspective of contractors' risk attitudes in construction companies in Malaysia. This study broadened the organizational control theory so as to accommodate both individual factors affecting risk attitudes and contractors' risk attitudes in construction companies in Malaysia. Moreover, most studies have not given much attention to associating individual factor affecting contractors' risk attitudes based on the revealed literature with moderating potentiality of government policy, which is the gap that this present study tried to fill.This study also contributed knowledge by lending empirical support to the organizational control theory and expected utility theory system's effect on contractors' risk attitudes, thus confirming that changing one individual attitudes will change the whole equilibrium. This is useful to aid in further synthesis of organizational control theory and expected utility theory in construction companies.

From the findings of this study, educational background and work experience are one of the significant parts to keep employee in the organization. Therefore, it is important for organizational managers to recognize the need for consistency between the strategic needs of the company on one hand, and the career goals practices used by the firm on the other hand. More

precisely, an organization's business strategies and other competitive factors will normally dictate the type and level of individuals who are employed. Knowledge of individual can also aid senior organizational managers in the critical task of succession planning. Individuals with work experience that fit the demands of top management positions can be targeted and groomed for these posts. Thus, a company can take advantage of the embedded knowledge of its existing personnel by deploying them in areas and in jobs that mesh with individual aspirations in the form of educational background. Organizations that implement career management programmers to help individuals explore themselves and their work environment can reap rewards in the form of potentially more productive employees and a more efficient matching of employee desires with corporate human resource requirements. It is therefore essential for construction companies and their project managers to show a strong commitment to developing employees through career planning.

In addition, our study focused on individual factors affecting contractors' risk attitudes in the construction companies in Malaysia. Therefore, these dimensions of factor affecting risk attitudes can be used in other aspects of construction projects, such as management, economic, and technical factors. Therefore, further research might investigate other Grades of Malaysian construction companies apart from Grade 7 contractors to know if there is a similarity in the results because other Grades of the contractors might have potential positive contributions to the construction companies as well.

7.0 Conclusions

In line with the empirical evidence and theoretical opinion presented in this study, it is expected that rules and regulations buffer the relationships among individual factors, political factor, economic factor, and technological factor (factors affecting risk attitude) in construction project management. In other words, risk management will be stronger (i.e., more positive) for organizations that have well-established rules and regulations concerning the aforementioned factors than those without.

However, there was positive relationship between contractors' risk attitudes and government policy in construction companies in Malaysia. From the objectives it was found that individual factor is more aligned with industrial goals. In addition, contractors with high educational background, work experience, professional competence, emotional intelligence and physical health are more likely to obey the rules and regulations of government in construction companies. Therefore, this study suggests that individuals with high obedience to rules and regulations can control their risk attitudes towards risk than those individuals with low compliance to rules and regulations. This study has highlighted the underlying mechanism of how individual factor can reflect in contractors' risk attitudes in construction companies, especially of G7 contractors. Importantly, this research provides the construction industry with guidelines on how individual factor that affect risk attitudes can relate with contractors' positive work-related behaviors.

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