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Project Risk Management (PRM) and Project Success (PS): Mediating Role of Project Control and Moderation Effect of Project Governance

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Abstract

The risk management id a hot issue in large corporations and multinational firms but still there is a need in Project. Risk is the chance of loss and management of risk is the control of those possible losses. So the risk may disturb the performance of the project. The core aim of this research is to examine the association between Project risk management (PRM) and project success (PS). We conducted this study in the Pakistan. Cities are Lahore, Faisalabad, and Multan, Peshawar, Karachi, and Hyderabad. The 350 respondents who are doing jobs in different projects of different cities provide the data for this study. The study examines that the PRM has positive and significant impact on project success. The role of mediation of project control and moderation of project governance has also significant positive effect on project success. Finally study concluded that the project success may be enhanced by applying the risk management.

Key Words: Project Control, Project Governance, Project Risk Management, Project Success

Introduction

The risk management remains the burning issue for last few decades but debate about risk management is being conducted in large scale corporations, Banks, Government departments, financial institutions etc. The multinational companies and large corporations adopt different techniques to manage the risk. The problem is that the project based enterprises and business are still poor aware about the risk management. Now the projects are expanding overall and become extensive. Projects are helpful in managing, executing and controlling parent company. Risk is the level of exposure of adverse event which may create the consequences. While risk management is the mitigating the probability of occurring the risk and reduce its impact. To understand and apply the risk management strategies is a better policy of an enterprise. If the project team is facing the lack of key members and long lead complexity then the managers have to be serious to manage this risk (Loose & Charles, 2006). For managing the risk the highly skilled experts are needed because this is not an easy job. The projects specifically construction industry has a lot of risk, threats and problems like time, cost, scope and quality. So it is necessary to identify these problems to find out the best solutions. The prime objective of this research is to highlight the risk problems and making strategies to find out the solutions of the risk in projects.

Many of the businessmen take the risk at the start of the establishment of the business and they become insolvent and their business become shutdown (Aven, 2016). The risks and problems of construction industry must be handled and controlled timely and effectively otherwise have to face a great loss in shape of rise in cost, waste of time and adverse effect on quality (Chaudhry & Khuram, 2013). This study examines the impact of risk management on project success (PS). Further it observes the "mediating function" of project control and moderation effect of project governance. The scope of study is the construction projects of different cities of Pakistan. The risk management of projects is area which is overlooked by researchers and the projects are facing losses due to ignoring the risk of the projects. There is a rare research which Pay attention on the risk management of projects along the mediating function of project control and moderation effect of "project governance". The study provides a fruitful contribution to the literature.

Literature Review

Schieg, (2006) conducted a research that risk management works as strategy to control the losses and manage the risk. This strategy helps in consideration and estimations of possible future losses. Ehsan and Azam, (2010) elaborated a study and concluded that risk management is simply the identification of risk and its helps how to control it. Mhetre, B (2016) explained that risk management includes risk identification, quantitative and qualitative observation responses and monitoring of the risk. Serpella & Larissa, (2014) documented a study which expressed that risk management is the tool of identification and observing the risks and a technique to reduce it up to certain level. The rationale of the Project risk management (PRM) is to find risk and then lessen it. Zhao & Weisheng, (2014) explained that ignorance of project risk management leads towards the project failure. It may become more harmful in construction industry. Meredith and Mental, (2010) explored that mitigating and reducing the risk is the risk management which is a systematic process works under the law and environment. Szymanski (2017) documented and explained the 06 aspects of the risk management which includes risk detection and timely notice system, risk evaluation, decisions and actions. De Bakkar, (2011) explained that if the risk involved in projects are not shared and communicated properly it leads towards project failure. Risk management includes the risk management planning, risk observance and risk control (Winch, 2010), (Renault & Agumba, 2016), (Dixit, Sharma & sing, 2020). Zhang (2011) explored a research and concluded that there are two school of thought of risk first is objective and second is subjective. Vose (2008), and Farooq et al., (2018) explained that the use of probability for the measurement of risk and its impact through probability model its roots are in utility model. Further they concluded that risk is equivalent to probability of it occurrence of outcomes. Taroun, (2014) observed the risk by the way of probability impact and received a lot of criticism. Gohet et al., (2013) suggested that definitions and standards were not rightly understood by the participants of the workshop. Usually the ouput of the project is calculated through control over the schedule and allocated budget of the project. Following are a few studies related project controls. Liu et al., (2009) suggested that there are a number of facets to control such as performance of the team, completion of the task, and competency of the team. Bowen et al., (2007) recommended that project controls are the main pillars of the project to uplift the chances of project success. Normally the audit and consulting industry introduced the general framework and controls standards. Cardinal et al., (2010) conducted a study and explored that project control is explained as encouraging conduct which is necessary to achieve goals. The project management focuses primarily on Project planning and designing phase. For a successful project its execution phase must also be focused. The previous literature put attention on the internal project control for the success of the project. (Cardinal et al., 2010), (Kirsch. 1997) and (Nieminen & Lehtonen., 2008). Turner et al., (2010) elaborated that the aptitude skills and leading management through control can lead the project towards success. Turner. (2009) emphasis the project control throughout the project life. The governance is better when the employees trust their management. By applying the governance of the project the success may achieved. Ahola, Artto, and kujala (2014) elaborated that there is no arrangements of the governance of the project in literature. There is a need of classification of the project governance practices (Bekker. 2014). According to the study of Mulleret et al., (2014) explained that by applying the governance in project management the value of it may be enhanced. ITG (2013) explored that the measurement of the upper level management functioning through governance practices. Ruuska, etal, (2009) explained that if the employees trust the leader then project success can be attained through project governance. A few studies explained that trust with governance minimize the cost of the project (Das & Teng, 1998) A study documented that less governance leads towards the less control which result in failure of the project ,(Dyer & Chu, 2003). Gulati& Nickerson, 2008)

Research Model

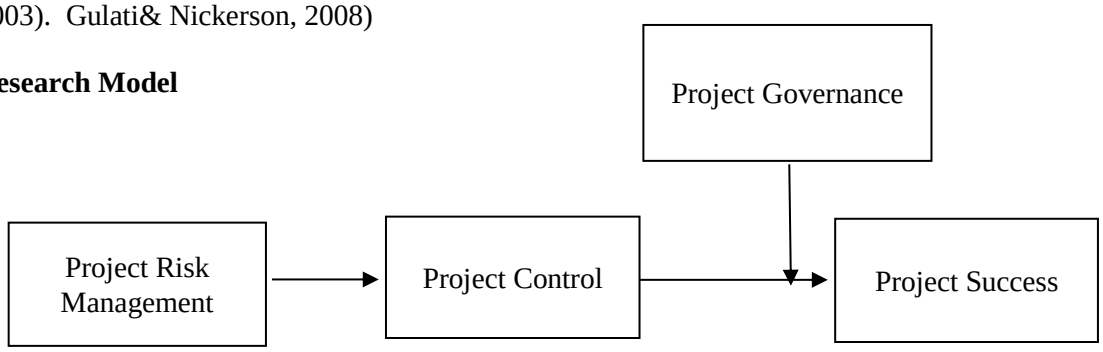

Figure 1. Research Model of the Study

Hypotheses

On the basis of above discussed literature following hypothesis are developed for the study.

H1. Project risk management has positive linkage with project success.

H2. Project risk management has positive linkage with project control

H3. Project control has positive association with project success.

H4. Project control has the mediating effect between project risk management (PRM) and project success (PS).

H5. Project governance (PG) moderates the association between project risk management and project success.

Material and Methods

This section discusses the methods, procedure and techniques to investigate the study. Research design, population, sample, sampling techniques, measurements, instrumentation, statistical tool, pilot testing and variables reliability analyzed in this section. The study is conducted to examine the influence of project risk management (PRM) on project success (PS). The study has taken the sample of persons performing duties on project of construction industry in Pakistan. Further the study explores the influence of mediation of project control and function of moderation of project governance. To explore the research problem and get the knowledge this is helpful. In the method of descriptive research design data is collected through surveys from organizations. This is quantitative technique to calculate the mean, median, mod, standard deviation and frequencies. Unit of analysis is the useful part of research. The unit of analysis does not remain the same for different organizations, people, area etc. As study is investigating the influence of PRM on project success (PS) of different projects so the people of these different projects are our unit of analysis. The study is to examine the influence of PRM on project success (PS) through project control and moderating effect of governance in construction industry of Pakistan. The project director, Project managers, project teams, supervisors, and all employees engaged in project are our population. Data is collected from the construction projects of Lahore, Faisalabad, Gujrat, Multan, Karachi, Hyderabad, and Peshawar. Almost 425 questionnaire were distributed and 350 were received back. It is very difficult to gather data from the overall population so the sampling technique is used to get the data. The data is taken from those individuals who are truly engaged in projects. We used "convenience sampling" which is a type of "non probability sampling" to collect data and distributed 425 questionair. Each respondent must have to give his demographic information first. The age, gender, and qualification are the demographics are used in the study. Questionair is designed to circulate it to the management of the project and employees of the project. The questionair is designed to get data for risk management, project success, project control and project governance. The important element of society is gender and male, females are selected for data collection. The gender equality is very vital requirement of very setup. We tried in our research to maintain the gender equality. The male employees are more than females on projects. Gender distribution is 17% females and 83% are males who responded to survey. The males are greater than females. The females on the construction projects are lesser and it's hard to find. Age distribution reveals that the respondents of 18-30 years age group are 39%, 30-40years are 29%, and 40-50 years are 24% and above 50 years are 8%. The qualification distribution reveals that respondents of having Matric are 3%, Intermediate 14%, Bachelor 53%, Masters 29.71% and PhD 0.29%. To collect the data of PRM, project success (PS), project control (PC) and project governance (PG) the questionair are filled by individuals. To get the answers the questionair is maintained by adopting a 5-points Likert-scale "where 1 (strongly disagree) to 5 (strongly agree)". The demographic features are placed in questionair about the respondent's Gender, their Age and their

Qualification. The results reveal that the value of Cronbach Alpha of PRM is 0.849, Project Success is 0.932, Project Control is 0.871 and Project Governance is 0.895. The variable of the study are reliable.

We have collected the data and examine the initial requirements before start of data analysis. The SPSS version 20 is used for data analysis. Following steps are followed in data analysis. Select the appropriate filled questionair. Coding of each variable is done and analyzed. The descriptive statistics is applied on the numerical value. Correlation Analysis is taken into consideration to examine the connection among variables. Preacher and Hayes test is taken to perform to examine the function of mediation and moderation.

Results and Discussion

This section explains the overall results of data analysis and test the proposed hypothesis. The table 1 explains that there is significant and positive association among all the variables. Project Management and project success has 0.805 significant value, Project control has significant values 0.722 and 0.695 for Project risk management and project success and project governance has also significant correlation test with value of 0.739 for project risk management, 0.767 for project success and 0.773 for project control.

Table 1
Analysis of Correlation

Sr. No	Variables/Facets	1	2	3	4
1	Project Risk Management (PRM)	1			
2	Project Success (PS)	0.805**	1		
3	Project Control (PC)	0.722**	0.695**	1	
4	Project Governance(PG)	0.739**	0.767**	0.773**	1

"Preacher and Hayes" stated that mediation has three effects which have been examined these are total effect, direct effect and indirect effect. Total effect explains the relationship of "independent variable" (PRM) and dependent variable (PS). Total effect of PRM is 0.736 with significance of p value is zero. It describes it as 73.6% change occurs in PS due to PRM. The lower and upper limit of bootstrapping is 0.2695 & 0.6147 respectively. Hence H1 is accepted that "project risk management" has positive association with "project success". Direct effect observes the impact of independent variable PRM on dependent variable project success in the presence of mediating variable Project control. The current study explores the direct effect which is 0.445. Which is significant with p value is zero. It means that project risk management contributes 44.5% change in "project success" in the existence of mediating variable Project control. Indirect effect examines the existence of mediation effect between "independent variable and dependent variable". Project control the mediates the relationship. On the basis of the revealed results the H4 is accepted that Project control has the mediating effect between project risk management and project success.

Table 2
Mediation Analysis

DV	"Effect of IV on M (a path)"	"Effect of M on DV (b path)"	"Total Effect of IV on DV (c path)"	"Direct effect of IV (c path)"	Bootsstrap results for indirect effect	
					LLCI	ULCI
Project Success (PS)	0.445***	0.522***	0.736***	0.242	0.2695	0.6147

The results of study reveal that the moderation effect exists in the model. The step is statistically significant which is symbol of moderation effect existence. The SE having zero in value and the p value is zero which is highly significant. On the basis of the results H5 is accepted that "Project governance" moderates the association between project risk management and project success.

Table 3

Moderation analysis

Predictors	B	SE	T	P
Step 1 PRM-PS	0.477	0.061	7.456	0
Step 2 PG-PS	0.615	0.052	8.921	0
Step 3PG*PRM-PS	0.595	0.066	6.88	0.045

*p<.05, **p<0.01, ***p<0.001

Conclusion

The study is conducted to examine the impact of "project risk management" on "project success". The study also indentifies the mediating effect of the project control and moderating effect of project governance. The research is conducted in construction industry of Pakistan. The individuals of different demographics are selected to get data who are engaged in projects. The questionair is disseminated to 425 individuals and 350 respondents provide the data on questionair. To observe the relationships of the under consideration variables of the study different techniques were applied. The outcomes of regression analysis show that the PRM positively impacted on project success. Further results elaborate that the project control (PC) mediates the relationship of PRM and project success. The moderation effect also found significant in results. The study provides a road map to attain the project success. By the reduction in risk the value of the project can be enhanced. In the light of the study the projects of construction industry specifically large scale projects should develop standards and procedure to manage the risk, control the project and governing the projects. The main activity would be the implementation of these standards and procedures. The project manager should consider these standards. If the project managers ignore this suggestion they have to face project failure on long term basis. The standards of the risk management will support the project managers to lessen the risks and they would be easy to run the project successfully. The trainings of the employees should be conducted in the light of the study. Training will provide the knowledge about risks and risk management strategies.

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