Original article

ROLE OF GOVERNMENTAL REGULATORY CONTROLLING PROCEDURES BETWEEN POLITICAL HAZARDS AND RISK MANAGEMENT

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Abstract: Both domestic and international developers are inextricably exposed to political uncertainty and hazards for construction activities on a global scale, either deliberately or inadvertently. Effectively managing political hazards in the developmental sector is essential for project performance, achievement and success. In developmental projects, The Organization Control theory, upon which this research is anchored, applied quantitative methodology with a positivist paradigm using SmartPLS as a statistical tool to take into account the moderating function of governmental regulatory controlling procedures to gauge the effect of political concerns on managing risks in Saudi Arabia's developing sector. Survey questionnaires were sent to the top contractors (those with more than 250 employed workers) with an 81.9% completion rate. The findings indicate that political influences in Saudi Arabia's developing sector have a favorable impact on risk management, which is moderated by governmental regulatory controlling procedures. The connection among political influences and risk management is statistically significant ($\beta = 0.338$, $M = 0.324$, $T = 6.185$ and $p < 0.05$), governmental regulatory controlling procedures and risk management is statistically significant ($\beta = 0.438$, $M = 0.451$, $T = 8.36$ and $p < 0.05$) and the interaction of governmental regulatory controlling procedures between political factors and risk management is also statistically significant ($\beta = 0.263$, $M = 0.255$, $T = 5.339$ and $p < 0.05$). Professionals, specialists and experts can minimize damage resulting from political concerns and conflicts by putting risk management concepts and principles into practice.

Keywords: construction management, political hazards, governmental regulatory controlling procedures, risk management.

1. INTRODUCTION

Risk is the likelihood that an activity will have unintended, undesired, detrimental and unfavorable repercussions (Crane et al., 2013). The core risk management steps incorporate classifying the risk, analyzing and evaluating its impact and taking appropriate action (Ripley, 2020). Hazards are constantly present in human events (Szymański, 2017). Projects in the construction industry are hindered due to deficient and flawed hazard assessment systems, resulting in a higher cost. Primary risk elements in projects include plans and layouts, supplies, operation and administration, workers and technology (El-Sayegh, 2008).

By properly implementing the risk management framework, which incorporates categorizing potential hazards by recognizing

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them, investigating and examining hazards, and reacting to them, the targets of projects are successfully attained (Zou et al., 2007). Contrarily, failure to develop and practice risk management efficaciously and successfully causes projects to be deferred, delayed, or suspended with a budget overrun (Andi, 2006). The scope of work in projects comprises of significant complexity of the operations and procedures involved, and the hazards associated cannot be totally minimized or removed (Wang et al., 2004).

The significance, impact, potency and success of the adoption of the risk management system have been observed in projects in developing and under-developing countries, such as the research of Netzel et al. (2021) in Germany, Nabawy et al. (2021) in Egypt, Al Malki and Alam (2021) in Bahrain, AlQubaisi and Emran (2022) in UAE, Dixit (2021) in India, Prateepasen and Aumpiem (2021) in Thailand, Nasser and Norhayatizakuan (2021) in Oman, Butt et al. (2021) in Pakistan, Erfan et al. (2021) in the Netherlands and Xiao et al. (2021) in China.

In the Saudi Arabian developmental sector, public works projects are being put on hold, postponed, or suspended, which is an alarming situation for the governing institutions. Managing projects to achieve goals is directly influenced by culture, organizational characteristics, leadership, accountability, worker aptitude and resources (AlMunifi & Almutairi, 2021). In the Saudi Arabian sector, prior literature has indicated that indecorous and insufficient risk management practices have a detrimental impact on economic progress, advancements, sustainability and development (Abdulmoneim, et al., 2021).

Saudi Arabia's residential and industrial development business is complicated, complex, fragmented and contentious, making it challenging to meet business goals without effectively cataloging and reacting to hazards (Rehman & Ishak, 2022). Housing and industrial developments frequently have deferrals and deferment, which adversely impact customers, builders, and designers by leading to the development of combative conflict, distrust, suspicion, disagreements, adjudication, and an inherent attitude of unease and dissatisfaction (Rehman & Ishak, 2021).

This study focused on evaluating potential losses for assessing sustainable construction in an attempt to fill a knowledge gap engendered by contradictory results from prior literature (Abdullahi, et al., 2021; Adeleke et al., 2016; AlMunifi & Almutairi, 2021).

2. LITERATURE REVIEW

2.1. Saudi Arabian development sector

The Gross Domestic Product (GDP) of the Kingdom of Saudi Arabia is 2,625,442 million SAR and GDP per capita is SAR 74,763 as estimated in 2020 (Statistics, 2021). KSA is ranked among high-income grouped countries. Human Development Index is 0.854 which is ranked 40th in the world (World Bank, 2021). The construction market in the Kingdom of Saudi Arabia is the biggest among GCC countries. Al Widyan is a project with a budget of 2.7 billion USD. It includes twenty thousand low and high-rise buildings and apartments facilitated to attract students, families and businessmen featuring trade, entertainment, education and shopping facilities (Elsheshtawy, 2021). Amaala is a project with a budget of 2 billion USD. It is situated on the northwestern coast and is being constructed to attract tourists to experience beautiful natural terrestrial land covering 3800 kilometers. This project is composed of a five-star hotel with 2525 rooms, 1496 housing apartments, 700 private villas, more than 200 shops, marinas, an airport, numerous yachting clubs and an art academy (Robert, 2021).

Red Sea Touristic Development is a project with a budget of 4 billion USD. It is a resort spreading 28000 square kilometers situated in the middle of Umluj and Al Wajho (Elsheshtawy, 2021). King Abdullah Financial District is a 7.8 billion USD project situated in the capital of KSA, Riyadh. It has facilities of medical clinics, public buildings, schools, hotels and shopping towers to facilitate 50000 residents (Hassan et al., 2022). King Abdullah Economic City is the mega city in the world situated in Rabigh with a budget of 100 billion USD and a covered area of 181 square kilometers to accommodate 2000000 people (Moussa, 2019). Riyadh Metro is a mega project with a budget of 22.5 billion USD. It has six lines and 85 stations situated in Riyadh (Almajed et al., 2021). NEOM is one of the biggest projects of KSA located in Tabuk province with a covered area of 26500 square kilometers. The budget of this project is 500 billion USD. It is equipped with the highest standard of advanced and modern technology with 100% renewal energy (Alfawzan et al., 2019). Jeddah Tower is located in Jeddah with a budget of 1.2 billion USD. The height of this tower is one kilometer which symbolizes prosperity, growth and regional emergence. It comprises 252 floors, 61 residential floors, 318 apartments and a 200-bedroom hotel (Gjerløw & Knutsen, 2019).

2.2. Risk factors

In Saudi Arabian residential and industrial businesses, Bajwa and Syed (2020) utilized a questionnaire circulation technique to quantitatively examine 29 risks. The study implicated that economic and political hazards are the primary variables influencing residential and industrial businesses. In the Pakistani development business, Farid et al. (2020) utilized a qualitative technique (conduction frequency method with Relative Importance Index) to examine 283 risks. The study implicated that inadequate fiscal control, unexpected barriers and hindrances and insufficient prioritization skills are high-impact hazards influencing contractor performance.

In infrastructure transportation projects, Kowacka et al. (2019) adopted disturbance analytics for quantifying the impact of 5 risks on project success. The analysis concluded that leveling road alignments and the limited availability of GESUT data are the primary variables influencing project success. In Indian non-infrastructural schemes, Devi and Ananthanarayanan (2017) adopted the prior literature method employing the Relative Importance Index function for quantifying 68 hazards. The research implicated that requirement creep, approving least responsive bids and development suspensions and deferrals contribute to budget escalation.

In Egyptian transportation development schemes, Sharaf and Abdelwahab (2015) implemented MATLAB programming for quantifying 73 potential hazards and characterized them into economic, unforeseen circumstances, funder, monetary affairs, workforces, layouts, regulatory principles, geosciences, developments, vendors, facilities, and technologies categories.

In Bahraini infrastructure development schemes, Abusafiya and Suliman (2017) implemented a descriptive statistical approach (Relative Importance Index) for quantifying 45 potential hazards relating to clients, consultants and contractors. The analysis implicated that layout errors, operational disturbances and inadequate judgment contribute to budget escalation. In Saudi Arabian infrastructure and non-infrastructure development schemes, Algahtany et al. (2016) implemented a prior literature review method for quantifying 7 potential hazards and presented a novel hazard handling system contributing to lowering shareholder surveillance by 80% and productivity improvements by 40%.

2.3. Political hazards

Globally, local and international contractors are directly or indirectly linked with political risks for construction projects. Project success depends on the effective management of political risk factors. The influence of political environment variation causes disturbance of cash-flow processes within a project are disturbed with project (Chang et al., 2018).

Jaafari (2001) examined the impact of political factors (e.g., labor rules and regulations, policies regarding trade, tariffs, etc.) considered as an environmental variable on project success is high. The project is highly affected by riots and strikes, as transferring materials from the source to the construction site becomes a challenge.

Construction projects are affected by government policies referring to political factors e.g. productivity of the labor market is affected by investment reduction and finance provision. FIDIC contracts between countries largely depend on political connections. In terms of legality, the activities of a client are related to the legislation of a country e.g., land and building control policies of the municipality department influence the project directly in terms of planning and safety regulations (Walker, 2015).

2.4. Construction risk management

A variety of categories, including layout, budgetary, resource, vendor, client, organizational and environmental hazardous parameters, can be taken into account when describing project-related risks (Abusafiya & Suliman, 2017; Adeleke, et al., 2018; El-Sayegh, 2008; Farid et al., 2020; Rehman et al., 2017; Rehman & Ishak, 2021). A thorough and comprehensive literature analysis implicated that machinery and manpower, finances, designs, materials and administration are the five significant key hazard aspects in project success.

2.5. Governmental regulatory controlling procedures

In Malaysian G7 construction firms, Taofeeq et al. (2020) performed SEM analysis and specified a direct correlation of moderating effect of governmental regulatory controlling procedures between perception with expertise, competency and well-being.

In Kenyan hydrological development firms, Maina et al. (2017) performed SEM analysis and specified a direct correlation of moderating effect of governmental regulatory controlling procedures between invested capital and cost return.

In Nigerian development firms, Adeleke et al. (2018) performed SEM analysis and specified a direct correlation of moderating effect of governmental regulatory controlling procedures between political hazards and hazard management for development projects. Gibb (2011) researched Scotland's building regulatory frameworks and conducted a policy assessment of rental apartments. As the authorities ignore a clear understanding of long-term objectives for affordable homes, policy measures in Scotland have a serious influence on occupancy rates.

There are serious challenges to health and safety in infrastructure projects. Workers are susceptible to biochemical contaminants, sound, air and soil pollution, and weather conditions. To preserve worker contracts, the governmental regulatory controlling procedures have a considerable impact on hazard handling systems to fulfill project goals (Sivaprakash & Skanchana, 2018).

2.6. Conceptual framework and hypothesis development

The proposed framework for this research is illustrated in Figure 1. This study used political factors as an independent variable, governmental regulatory controlling procedures as the moderator and risk management as a dependent variable.

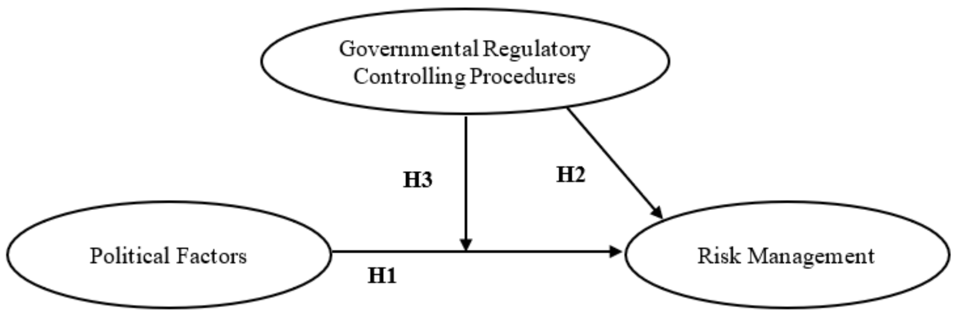

Figure 1: Conceptual Model

Infrastructure development projects are susceptible to political factors. Proper knowledge, investigation and exploration of political factors are essential for effective political risk management. Political risks, which relate to the impact of governmental policies, are encountered throughout infrastructural development projects. As an example, workforce productivity is affected by a decrease in investment levels and the availability of financing sources. All pre- and post-project protocols at every stage of development activities have been subject to governmental regulatory controlling procedures. In the context of the Saudi Arabian development sector, the influence of political forces on risk management has not been previously established. Two direct and one indirect hypothesis are formulated following the discussion above.

H1: Political hazards in the Saudi Arabian development industry have a substantial impact on risk management.
H2: Governmental regulatory controlling procedures in the Saudi Arabian development industry have a substantial impact on risk management.
H3: Governmental regulatory controlling procedures in the Saudi Arabian development industry moderate the interaction between political hazards and risk management.

3. METHODOLOGY

3.1. Epistemology

This study is underpinned by quantitative methodology with a positivist paradigm. True knowledge is acquired empirically using the scientific method by observation and experimentation founded on predictability, applicability and proportionality under the positivism approach. It is a quantification strategy that uses statistical data analysis for generalizing the knowledge process necessary to increase and identify parameter description accuracy and link between them. (Creswell & Creswell, 2018).

3.2. Population

Large contractors registered with Saudi Contractor Authority are 361, accounting for 8.9% of total construction firms ((SCA), 2021).

3.3. Sampling

A simple random probability sampling procedure is applied with at least 190 duly filled questionnaires needed for validation incorporating the G*Power program and Hair et al. (2018) recommendations (Aarons, 2021).

3.4. Data collection

Answering any participant's concern and achieve a higher participation rate, a physical questionnaire distribution is chosen, yielding in saving time via fast response. A single responder from each large contractor is adequate to suit the goal of this study. Questionnaires are circulated among executive heads, project heads, site heads, engineers, technologists and labors. Potential responders were given 370 questionnaires, and SmartPLS analyzed 303 survey responses, with an 82% success ratio.

3.5. Variable measurement and operationalization

The Likert scale, which has five points, is applied to quantify the amount of hazard severity in this research (Moshood et al., 2020). Items of Political hazards are acquired from the study of Adeleke, et al. (2018), governmental regulatory controlling procedures are acquired from the study of Rehman and Ishak (2022) and risk management from the study of Adeleke et al. (2016). Table 1 represents survey set-up items.

Table 1: Questionnaire items

Political Hazards
Government uncertainty and unproductiveness affects project related to construction
State riots, rebellions, revolutions and civil wars affects project related to construction
Policies related for collection of tax affects project related to construction.
Changes in tariffs by government affects project related to construction.
Subsidy and support on resources by government is profitable for our organization.
Governmental Regulatory Controlling Procedures
The government enacts new restrictions, raising the degree of hazards associated with construction.
Contractor practices for acquiring government building permissions.
Time required for design approval and procurement in accordance with government standards and rules.
Acquiring the environmental qualification certificate for development works.
Government measures result in lower material costs.
Administrative or Management Risks
There is no delaying in processing contract-related matters.
Quality is sufficiently assured on the site.
Geotechnical testing is appropriately practiced.
The safety checks are satisfactory.

Equipment and Labor Risks
Contractor has a satisfactory labor force.
Substantial technology performance is attainable.
Contractor possesses proper and adequate tools and machines.
Team members are encouraged by the contractor.
Swift repair for machine maintenance.
Material Risks
Building supplies are sent quickly.
There are adequate supplies accessible in the building markets.
The materials' quality is checked and tested in accordance with specific guidelines.
During construction, the material classification is not changed.
Finance Risks
Payment delays are not permitted.
Contractor does not suffer from lost profits.
Contracts are not modified after tendering process.
There is no problem experienced by cost inflation.
Design Risks
The contractor takes steps to avoid incomplete and inaccurate technical drawings.
Drawings are not altered from initial to final construction stage.
There are no errors according to the design requirements.
Exact and correct finalized designs are always accessible.

3.6. Statistical analysis

SmartPLS v3.3.3 program is employed to statistically analyze the collected data without data distribution assumptions. PLS-SEM is a casual and composite based prediction technique for flexibly evaluating complicated models that incorporate several constructs with variable indicators and structural routes with repetition of variation in endogenous construct (Hair et al., 2019).

4. ANALYSIS AND RESULTS

4.1. Demographic analysis

The outcomes of the demographic analysis are illustrated in Table 2. The participants in this study were 215 males who contributed 71% and 88 females who contributed 29%. Among the 303 participants, 34 (11.2%) are labors, 25 (8.3%) are technologist,109 (36%) are engineers, 27 (8.9%) are site heads, 16 (5.3%) are project heads, 7 (2.3%) are executive heads and 85 (28.1%) other participants. 24 (7.9%) employees have less than one year of service, 42 (13.9%) have a service period between 1 to 5 years, 141 (46.5%) have a service period between 6 to 10 years, 56 (18.5%) have a service period between 11 to 15 years and 40 (13.2%) have a service period of more than 15 years. 66 (21.8%) are linked with maintenance, 31 (10.2%) are linked with specific and particular development, 26 (8.6%) are linked with designing work, 131 (43.2%) are linked with industrial and residential development, 27 (8.9%) are linked with waste management and 22 (7.3%) are linked with extraction and mining. Employees serving corporations make up 31 (10.2%), LLCs make up 159 (52.5%), general partners make up 61 (20.1%), and individual entrepreneurs make up 52 (17.2%). There are 8 (2.6%) contractors that have been in business for less than a year, 30 (9.9%) contractors have been doing business from 1 to 3 years, 77 (25.4%) contractors have been doing business from 4 to 6 years, 95 (31.4%) contractors have been doing business from 7 to 10 years and 93 (30.7%) contractors have been doing business for more than ten years. A total of 35 contractors contributed 11.6% of employed workers in the 250–275 range, 82 contractors contributed 27.1% of employed workers in the 276–300 range, 75 contractors contributed 24.8% of employed workers in the 301–325 range, and 39 contractors contributed 12.9% of employed workers in the 350–plus range.

Table 2: Demographic analysis results

Variable	Characterization	N	(%)
Gender	Male	215	71
	Female	88	29
Role in the Organization	Executive Head	7	2.3
	Project Head	16	5.3
	Site Head	27	8.9
	Engineer	109	36
	Technologist	25	8.3
	Labors	34	11.2
	Others	85	28.1
Service Years	< 1 year	24	7.9
	1 – 5 years	42	13.9
	6 – 10 years	141	46.5
	11 – 15 years	56	18.5
	> 15 years	40	13.2
Contractor type	Extraction and Mining	22	7.3
	Waste Management	27	8.9
	Industrial and Residential development	131	43.2
	Designing	26	8.6
	Specific and Particular development	31	10.2
	Maintenance	66	21.8
Business Structure	Individual Entrepreneurship	52	17.2
	General Partners	61	20.1
	LLCs	159	52.5
	Corporation	31	10.2
Years of Contractor Working	< 1 year	8	2.6
	1 – 3 years	30	9.9
	4 – 6 years	77	25.4
	7 – 10 years	95	31.4
	> 10 years	93	30.7
Team members	250 – 275	35	11.6
	276 – 300	82	27.1
	301 – 325	75	24.8
	326 – 350	72	23.8
	> 350	39	12.9

4.2. Measurement model

The measurement model is illustrated in Figure 2. Political factors are an exogenous construct, Government Acts, laws and Policies is moderator and construction risk management is an endogenous construct. Discriminant validity, convergent validity, internal consistency reliability and individual item reliability are all included in the evaluation of measurement models.

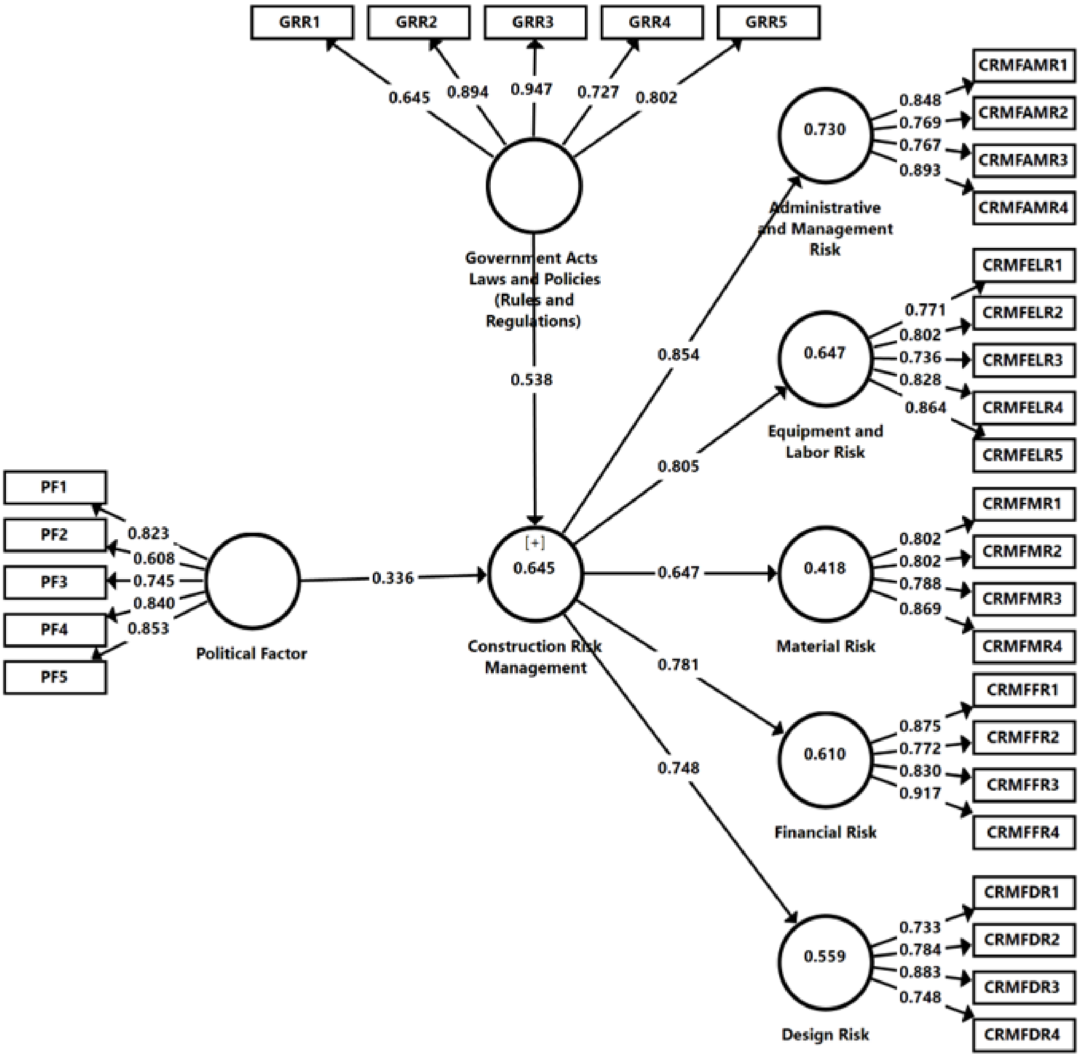

Figure 2: Measurement model

PLS-SEM algorithm results are shown in Table 3. The acceptance requirement of Internal consistency reliability (0.7 < α and 0.6 < CR) for this model is validated (Hair et al., 2019). Also, convergent validity with acceptance requirement (0.5 < AVE and 0.6 < CR) of this model is validated (Cheah et al., 2018; Fornell & Larcker, 1981).

Table 3: PLS-SEM algorithm results

Constructs	Items	Loadings	(α)	CR	AVE
Political Hazards	PF1	0.823	0.846	0.88	0.60
	PF2	0.608			
	PF3	0.745			
	PF4	0.840			
	PF5	0.853			
Administrative and Management Risks	CRMFAMR1	0.848	0.839	0.89	0.67
	CRMFAMR2	0.769			
	CRMFAMR3	0.767			
	CRMFAMR4	0.893			
Equipment and Labor Risks	CRMFELR1	0.771	0.861	0.89	0.64
	CRMFELR2	0.802			
	CRMFELR3	0.736			

	CRMFELR4	0.828			
	CRMFELR5	0.864			
Material Risks	CRMFMR1	0.802	0.833	0.88	0.66
	CRMFMR2	0.802			
	CRMFMR3	0.788			
	CRMFMR4	0.869			
Financial Risks	CRMFFR1	0.875	0.871	0.91	0.72
	CRMFFR2	0.772			
	CRMFFR3	0.830			
	CRMFFR4	0.917			
Design Risks	CRMFDR1	0.733	0.798	0.86	0.62
	CRMFDR2	0.784			
	CRMFDR3	0.883			
	CRMFDR4	0.748			
Governmental Regulatory Controlling Procedures	GRR1	0.645	0.864	0.90	0.65
	GRR2	0.894			
	GRR3	0.947			
	GRR4	0.727			
	GRR5	0.802			

In this model, three fundamental strategies HTMT ($HTMT_{.85}$ < 0.85), cross-loadings (cross-loadings are smaller than each item outer loading) and Fornell-Larcker (each latent variable's AVE square is bigger compared to the other latent variable) for evaluating discriminant validity were validated as illustrated in Table 4 (Fornell & Larcker, 1981; Henseler et al., 2015; Rönkkö & Cho, 2020).

Table 4: Discriminant validity

Constructs	CRMFAMR	CRMFDR	CRMFELR	CRMFFR	GRR	CRMFMR	PF
Fornell-Larcker Criterion							
CRMFAMR	0.82						
CRMFDR	0.59	0.78					
CRMFELR	0.59	0.47	0.80				
CRMFFR	0.55	0.51	0.52	0.85			
GRR	0.70	0.56	0.57	0.57	0.81		
CRMFMR	0.50	0.34	0.40	0.37	0.50	0.81	
PF	0.70	0.55	0.53	0.48	0.67	0.36	0.77
HTMT							
CRMFAMR							
CRMFDR	0.698						
CRMFELR	0.668	0.541					
CRMFFR	0.640	0.605	0.598				
GRR	0.814	0.656	0.643	0.648			
CRMFMR	0.589	0.389	0.448	0.432	0.585		
PF	0.742	0.613	0.558	0.486	0.717	0.371	
Cross-loadings							
CRMFAMR1	**0.85**	0.56	0.57	0.44	0.58	0.46	0.60
CRMFAMR2	**0.77**	0.44	0.29	0.40	0.52	0.39	0.41
CRMFAMR3	**0.77**	0.44	0.45	0.42	0.57	0.36	0.56
CRMFAMR4	**0.89**	0.49	0.61	0.55	0.64	0.43	0.61
CRMFDR1	0.42	**0.73**	0.38	0.33	0.32	0.15	0.41
CRMFDR2	0.33	**0.78**	0.20	0.30	0.33	0.13	0.29
CRMFDR3	0.60	**0.88**	0.53	0.45	0.54	0.34	0.61
CRMFDR4	0.46	**0.75**	0.33	0.52	0.55	0.39	0.36
CRMFELR1	0.48	0.46	**0.77**	0.47	0.42	0.36	0.29

CRMFELR2	0.37	0.30	**0.80**	0.38	0.46	0.23	0.46
CRMFELR3	0.31	0.34	**0.74**	0.31	0.29	0.19	0.37
CRMFELR4	0.52	0.36	**0.83**	0.48	0.54	0.38	0.52
CRMFELR5	0.64	0.42	**0.86**	0.46	0.53	0.40	0.48
CRMFFR1	0.50	0.49	0.50	**0.88**	0.46	0.26	0.36
CRMFFR2	0.34	0.38	0.36	**0.77**	0.34	0.31	0.33
CRMFFR3	0.50	0.44	0.44	**0.83**	0.60	0.35	0.47
CRMFFR4	0.53	0.45	0.48	**0.92**	0.55	0.34	0.49
GRR1	0.54	0.45	0.24	0.31	**0.65**	0.31	0.48
GRR2	0.44	0.44	0.45	0.45	**0.89**	0.45	0.47
GRR3	0.67	0.56	0.54	0.55	**0.95**	0.48	0.60
GRR4	0.37	0.30	0.54	0.43	**0.73**	0.41	0.26
GRR5	0.76	0.53	0.50	0.55	**0.80**	0.37	0.60
CRMFMR1	0.45	0.21	0.47	0.29	0.33	**0.80**	0.27
CRMFMR2	0.40	0.31	0.30	0.30	0.43	**0.80**	0.38
CRMFMR3	0.31	0.23	0.20	0.25	0.35	**0.79**	0.20
CRMFMR4	0.46	0.35	0.31	0.36	0.51	**0.87**	0.32
PF1	0.57	0.43	0.39	0.37	0.48	0.26	**0.82**
PF2	0.35	0.34	0.11	0.12	0.27	0.09	**0.61**
PF3	0.34	0.35	0.34	0.19	0.41	0.17	**0.75**
PF4	0.41	0.38	0.39	0.37	0.55	0.27	**0.84**
PF5	0.77	0.57	0.62	0.60	0.64	0.46	**0.85**

4.3. Structural model

The structural model is illustrated in Figure 3. Evaluation of the structural model comes after measurement model evaluation and involves the estimation of the moderating effect, predictive relevance, effect size, coefficient of determination and path coefficients.

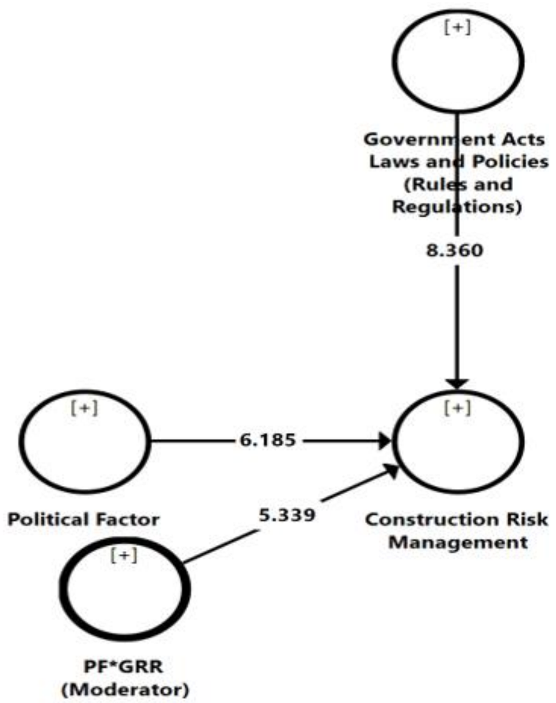

Figure 3: Structural model

Table 5 summarizes the findings of hypothesis testing (at a 5% significant level) using the bootstrap technique, a non-parametric method, with 5000 subsamples and 303 instances (Hair, Jr. et al., 2017). The connection among political influences and risk management is statistically significant (β = 0.338, M = 0.324, T = 6.185 and $p < 0.05$), governmental regulatory controlling procedures and risk management is statistically significant (β = 0.438, M = 0.451, T = 8.36 and $p < 0.05$) and the interaction of governmental regulatory controlling procedures between political factors and risk management is also statistically significant (β = 0.263, M = 0.255, T = 5.339 and $p < 0.05$).

Table 5: Bootstrapping results

Relationship	β	Sample Mean (M)	STDEV	T Statistics	P Values	Decision
Political Hazards → Risk Management	0.338	0.324	0.055	6.185	0.000	Accepted
Governmental Regulatory Controlling Procedures → Risk Management	0.438	0.451	0.052	8.360	0.000	Accepted
Political Hazards * Governmental Regulatory Controlling Procedures→ Risk Management	0.263	0.255	0.049	5.339	0.000	Accepted

To evaluate structural models, the coefficient of determination (R^2) (ranges from 0 to 1) is a predictive ability within a sample (Hair et al., 2019; Lewis-Beck & Lewis-Beck, 2016). The R^2 is classified as strong when it is bigger than 0.67, moderate if it falls between 0.33 and 0.67, weak if it falls between 0.33 and 0.19, and incredibly low if it is under 0.19 (Chin, 1998). The R^2 for this model is 0.719, which falls within the higher level, signifying superior predictive potential. This implies both governmental regulatory regulating processes and political hazards account for 71.9% of the variance in risk management of the Saudi Arabian development sector.

Effect size (f^2) is a statistical criterion for assessing the robustness of interactions between variables. f^2 below 0.02, between 0.02 to 0.35, and over 0.35 are regarded as weak, moderate, and large, respectively (Cohen, 1988). Political hazards in this model had an f^2 of 0.223, indicating a medium impact on risk management in the Saudi Arabian development sector.

An extra goodness-of-fit for this model and out-of-sample prediction is determined by applying Stone-Geisser blindfold testing (Hair, Jr. et al., 2017; Geisser, 1974; Sarstedt et al., 2014; Stone, 1974). Chin (2010) states that the lower limit cross-validated redundancy (Q^2) is 0. Q^2 testing for this model yields a score of $0.267 > 0$, indicating the prediction significance.

In order to estimate the robustness of moderating influence of governmental regulatory controlling procedures on the interaction between political hazards and risk management, the product indicator method is employed (Hair, Jr. et al., 2017; Becker et al., 2018). The result shows that positive relation exists between political hazards and risk management when governmental regulatory controlling procedures is acting as a moderator (β = 0.263, M = 0.255, T = 5.339 and $p < 0.05$). Figure 4 illustrates the robustness of the interaction effect of governmental regulatory controlling procedures.

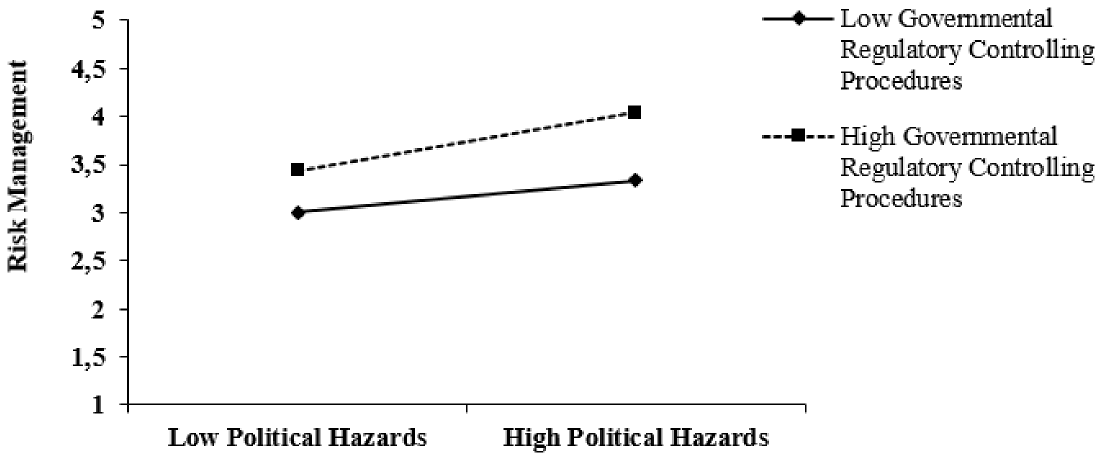

Figure 4: Moderating effect

5. CONCLUSION AND RECOMMENDATIONS

This research adds to the body of knowledge with an additional role of the interaction effect of governmental regulatory controlling procedures between political hazards and risk management in the Saudi Arabian development sector. Political hazards and governmental regulatory controlling procedures have a substantial impact on risk management including the interaction effect of governmental regulatory controlling procedures. Project leaders, practitioners, managers, and engineers may lower the likelihood of hazards arising by successfully managing risk management systems while taking political issues into account. This study has implications for organizational leadership, corporations and researchers based on hazard analysis to befit contractors. Through the use of a cross-sectional design, which incorporates a multitude of judgment biases, this study yielded subjective results. Consequently, it is suggested to use objective findings from a longitudinal design.

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