Impact of Project Governance on Project Performance, with the Mediating Role of Project Quality and Project Management Risk Within the IT Industry of Pakistan: A Multitheory Prespective

by

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I want to dedicate this achievement to my Family and Teachers who always encourage and support me in every step.

CERTIFICATE OF APPROVAL

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Abstract

Abstract This study examined the impact of Project Governance(PG) on Project Performance(PP) with mediating role of Project Management Risk and Project Quality(PQ). A research framework was developed to formulate and analyze the hypotheses to investigate the connection between all four factors. Data was collected from Information Technology companies of twin cities of Pakistan i.e. Islamabad and Rawalpindi. Convenience sampling was utilized to collect data from 350 respondents. The results of the study revealed that Project Governance (PG) is positively associated with Project Performance (PP). Moreover, Technological Orientation also proved to have a mediating role in the relationship between Entrepreneurial Orientation and Project Success. Surprisingly, mediating role of Project management risk and Project Quality (PQ) was found insignificant. Furthermore, the current study is expected to enable the project managers to explore new methods to understand project performance. They should exhibit a mix of different dimensions of Project Governance (PG) in their decision making and methodology for improving Project Performance (PP).

Keywords: Project Governance (PG), Project Performance (PP), Project Management Risk, Project Quality (PQ).

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Abbreviations

AVE	Average Variance Extract
CR	Composite Realiabilty
IT	Information Technology
PLS	Partial Least Square
PG	Project Governance
PMR	Project Management Risk
PP	Project Performance
PQ	Project Quality
SEM	Structural Equation Modeling

Chapter 1

Introduction

The usage of projects has evolved as of a strategic instrument (to produce a product or to produce service) on the way to a tactical vehicle that may alter an organization's business (Biesenthal I Wilden 2014). They are essential organizational strategy documents (Artto, Kujala, Dietrich, Iimartinsuo & Goldberg, 2008) and have the ability to assist organizations achieve their intended goals (Shenhar & dvir, 2007) Project performance (PP) and quality may be improved when the project becomes an organization's main business. The most essential instruments for the growth of the project management industry are management tools. Management tools are essentially the most significant instruments for the advancement of the project management industry. Project management businesses are primarily responsible for devising such strategies and plans in order to maximize the industry's profit margins on various projects.

Studies of the past exposed a countless critical factors for success to increase Project performance (PP) (Belassi & tukel, 1996; pinto & prescott, 1988). These essential factors for success including earned value management (Abba,i2000) and knowledge management (PMI, 2013). Project-based organizations going to use very approaches helping in improvement of their performance. The development of project management strategies for organisational success relies heavily on earned value management and knowledge management. These advancements for the improvement helps the processing toward better governing procedures are mostly designed for improving the system to achive the goal of improvement in various

proccesses. Projects are the crucial element in recent years, to which government is largely neglected. Various studies refers for using the systems, authority structures and procedures to distribute resources and coordinateing or regulateing activities inside the project enviornment. (Pinto, 2014, p.383).

As there are several essential aspects in Project governance (PG) that keep the project management business at the top of its game, Project governance (PG) is playing a vital part in project development strategies. This governance encourages the industry to maximise profits on its own by employing highly effective strategies that can maximise profits at the outset. These project management strategies are primarily designed to help project managers maximise their profits. It calls for improved project-related activities and better use and coordination of PR systems and resources in order to increase Project performance (PP) . Things are handled when they are perfectly coordinated. At each and every stage of the project, project management produces excellence. Program management, portfolio management, and project sponsors are all included under Project governance (PG) (Too & weaver, 2014), It is possible to argue that stronger Project governance (PG) of various elements and is systems would result in enhanced Project performance (PP). Things have altered significantly in the project management schemes in our modern era. All tactical instruments have been reorganized utilizing organisational strategies , and as a result, all of these innovations have resulted in significant improvements in the attainment of goals by diverse companies. Project governance (PG) is playing an increasingly important part in the growth of project management, as its oversight of developments is making possessions more open as well clearer for the accomplishment of various companies. Projectized organizations are performing an important part in the development of project management methods for transforming businesses into the most lucrative businesses of their time.

All of these well-developed ideas enable businesses to reach their goals at a reasonable cost. Every company is trying to further their own growth so that they may devise the finest plans and methods for maximizing the project's profitability. The most accurate project for a company is one in which a project is well planned and all of the strategies being implemented that helps to provide the

highest profit. Any organization that achieves best-in-class results in a project will reward the project management team that devised the strategy. project management and project governance (PG) are becoming increasingly essential in the development of project management organizations in order to plan projects in a way that maximizes profit.(Haq et al, Liang et al., Dongxiao et al, 2018).

1.1   Background

Pakistan's digital development is speeding up. IT/ITeS is one of Pakistan's fastest-growing industries, accounting for roughly 1% of the country's GDP ($3.5 billion). It has more than quadrupled in the last 4 years and is anticipated to skyrocket in the next years, hitting as high as $7 billion. The ICT industry is projected to reach $20 billion in scale by 2025, as per Pakistan Vision 2025 and Pakistan's Digital Strategy 2018. The Pakistani government is keenly engaged in the advancement and growth of the IT sector. The Department of Technology and Korean recently signed a PKR 10 billion agreement to develop a technology park in Islamabad. Regardless of the fact that Pakistan's software industry is flourishing, it confronts a number of challenges. The fact that Pakistan contributes for less than 1% of the global IT sector is cause for concern, as it is woefully inadequate in contrast to the country's increasing demand for IT development and growth. Despite having considerable opportunity to augment and prosper, an increasing percentage of software firms are unable to fully exploit it due to the fence of difficulties that surrounds them. Numerous managerial concerns add to the difficulties that Pakistani software businesses face. One of the biggest challenges confronting the IT sector is the lack of a proper governance structure, which leads to poor risk management and project quality, resulting in poor project performance.

These should be dealt with at rhe earliest in order to overcome these challenges and ultimately to increase contribution in country's economical development. Project governance (PG) is founded on and linked to corporate governance, although its primary focus is on Project governance (PG) (Joslin & Müller, 2016). In the realm of corporate governance, previous research have clarified the function and application of management theories. Project governance (PG) focusing on one

project in a same time therfore all the attention may be focused upon it and the company may get one of most out of it. Investing in a single project and getting nothing in return is preferable to focusing on several projects and getting nothing in return. For example, Gilson (1996) argues that, from an economist's point of view, there exist a valueable link inbetween governance and performance of any organisational, because whatever you will be rewarded in the same way. This leads the projects in the same scenarios, as long as it is governed it well or using effective strategies for the development of the project. Most management theories are misunderstood in order to create the basic notion of project management or all of the project methods for improvement of the correctness of the project planning being created for the improvement of a project. For creating their renown as well as fame, organizations undertake projects. Researchers were prompted by this idea to reference management theories in order to better grasp the governing of concept.

Some development made (e.g., Biesinthal & Wilden, 2014; Mahainey & Ledarer, 2003; Turnor, Hoemann, Anbare, & Bredellet, 2010) examine Project governance (PG) as part of corporate governance theories. Agency theory is one of the well-known theories being examined in the context of corporate governance, according to Yusoff and Alhaji i(2012). Jensen and Meckling's (1976) work established agency theory, which is an economic depiction of the interaction between a company's shareholder and its manager by considering them as rational and one's intrest of individuals. Eisenhairdt (1989) examined the two main features of agency theory, namely, those which have believe on agency theory is a revolutionaring theory as well as those who argue that it is not. Jensen and Runbacks (1983), as well as those who said that agency theory is unclear, limited, and lacks testable consequences (Perrow, 1986).

A study found that this theory is distinctive, straightforward, as well as experimentally able for testing, and that it may be applied at any firm's main agent's problems. There are several boundary conditions in agency theory, and more theoretical research is required (Bendeckson, Muldoun, Liguore, & Davise, 2016). According to Berley and Meains, the owner of any property who wants to make investment in a modern form of coorporation has surrendered all of his wealth

within the control of the coorporation to the point where he has exchanged his position as an independent owner to one, where there is very less chances of becoming the owner of capital's wages (these type of owners) have given the need to have the coorporation for earning their own interests (1932, p. 355). Ownership and control are separated in agency theory, which is an important problem in companies (Berley & Meains, 1932; Jenisen & Meckiling, 1976).

Due to the leave-taking of possession and switch, the panel does not have whole confidence in the administration. Difficulties might arise, which can lead to agency fees. It is argued that the agent may act in his or her own self-interest rather than the prime person or possessor in neoclassical economics (Donaldeson & David, 191l). This very theory may correspondingly be chastised since the organisation can be untrustworthy. As a result, Berle and Means argue, a property owner who invests in a contemporary company has committed his wealth to those in charge of the firm. As a result, they have given up their right to have the business run in their own interests (1932, p. 355).As a result, project owners must closely monitor the project manager's performance (Aduda, Chog, & Peterson, 2013), which is the fundamental goal of agency theory. First time cutting-edge the Project governance (PG) prose, —Turner and Muller (2003) employed the agency theory for the defineing interaction between the agent and the project owner. Many researchers came to conclusion that project owner should keep an eye on the agent's performance. As a result, the project owner may guarantee that the project manager's goals are in line with his or her own. At the start of a project, developing and implementing Project governance (PG) is critical. Project governance (PG) is a critical component of developing an effective strategy for the project management team to obtain better results. Project governance (PG) is simply the project manager's "recipe" for managing a project. The eight essential governance components are defined in Exhibit 1 along with how they are translated to the project management Process Groups. These eight elements are required for each project's success and must be investigated and assessed.

According to Turner et al. (2010), agency theory is utilised in project management (PM) to highlight the interaction between the stakeholders. According to (Turner, 2009), Project governance (PG) aids in the setting of project objectives,

A good example of agency theory is the determination of ways to attain these objectives and the monitoring of performance. En outre, this principle-agent link should decrease the planning and control risk as well as any ambiguity regarding a project team. Verifying everything in real time is key to avoiding significant problems that might cause alloying difficulties with high-risk that are difficult to regulate and manage, according to project management experts. To avoid wasting time and money, it's better to tackle the project one step at a time. There was a lot of wastage of time projects being watched are expected to yield the highest profit. There are several challenges that project managers have while trying to determine the return on investment in developing Project governance (PG), and how to make the Project governance (PG) framework repeatable while yet being responsive to the project's specific requirements. For a given plan, the more project management is required for its creation, and the more Project governance (PG) is required for the plan's implementation management skills growth. How do you make project and programme governance dynamic while yet being repeatable? This is a conundrum that the project management community regularly encounters.

Thus, it may be claimed that constant project monitoring by the owner can improve Project performance (PP) since more intense monitoring can resolve inconsistencies in project work in a timely manner, resulting in better outcomes. Given the foregoing explanation and the study's aims, agency theory used as a guide the existing research since it emphases at monitoring, that is critical for improving Project performance (PP). It is extremely important to design the project very thoroughly during the processing of the project plan, and the another most significant thing is to make a trial of plan at every level. So that, at each level of the process, check to see if all of the processes are clear. This allowed us to spot our error at the outset and make the best option for its. solution to produce correct results.

Parallel monitoring of the procedure will prevent us through a big hazard, that may be is more helpful relatively swotting the whole process. Parallel monitoring of the method will protect us from a major hazard, which is preferable to completely

rewriting the procedure. The goal of project management is to create a structure for project management research by combining and unifying existing discoveries and advancements in the field. This is the first and most important stage in developing a project plan. The second objective is to integrate research from many fields of study and to make the systematic transfer of knowledge from other disciplines easier. Its primary disadvantage is that our costs will be consumed at a very high level, causing us to become sick with regard to our financial situation. Roughly research ethics are specified below regarding the project and some of management aids.

The 'hard' system model, which focuses on planning off and controling mechanisms in projects that may come from the natural science, namely major acird kinds for linked projects towards we aim for maximiseing profitibility. And includes the majority of contemporary techniques and texts. The lack of distinction between project kinds, as well as the omission of the unquestionably essential "human concerns," are among the criticisms levelled at this point of view.

The organisational viewpoint, dealing with task processing and the integration of the temporary project organisation into the corporate organisational body. The projects are generally guided one by one to ensure that the whole attention is on the one project for precise and predictable results. This strand is heavily influenced by organisational theory, and it was later expanded to include a perspective on how initiatives fit into larger (business) networks. The "broader perspective of projects," which takes into account external variables as well as the context in which initiatives are carried out. Front-end work and (organisational) learning are also included, leading Wenter et al. (2006) concludes that very paradigm "has the benefit of being more comprehensive while being conceptually catholic."

1.2 Gap Analysis

There have been conflicting results from previous studies on the relationship between governance and success in project management. Despite of the significance of project governance and project performance we still lack the empirical evidence

in the IT sector of Pakistan. Moreover, to the best of the author's knowledge just a handful of empirical studies are available in the existing literature which support the given model. Until recently a single overarching theory i.e. Agency theory perspective has been used to investigate the impact of project governance on project performance Furthermore, the study recommended that future research may look at additional theories, such as stewardship theory as well as stakeholder theory, and compare these towards the existing model. (Haq et al, Liang et al., Dongxiao et al, 2018).

Project performance (PP) has been studied in many studies (Abednigo & Ogunlena, 2006; Lui, Guoe, Qiean, Hei, & Xuo, 2015; Musawire, serria, Zwiekael, & Ali, 2017; sainkaran, Remingtone, & Turner, 2007). Project management and Project governance (PG) differ in important ways, as we've found studies in the past, that was focused on their interconnections. Even though there exist an association between the 2 concepts, we found that project management was crucial. As an alternative to focusing on the governance of projects, the authors of another research (Haq et al, Liang et al., Dongxiao et al, 2018). This is despite the fact that Project governance (PG) and project management have a strong relationship. As a result, the project's quality, which is the most essential part of its development, is improved. Previous studies validate the relationship by SPSS/AMOS but this study concludes the results with the help of latest tool to validate the relationship, i.e. PLS-SEM. Morever previous studies uses only agency theory and this study contributes by giving multitheory perspective which includes, Agency and stakeholder theory. The goal of this study is to look at how Project quality (PQ) and project management risk play a role in mediating the link between Project governance (PG) and Project performance (PP).

1.3 Problem Statement

According to project management literature, projects are an excellent vehicle for institutionalising change inside an organisation (Hornstein, 2015). They are conducted to produce value for the firm while also giving companies with a competitive advantage over their competitors; as a result, they have been recognised as

important to the success of the organisations (Davis, 2016). It has been noticed that strong product execution is a difficult challenge in developing nations such as Pakistan, particularly in IT development businesses (Jehan, Ghani, & Sha, 2014). Various programmes have been launched by the Government of Pakistan to develop the IT industry on a worldwide scale. Despite these efforts, however, the majority of initiatives fail, resulting in significant financial losses for the organisations (Butt, 2013). In Pakistan, the proportion of successful initiatives is low when compared to industrialised countries. According to the Standish Group's Chaos Report 2015, just 29% of initiatives are deemed successful.

Furthermore, Pakistan's newly developing and established software firms are not progressing at the same rate as those in industrialised nations. As a result, Pakistan ranks 111th out of 134 nations on the Networked Readiness Index (NRI)" (Monitor, 2020). Because of the high failure rate of IT development projects, academics have been compelled to uncover other elements that might affect project performance in more depth. According to Networked Readiness Index Report (NRI, 2020) that was recently conducted concludes that, "The greatest scope for improvement of projects, meanwhile, concerns project governance". Pakistan is ranked 20th within Asia & Pacific. It lags behind its region. With regard to Governance, it trails the regional average.

The Global Information Technology Report 2016 shows that the reason of project failure is Tough schedules and budgets that means risk of scheduling and timing that is Development time and budget are poorly estimated. Pakistan's technical and economic environments, for example, are vastly unlike from those of Western countries. Pakistan's GDP per capita was US $1482.40 million in FY2018, whereas the same statistic for the United States and Australia was US$56,115.7 million and US $56,290.6 million, respectively. These indications point to a scarcity of finances for the acquisition of contemporary information and communication technology (ICTs). Furthermore, most Asian nations' IT project-based companies must be dependent upon the West part of world to allocation of contemporary technology as well as cost-efficient and solution with better quality (N., F. J. a. G., 2005). Because of the aforementioned lack of money and contemporary technologies, it is difficult for IT businesses to collaborate with Western IT companies in order

to gain information of up-to-date CTs and to purchase modern equipment and technologies.

1.4 Research Questions

Goal of this study is to response the subsequent research question: An Asian project constructed industry's objective in this study is to provide answers for the theoretical and contextual gaps stated above as well as to uphold and expand their performance with the help of Project governance (PG). The prime goal of this study is to provide answer these research question:

RQ 1: What impact will Project governance (PG) have on Project performance (PP) ?

RQ 2: What will be the relation between Project governance (PG) have on Project quality (PQ)?

RQ 3: What will be the relation between Project governance (PG) have on Project Risk Management (PRM)?

RQ 4: Does Project quality (PQ) Plays Mediating role between Project governance (PG) and Project performance (PP)?

RQ 5: Does Project Risk Management (PRM) Plays Mediating role between Project governance (PG) and Project performance (PP)?

1.5 Objectives of Study

RO.1: To determine if Project governance (PG) has a direct impact on Project performance (PP).

RO.2: To determine if Project governance (PG) has a direct impact on Project quality (PQ).

RO.3: To determine if Project governance (PG) has a direct impact on Project Risk Management (PMR).

RO.4: To determine whether Project quality (PQ) has a mediation influence on the connection between Project governance (PG) and Project performance (PP).

RO.5: To determine if Project risk management (PRM) has a mediation influence toward connection within Project governance (PG) and Project performance (PP).

1.6   Significance of Study

Effective risk management may enhance Project performance (PP) by addressing the different factors that are inhibiting Project performance (PP) (Haq et al., 2016; Wallaice et al., 2004). In the interim, effective management for avoiding risk is the shows the solidness Project governance (PG) structure (Guoe et al., 2014). In order to manage risks, project-based organization's require a different governance structure than conventional organizations (Bakkir, Borus, Kenes, & Oerlemains 2013; Malaich-Pinves, Dvire, & Saideh 2009). (Bakkir, Borus, Kenes, Oerlemains 2013) Zwikael & Smyrk (2015).

Investigating the mediation of Project quality (PQ) and project management risk on the link between Project governance (PG) and Project performance (PP) is therefore essential. [Traduction libre] So, this research expands on the conclusions of (Haq et al., 2016) in order to inspect Project quality (PQ) and project management risk as mediating factors in in the existing link of Project governance (PG) and performance. However, there is a major literature vacuum in this area, since there exist no research that may analyses the mediating relationship of quality and management risk on the link between governance and performance (PP).

1.7   Theoretical Implications

The new research adds to the existing body of evidence on Project governance (PG) and performance in a number of important ways. Firstly, the IT business in developing nations is still nascent; as a result, there are very few studies in the past literature that have focused on IT firms in countries like Pakistan. Secondly, the software sector in developing nations is still mostly unregulated. A number of

connections between Project governance (PG), Project quality (PQ), and project management risk have been explored. (Abednego & Ogunlana, 2006; Haq et al., 2016; Khan, 2012; Zwikael & ismyrk, 2015). Previous studies validate the relationship by amos but this study concludes the results with the help of latest tool to validate the relationship, i.e. PLS-SEM. Moreever previous studies uses only agency theory and this study contributes by giving multitheory perspective which includes, Agency and stakeholder theory. And stewardship theory.

1.8 Practical Implications

From a management standpoint, the study sheds light on how to improve project success rates. Project managers in the IT industry should consider an alternative approach to addressing IT projects than those in the building and engineering sectors. This knowledge will know how to take the governance measures required for the initiatives' success. They should exhibit a mix of different dimensions of project governance in their decision making and methodology for improving project performance. Management of the organization should formulate policies, adopt best business practices and make strategies on the basis of best available tangible and intangible resources to exploit opportunities available in the market and to incorporate state-of-the-art technology for successful execution of the projects; thereby increasing success rate of IT projects and to gain competitive advantage. It has become imperative for IT professionals to explore new methods to improve project performance (Guo, 2019). Through this research, the top management will be able to understand that its support for implementation of technology in projects can result in completion of a project successfully; thereby augmenting the rate of the project success. It will also help them to recognize which resources are more important to exploit opportunities that can ultimately enhance the organizational performance. Additionally, policy makers, government strategists and IT specialists will be in a position to establish standards and formulate policies to administer the Quality and risk management use for the well-being of the organization.

Chapter 2

Literature Review

The chapter contains a thoroughly reviewed extensive literature pertaining to project governance in projects, project quality, project risk management and project performance to offer a sound theory of variable definitions and in-depth account of proposed relationships. To create this, we directed our search towards an abandoned number of publications and articles using keywords of, project risk management, quality, project quality, project performance, project governance, and thereof. The model suggests five hypotheses based on the relationship between the different variables under consideration. While the variables used in this study are as below:

2.1 Project Governance

When employees have faith in their employer, it leads to improved governance, and when there is good Project governance (PG), project success rises. According to Ahola, Artto, and Kujala (2014), researchers in existing project-related studies are still complex in so far as the concept of Project governance (PG) and its foundation in literature, there is no arrangement originate over the classification of Project governance (PG) (Bekker, 2014). The value and study of project management is increased from the concept of Project governance (PG), govern mentality (Muller et al., 2014). Governance is a measure of how well an organisation functions at a higher level than management, such as how well it establishes procedures and

structures to care for management (ITG, 2013). Project governance (PG) includes project practises, certification processes, stakeholder values, and mandated and common requirements (Ruuska, etal, 2009). The project's success is enhanced by the leader's trust, but this connection is strengthened by good Project governance (PG). As a result, good Project governance (PG) improves the link between leader trust and project success.

The majority of the researchers claimed that when trust is combined with governance, the organization's business costs are reduced (Das & Teng, 1998; Dyer & Chu, 2003; Gulati& Nickerson, 2008). When there is a lower degree of governance, control, and monitoring in a company, it results in more relaxed relationships, which improves commercial collaboration (Gulati & Nickerson, 2008).

2.2   Project Risk Management

Mhetre and B (2016) describe strategic planning as "a process that entails risk identification, qualitative and quantitative assessment, replies with an adequate risk handling system, and then risk management." Project Risk Management (PRM) is an essential element of a methodology that attempts to establish and define potential project hazards (Ehsan & Azam, 2010).

Risk management is an approach for mitigating risk while exploiting available, or rather projected, possibilities emerging from dangers. The technique requires the individual to perform a detailed study and assessment of the present and potential future conditions (Schieg, 2006). Risk management is described as the process of detecting and analysing dangers, as well as developing risk-mitigation solutions.

The fundamental aim of project risk assessment (PMR) is to detect, analyse, and reduce the risks of failure of the project (Serpella & Larissa, 2014). Because unmanaged risks can lead to implementation failure, project management is the planning (PMR) is an important component of project management. A typical IT project may have constitutional, financial, administrative, political, and technological risks (Zhao & Weisheng, 2014).

2.3   Project Quality

Quality is defined as the extent to which the goals or attributes of a project, product, or service satisfy the standards. A project's or product's performance is better if it fulfils its timelines, costs, and scope while also meeting the client's needs. Productivity is an intriguing issue since that might mean different meanings to different people.The concept of performance is made much more difficult because it pertains to concrete items and intangible resources. Lewis, D. (2008). The following ideas for quality performance in construction projects were identified by researchers: fulfilling customer requirements, minimising rework or faults, repeat business, and time and budget competitiveness (Hoonakker & Todd, 2010).

'What the customer wants is consistency as a lifelong experience,' says Basu (2014) in his research. Project quality (PQ) is largely managed by lip service and several papers with checkboxes. One of the most important aspects of project success is quality. The standard of construction projects, as well as the performance of a project, may be defined as satisfying the expectations of project stakeholders (Ashokkumar, 2014). In the ISO 9001 quality management system, a quality management programme is referred to as the Project quality (PQ) framework, and it addresses three major issues: quality control, quality assurance, and quality improvement (W. E. Lewis, 2017). As little more than a consequence, project quality (PQ) relates to a project's ability to perform effectively for the purpose for which it was established. Even if the project is just too huge, this will failed to meet its objectives if its purpose is not fulfilled. That whenever a project does very well in all areas, the project's quality increases since every client anticipates the project to be finished on time and on - budget that has been established.

2.4   Literature

2.4.1   Project Governance and Project Performance

Various authors (Carwford & Couke-Daivies, 2005; Muller, 2009; Tou & Weaiver, 2014) have used the word Project governance (PG) in various ways, with diverse

meanings and implications. The term's only goal, on the other hand, is to improve Project performance (PP) . Governance may be characterized as a collection of concepts that govern power, responsibility, stewardship, leadership, direction, and control in a wide sense (Sankaran et al., 2007). Such greater expectations encourage a project team to work hard and efficiently so that predetermined performance metrics may be reached. The preceding arguments show that good Project governance (PG) is linked to higher quality standards, and higher quality standards are linked to better performance measures. As a result of the improved quality standards created by well-managed projects, Project performance (PP) increases. In an effective Project governance (PG) model appears to be essential for better recognizing and managing the risk categories included in a project, such as team risk, user risk, and complexity risk. Project management is a critical component of project management that helps organizations achieve their goals in the miniumium conceivable cost.

In order for manageing project communications, Project governance (PG) includes establishing, finishing, and preserving a connection with the numerous internal and external. stakeholders engaged within the projects (Heidie, 1994). Project success tends to hinge on managing associations with internal-stakeholders for instance project teams and company administration, as well as external stakeholders such as suppliers, clients, and the government. Governance is primarily concerned with the process of regulating; however, rather than imposing authority on internal and external stakeholders to compel compliance, it focuses on building strong connections and making project-friendly decisions (Moldoveanu & Martin, 2001). As a result, an infrastructure is necessary to implement a monitoring system. Project governance (PG), according to Abednego and Ogunlana (2006), is a valuable instrument for monitoring ongoing Project performance (PP) and taking preventative actions in the event of difficulties. On the other hand, the term's only purpose is to increase Project performance (PP). A vast range of principles govern authority, accountability, stewardship and direction (Sankaran et al., 2007).

Monitoring PM procedures extending through project start to end is also part of governance (Turner & Keegan, 2001). Project governance (PG) also entails building agreement among project members, that is necessary to finish the project in

a extremely unpredictable atmosphere (Hewitte Dei Alcantaira, 1998). Project governance (PG), conferring to Turnier and Keigan (2001), will not required for support operative governor procedures or to accomplish the interaction between project team with the customer. The connection among these two paradigms has also been investigated (Haq et al., 2016). Despite the fact that they identified minor helps of Project governance (PG) to Project performance (PP) in Pakistan's I.T industry, the literature (e.g., Abedniego & Ogunlaina, 2006; Luo et al., 2015) create substantial contributions of Project governance (PG) to Project performance (PP). Zwiekael and smyirk (2015) provided Zwikael and smyrk (2015) presented 2 distinct approaches to Project governance (PG), responsibility for assistances understanding built on control and ii) responsibility for assistances recognition built on conviction, and argued that they should be combined to improve Project performance (PP). The need of measuring intermediate project success is emphasized by Parsons (2006).

Michiel C Bekker and Herman Isteyn (2008), while extracting numerous common factors for poor Project performance (PP), stated that the primary reasons are nations' lack of information management and inadequate project monitoring and control. When employees have faith in their employer, it leads to improved governance, and when there is good Project governance (PG), project success rises. According to Ahola, Artto, and Kujala (2014), researchers in existing project-related studies are still complex in so far as the concept of Project governance (PG) and its foundation in literature, there is no arrangement originate over the classification of Project governance (PG) (Bekker, 2014).

The value and study of project management is increased from the concept of Project governance (PG), govern mentality (Mulleret al., 2014). Governance is a measure of how well an organisation functions at a higher level than management, such as how well it establishes procedures and structures to care for management (ITG, 2013). Project governance (PG) includes project practises, certification processes, stakeholder values, and mandated and common requirements (Ruuska, etal, 2009). The project's success is enhanced by the leader's trust, but this connection is strengthened by good Project governance (PG). As a result, good Project governance (PG) improves the link between leader trust and project success. Project

governance (PG), conferring to Turnier and Keigan (2001), will not required for support operative governor procedures or to accomplish the interaction between project team with the customer. The connection among these two paradigms has also been investigated (Haq et al., 2016).

Despite the fact that they identified minor helps of Project governance (PG) to Project performance (PP) in Pakistan's I.T industry, the literature (e.g., Abedniego & Ogunlaina, 2006; Luo et al., 2015) create substantial contributions of Project governance (PG) to Project performance (PP). Zwiekael and smyirk (2015) provided Zwikael and smyrk (2015) presented 2 distinct approaches to Project governance (PG), responsibility for assistances understanding built on control and ii) responsibility for assistances recognition built on conviction, and argued that they should be combined to improve Project performance (PP). The need of measuring intermediate project success is emphasized by Parsons (2006). Michiel C Bekker and Herman Isteyn (2008), while extracting numerous common factors for poor Project performance (PP), stated that the primary reasons are nations' lack of information management and inadequate project monitoring and control. When employees have faith in their employer, it leads to improved governance, and when there is good Project governance (PG), project success rises.To measure this effect, the following hypothesis is developed.

Hypothesis 1: Effective project governance has positive significant effects on project performance.

2.4.2   Project Governance and Project Risk Management

Project risk management (PRM) is an essential element of a process which seeks to identify and clarify sources of risk (Ehsan & Azam, 2010). Risk management is a methodology for mitigating risk while maximising available, or rather potential, opportunities that arise from hazards. The technique requires the individual to perform a detailed study and assessment of the present and potential future conditions (Schieg, 2006). Risk mitigation is described as the process of detecting and assessing dangers, as well as developing risk-mitigation solutions. The principal goal of project risk mitigation (PRM) is to recognise, evaluate, and reduce project

risks project failure risks (Serpella & Larissa, 2014). Project risk management (PRM) is an significant characteristic of project management subsequently unrestrained risks can lead to project failure. Contractual, financial, organisational, political, and technical risks may all be present in a typical IT project (Zhao & Weisheng, 2014).

The majority of the researchers claimed that when trust is combined with governance, the organization's business costs are reduced (Das & Teng, 1998; Dyer & Chu, 2003; Gulati& Nickerson, 2008). When there is a lower degree of governance, control, and monitoring in a company, it results in more relaxed relationships, which improves commercial collaboration (Gulati & Nickerson, 2008).

Turner (2009) includes project monitoring in his definition of Project governance (PG), arguing that Project governance (PG) offers a framework for setting and achieving project objectives while simultaneously monitoring Project performance (PP). Such greater expectations encourage a project team to work hard and efficiently so that predetermined performance metrics may be reached. The preceding arguments show that good Project governance (PG) is linked to higher risk management, and higher risk management standards are linked to better performance measures. As a result of the improved quality standards created by well-managed projects, Project performance (PP) increases. I An effective Project governance (PG) model appears to be essential for better recognising and managing the risk categories included in a project, such as team risk, user risk, and complexity risk. As a result, an infrastructure is necessary to implement a monitoring system. Project governance (PG), according to Abednego and Ogunlana (2006), is a valuable instrument for monitoring ongoing Project performance (PP) and taking preventative actions in the event of difficulties. On the other hand, the term's only purpose is to increase Project performance (PP). A vast range of principles govern consultant, responsibility, stewardship and route (Sankarian et al., 2007).

Organisations may achieve their goals at the lowest possible cost by implementing project management. This is anticipated to lead to better Project performance (PP) by addressing difficulties and obstacles on the job site. Due to this, Project governance (PG) is a key factor in Project performance (PP) since it enables project managers not only oversee the different stages and activities of their

projects but also provide project assistances to both interior and exterior stakeholders, as well as to the public at large, as well. Studies undertaken in western or Australian settings and principles, that are substantially unlike than those of Asian nations like Pakistan, are believed to have a major influence in the Pakistani software industry on Project performance (PP) . To quantify this influence, the following hypothesis is suggested. Project governance (PG), Project quality (PQ), and Project performance (PP) Project quality (PQ) asserts that a project's quality requirements, such as project and invention quality, are unsatisfied (Abednego & Ogunlana, 2006). To measure this effect, the following hypothesis is developed.

Hypothesis 2: Effective project governance has positive significant effects on project risk management.

2.4.3 Project Governance and Project Quality

Quality is defined as the extent to which the goals or attributes of a project, product, or service satisfy the standards. A project's or product's quality is better if it fulfils its timelines, costs, and complexity while still meeting the client's needs. Competence is an intriguing issue although it might mean variety of meanings.The concept of performance is made much more difficult because it pertains to concrete items and intangible resources. Lewis, D. (2008). The following ideas for quality performance in construction projects were identified by researchers: fulfilling customer requirements, minimising rework or faults, repeat business, and time and budget competitiveness (Hoonakker & Todd, 2010).

'What the customer wants is consistency as a lifelong experience,' says Basu (2014) in his research. Project quality (PQ) is largely managed by lip service and several papers with checkboxes. One of the most important aspects of project success is quality. The standard of construction projects, as well as the performance of a project, may be defined as satisfying the expectations of project stakeholders (Ashokkumar, 2014). In the ISO 9001 quality management system, a quality management programme is referred to as the Project quality (PQ) framework, and it addresses three major issues: quality control, quality assurance, and quality improvement (W. E. Lewis, 2017).

As a result, Project quality (PQ) refers to a project's capacity to function successfully for the reason for which it was created. Even if the project is too large, it will fail to accomplish the objectives if it does not fulfil the project's purpose. When a project is functioning well in all areas, the quality of the project improves since every customer expects the project to be completed on time and within the budget that has been set.

In reality, it is a guarantee that all of the client's requirements, whether in terms of quality or timeliness, will be met effectively. The proper governance of the project, as well as many pertinent variables, can help to attain such Project quality (PQ). Wialker and Krwong Wing (1999) proposed 2 tactics to Project governance (PG): a systematic approach, which allows the manager to continuously evaluate the client's needs and the last results that must be attained in standings of resources, budget, and time, and the contract cost tactic, that allows organisations to adapt their governance. To measure this effect, the following hypothesis is developed.

Hypothesis 3: Effective project governance has positive significant effects on project quality

2.4.4 Project Governance, Project Quality and Project Performance

Project Governance, Project Quality, and Project Performance Project quality asserts that a project's quality criteria, i.e., concept and outcome quality, are met (Abednego & Ogunlana, 2006). In reality, it is a guarantee that all of the client's demands, whether in terms of quality or schedule, are met effectively. Such project quality may be attained by good project governance and other related aspects. Walker and Kwong Wing (1999) proposed two strategies to project governance: a place . in order that allows the project manager to reevaluate the demand of the consumers and the final outcome that must be achieved in terms of resources, cost estimate, and time, and a trading costs approach in which willing to adjust their governance structures to find the minimum trading costs possible. According to the authors, integrating these techniques enhances project quality, cost, and risk management, allowing the project team to finish the project on time, suggesting

better project performance. Governance system is utilised as a powerful mechanism to improve project quality in higher education initiatives (Hénard & Mitterle, 2010). One of the primary tasks of a project board in Melbourne, according to the Department of Treasury and Finance in Victoria (2012), is to regulate and manage project quality in terms of time and money to guarantee greater project performance. The research on project quality of the project performance discussed above shows that the two notions are linked. One of the most important determinants of project success is project quality. (Haq et al., 2016).

Thus, the following hypothesis is formulated.

Hypotheses 4: Effective project quality (PQ) mediates the relationship between project governance (PG) and project performance (PP).

2.4.5 Project Governance, Project Risk Management and Project Performance

Turner and Müller (2005) underlined the necessity of project participants' cooperation and integration in order to effectively identify and manage risk areas and generate a better result for all participants. By incorporating relational risks it into project governance framework, project managers may better comprehend the threats of dispute brought on by a variety of human variables, constrained reasoning, and other negative externalities, as well as better forecast and handle these issues. Similarly, good risk management among project participants is critical (Atkin & Skitmore, 2008). According to Huang et al. (2004), the effective management of risks must be at the heart of the project governance system, suggesting that project governance has a major impact on project management risk management. (Wallace et al., 2004) recognised different categories of hazards when assessing how elements of risk influences project performance: organisational environment, user, needs, scope creep, planning & control, and team. Moreover, the study classify these risks onto three categories: social sector risk (organisational culture and users), technical sector risk (requirements and scope creep), and project management risk (planning, control, and team). According to the authors, project management risk is critical in administrative judgement processes and may

be utilised to mitigate the impacts of technological sector risk on project performance. Because the focus of this research is to determine the possible impacts of project governance on project performance, project governance is defined as an approach in which large shareholders and project teams connect project objectives with organisational strategy (PMI, 2013). As a result, project management risk, which is a confluence of planning and monitoring and group hazards, may be utilised to mediate the link among project process and project performance.

Thus, the following hypothesis is formulated.

Hypotheses 5: Effective project risk management (PRM) mediates the relationship between project governance (PG) and project performance (PP).

Integrating these approaches, according to the authors, improvements Project.quality (PQ), cost, and risk's management, letting the team to finishup the project on deadline and with advanced Project performance (PP). The term's only goal, on the other hand, is to improve Project performance (PP). As a result, an infrastructure is necessary to implement a monitoring system. Project governance (PG), according to Abednego and Ogunlana (2006), is a valuable instrument for monitoring ongoing Project performance (PP) and taking preventative actions in the event of difficulties. On the other hand, the term's only purpose is to increase Project performance (PP).

A vast range of principles govern consultant, responsibility, stepwardship and dedication (Sankarian et al., 2007). Governance may be characterised as a collection of concepts that govern power, responsibility, stewardship, leadership, direction, and control in a wide sense (Sankaran et al., 2007). Project management is a critical component of project management that helps organisations achieve their goals at the lowest possible cost. In advanced edification projects, operative governance can act as a influenceing mechanism for increase in Project quality (PQ) (Henaird & Mittirle, 2010). One of the primary tasks assigned to the project course-plotting commission in Melbourne, according to the "Department of Treasury and Finance in Victoria (2012)", is to check and control Project quality (PQ) in relations of time and money in order to achieve better Project performance (PP). According

to the literature on Project quality (PQ) and Project performance (PP) described above, there exist a connection inbetween the 2 ideas. Project quality (PQ) is the one of which most significant drivers of success (Haq et al., 2016).

Also, according to the literature review, an active Project governance (PG) model has the probableility to greatly increase managers' capacity to recognise and fullfil quality criteria. Project quality (PQ), contrary to this—which covers mutually plan and artefact quality—has the ability to boost Project performance (PP) by creating unique in dicators of project success. Such greater expectations encourage a project team to work hard and efficiently so that predetermined performance metrics may be reached.

The preceding arguments show that good Project governance (PG) is linked to higher quality standards, and higher quality standards are linked to better performance measures. As a result of the improved quality standards created by well-managed projects, Project performance (PP) increases. I An effective Project governance (PG) model appears to be essential for better recognising and managing the risk categories included in a project, such as team risk, user risk, and complexity risk.

Turnier and Mouller (2005) underlined the significance of cooperation and management between participants, that allows them to better align individual duties and discourse and realise risk areas, resulting in a well consequence for all of stakeholders. By integrating social risks into a Project governance (PG) framework, project managers may better comprehend the risks of conflict generated by a variety of human variables, constrained reasonableness, and some other ethical threats, as well as improved forecast and accomplish these issues. Likewise, good statement about potencial risk areas within project participants is critical (Atkin & skitmore, 2008). The efficient management of risks, according to Huang et al. (2004), should be put at the heart of the Project governance (PG) model indicating that Project governance (PG) has insignificant influence on project management risk management. Wallace et al., (2004) recognised different categories of hazards when assessing how software project risk influences Project performance (PP): organisational setting, user, necessities, project complication, planning & controlling, and

team. These risks were further split into three categories by the authors: social subsystem risk (organisational environment and user risks), technical subsystem risk (requirements and project complexity risks).

According to the authors, project management risk is important in managerial decision-making and may be used to reduce the effects of technical subsystem risk on Project performance (PP). Because the objective of this research is to see how Project governance (PG) affects Project performance (PP), Project governance (PG) is described as a structure that connects project sponsors and project teams goals in line with the company's plan (PMI, 2013).

As a consequence, project management risk, which is a mix of development and regulator and collection hazards, might utilised for mediatation in the association between Project governance (PG) and Project performance (PP). As a result, it's possible to argue that better Project governance (PG) leads to better risk management, which leads to better Project performance (PP) , indicating that risk management plays a mediating role in the relationship between Project governance (PG) and Project performance (PP) .

2.5 Hypothesis of the Study

Hypothesis 1: Effective project governance has a positive significant effects on project performance.

Hypothesis 2: Effective project governance has a positive significant effects on project management risk.

Hypothesis 3: Effective project governance has a positive significant effects on project quality.

Hypothesis 4: Effective project quality mediates the relationship between project governance and project performance.

Hypothesis 5: Effective project risk management mediates the relationship between project governance and project performance.

2.6 Research Model

FIGURE 2.1: Research Model

Chapter 3

Data Describtion

3.1 Research Paradigm

At the initial stage setting the research strategy, helped in clarifying the philosophical position of this research thesis. Additionally, it help in putting out a certain research strategy that guaranteed the data collected and had the option to satisfy the setup research targets (Kamal, 2019). Keeping in view the research setting of this thesis positivist paradigm was established which helped in answering the research objectives (Kivunja & Kuyini, 2017). Furthermore, this research strategy relied on deductive reasoning. Moreover, the hypothesis for this thesis were formed on the basis of literature deducted from published research articles and established statistical reports (Kivunja & Kuyini, 2017). The next section would discuss the population for this study.

TABLE 3.1: The Number of Inhabitants in Rawalpindi and Islamabad in Pakistan is shown in Table

Cities	Population (Millions)	Percentage of Total Popoulation
Rawalpindi	1,743,101	74.34%
Islamabad	601,600	25.66%
Total Population	2,344,701	100.00%

3.2   Population

The globe, according to Nachmias & Nachmias (1996) and sekaran (2003), is a whole group from which a sample is chosen. For the analyst, a population is a group of components and a element of attention from where they may want to check their hypothesis for the research's result. The participants in this study will be IT companies of twin cities Rawalpindi and Islamabad working on projects. List of companies that are used as population is as below:

Company Name	City
Eziline Software house	Rawalpindi
Informage software	Rawalpindi
Nicon advances software technologies	Rawalpindi
Trivor software	Rawalpindi
Simorgh software products	Rawalpindi
Jolta technologies	Rawalpindi
AllZone technologies	Islamabad
DeltaCom technologies	Islamabad
EfroTech Service	Islamabad
Morango Services	Islamabad
Nayatel	Islamabad
Contour software	Islamabad
Gillani software	Islamabad

3.3   Sample and Sample Size of Study

Data will be gathered from those who will be working in the IT industry. The information will be gathered using a questionnaire. At least 683 questionnaires will be given, and participants will be requested to complete them as completely as possible. Out of which 357 responses received back, 7 responses were incomplete Hence, 350 responses were used for analysis.

3.4 Data Collection Procedures and Methods

Data collection is not an easy task for the researcher, in fact without any reference it is very difficult to collect data from the project supervisors of information technology industry of Pakistan. Keeping in view that hurdle, every possible references was used to collect the data form the project supervisors also, Snow ball technique was used to gather the data. For the reliability of the data it was mandatory that the questionnaires was filed by the project supervisors of information technology industry of Pakistan.

For this purpose it was ensured that the data was only filed by the project teams who are working in information technology industry of Pakistan. To ensure the project teams of information technology industry of Pakistan that the data was used only for the educational purposes. A cover letter was attached with the questionnaires which shows the brief introduction of the project. There are various methods used by the researchers for the collection of data. While keeping in view that the data collection is time taking process, Google doc had been used for this purpose. The link of google doc is send to the known persons who are working in Project based organizations in information technology industry in Rawalpindi and Islamabad. With the help of snowball technique the link of google doc questionnaires were further shared among the project teams and in result a total of 357 responses were received from the respondents.

3.5 Sampling Technique

Technique used for sampling is Snowball technique. When investigating hard-to-reach groups. Existing subjects are asked to nominate further subjects known to them, so the sample increases in size like a rolling snowball. Snowball sampling can be effective when a sampling frame is difficult to identify. However, by selecting friends and acquaintances of subjects already investigated, there is a significant risk of selection bias (choosing a large number of people with similar characteristics or views to the initial individual identified).

3.6 Measurement Variables

Data collection is not an easy task, adopted questionnaires were used to collect the data which had been utilized by various authors. Three dimensions of team work which includes flexibility, task delegation and risk avoidance leading to Project Completion, showed along with the number of items in **Table 3.3**. This research thesis used the Seven-point Likert scale to gather the opinion of the respondents. The purpose was that the respondents have more options to disclose their opinion and feel more comfortable to answer the questions in the Seven-point Likert scale (Sullivan, 2013).

3.7 Scale Development

The scales have been introduced in such a course of action, beginning with independent variables, followed by moderating and dependent variable.

Constructs	Items
Project Governance	8
Project Quality	5
Project Risk management	9
Project performance	8

3.8 Describtion of Variable

3.8.1 Project Governance - PG

"Project governance (PG)" is an overarching concept for a collection of principles that govern the management of a project (Sankaran et al., 2007). Project governance (PG) entails establishing, terminating, and maintaining a connection with the different internal and external stakeholders engaged in the project in order to arrange transactions (Heide, 1994).

3.8.2 Project Quality – PQ

Project quality (PQ) is one of the most important factors affecting project success (Haq et al., 2016). Review of the literature also shows that an effective Project governance (PG) model may have a substantial impact on helping project managers establish and achieve quality requirements. It is also possible to improve the performance of a project by improving its quality, both in terms of design and in terms of product quality.

3.8.3 Project Risk Management – PRM

An effective Project governance (PG) model appears to be important to identify the risk areas involved in a project and to effectively manage them.

3.8.4 Project Performance – PP

Project performance (PP) is the consequence of the project's activity and fulfilment of its goals, rather than an antecedent that may be achieved via effective governance of all components and interactions among a project's numerous stakeholders.

3.9 Expected Results

It is predicted that Project quality (PQ) and Project Risk Management (PMR) would play a beneficial role as mediators between Project governance (PG) (IV) and Project performance (PP) (DV).

3.10 Research Design

This is going to be a quantitative study.

The quantitative method is compatible with the study because it allows the topic of research to be addressed in extremely specific terms (Cooper & schindler, 2008).

3.11 Research Type

This research is cross-sectional nature.

Cross-sectional studies collect data from respondents at a single point in time. The data would be gathered once and the is survey method would be used (Robson 2002).

3.12 Unit of Analysis

The IT firms' project managers are chosen as the unit of study.

3.13 Study Setting

This research will be steered within non-contrived settings, which means that no fake settings will be formed for the study. And all the data will be collected using questionnaires.

3.14 Underpinning Theories

3.14.1 Agency Theory

Jensen and Meckling's (1976) work established agency theory, which is an economic depiction of the interaction between a company's shareholder and its manager by considering them as intelligent and self individuals. Eisenhardt (1989) examined the contrasting perspectives on agency theory, namely, those who believe that agency theory is a radical theory and those who argue that it is not. Jensen and Ruback (1983), as well as those who said that agency theory is unclear, limited, and lacks testable consequences (Perrow, 1986).

The study found that theory has distinctive, straightforward, and experimentally verifiable, and that it can be applied to any company's principal-agent problems.

There are several boundary conditions in agency theory, and more theoretical research is required (Bendickson, Muldoon, Liguori, & Davis, 2016).

The shareholder of the estate who wants to invest in a corporate entity so far gives up his wealth to someone in regulation of the corporate entity that he has swapped the position of impartial owner for one where he could become simply a beneficiary of capital earnings [Such owners] have agreed to surrender the privilege that the corporate entity should be controlled in their primary goal, according to Berle and Means (1932, p. 355).

The research came to the conclusion that the project manager should keep an eye on the agent's performance. As a result, the project owner may guarantee that the project manager's goals are in line with his or her own. According to Turner et al. (2010), agency theory is utilised in managing projects (PM) to emphasise the interaction between the project owner and the project manager.

According to (Turner, 2009), project governance aids in the setting of project objectives, the determination of means to achieve these objectives, and the monitoring of performance; this seems to be well influenced by agency theory. Moreover, by enforcing tight planning and control procedures, this principle-agent connection is expected to reduce project team risk and uncertainty. Thus, it may be claimed that constant project monitoring by both the owner can improve project performance since more intense monitoring can resolve inconsistencies in research project in a timely manner, resulting in better outcomes. Given the foregoing explanation and the study's aims, agency theory is used to guide the current research since it focuses on supervision, which is critical to improving project performance.

3.14.2 Stakeholder Thery

Stakeholder Theory is a view of capitalism that stresses the interconnected relationships between a business and its customers, suppliers, employees, investors, communities and others who have a stake in the organization. The theory argues that a firm should create value for all stakeholders, not just shareholders. In 1984, R. Edward Freeman originally detailed the Stakeholder Theory of organizational

management and business ethics that addresses morals and values in managing an organization.

From a project management perspective, stakeholder theory means considering the needs of all parties with a vested interest in a particular project. According to the Project Management Institute, stakeholders are "individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion." So by this definition any stake holder of the project must devote himself to produce a better quality project or to enhance project quality.

The influence of stakeholder theory in project risk management can be observed in the study of structured mechanisms to assess the risks associated with stakeholder management, as well as to design risk prevention and mitigation strategies.

3.14.3 Stewardship Theory

Donaldson and Davis (1989) proposed stewardship theory as an ethical complement to agency theory. According to stewardship theory, (project) managers' motivations are linked with the goals of their governing organisations. Managers are also driven by higher-order demands and intrinsic motivations at work. As a result, they connect with and are dedicated to the organisation. Managers are required to prioritise the achievement of the organization's goals over their own, hence they are expected to operate in a pro-organizational and collectivistic manner. As a result, they assume, and their governing institution affords them, the greatest possible latitude in carrying out their mission. (Müller and colleagues, 2014).

Trust and managing by outcomes/results serve as a tool to govern towards the fulfilment of organisational goals by reconciling the requirements of a varied group of stakeholders, according to stewardship theory. (Davis et al., 1997c; Müller, 2011). Stewardship theory evolved in response to criticisms about agency theory's generalizability. It offers a psychology approach to governance, claiming that the actors (managers) are steward that incentives are linked with the concepts' higher-level

goals instead of their personal short-term utility maximisation goals (Donaldson and Davis, 1991). This conduct is linked to the upper levels of the hierarchy of requirements, according to Davis et al. (1997c). The steward varies from the agency in that the steward is dependable and will decide things in the organization's greatest advantage, whereas an agent must be bribed and/or controlled to do just that. (Davis et al., 1997b).

3.15 Contribution of Study

There are a number of ways in which the new study adds to the frame of acquaintance on Project governance (PG) and Project performance (PP). Firstly, the IT business in under developed nations is still nascent; as a result, there are very few studies in the past literature that have focused on software firms in countries like Pakistan. Secondly, the software sector in developing nations is still mostly unregulated. Relationships between Project governance (PG) and Project performance (PP), as well as the impact of management risk on performance have been studied. Abedinego & Ogunlaina, (2006); Haq et al., (2016); A Khan, (2012); Zwikaael & smyork, (2015). So according to our knowledge we know, this is the first study to examine both hypotheses (Hypothesis 4). (Hypothesis 5). As a result, the current study filled the aforementioned theoretical and contextual gap by providing context- and culture-specific findings. The statistical approaches used for data analysis will be discussed in detail in the next chapter. Software was employed to examine the data is the latest version of smart PLS 3. The chapter starts with the brief introduction of PLS-SEM and describes how the measurement and structural model are assessed through following analysis descriptive, reliability, validity, mediation. The results have been illustrated through tables and graphs.

3.16 Sample Description

The study's target audience was young people who use the internet on a regular basis. For data collection, questionnaires were distributed both online and in

person to different IT companies. Finally, this survey contained 357 completed questionnaires.

3.16.1 Partial Least Square-Structural Equation Modeling

Two key studies are included in the partial least square structural equation modelling approach. The measurement model analysis comes first, followed by the structural model analysis. Below is a detailed overview of these analyses.

3.16.1.1 Measurement Model

The first major analysis of the PLS-SEM approach is the measurement model. Two more processes were used in the measurement model analysis: common factor analysis and confirmatory factor analysis. Validity and reliability were inext examined after these two additional processes were completed.

3.16.1.1.1 Common Factor Analysis

The use of common factor analysis can help to clarify the differences between variables. t also reduces variables to a limited number of compound variables. t's also useful for determining the variables' predictors. The foundation of common factor analysis is two measures. The first is squared factor analysis, which is used to determine the proportion of variation explained by observed variables by their corresponding variables. it's also known as the observed variable's dependability. The following metric is loadings, which serve as a foundation for common factor analysis. if an observed variable has low outer loadings, t should be removed from the model via the trimming process, which will help to improve the model's fitness (Cohen, 1988) Common factor analysis serves as the foundation for a measurement model, assisting in the management of each variable. in common factor analysis, outer loadings, validities, internal consistency, and descriptive statistics (i.e. mean and standard deviation) were investigated for each variable separately.

3.16.1.1.2 Confirmatory Factor Analysis

The next element of the measurement model is confirmatory factor analysis. This phase guarantees that all variables and their observed variables are tested. The

purpose of CFA in measurement model testing is to determine whether the strength and comprehension of the components of interest are integrated by their antecedents (Steenkamp & Baumgartner, 2000). The structural equation model has various advantages, including measuring the measurement error, verifying a multifactorial model, and approximating the impacts of group factors on the model. Furthermore, discriminant validity is a need for structural models, according to Kline (2005).

3.16.1.1.3 Analysis of Measurement Model

The final measurement model was examined using outer loadings, internal consistency, composite reliability (CR), average variance extracted for convergent validity, and the Fornell-Larcker method of discriminant validity. The structural model is next inspected after such validities and reliabilities have been verified. The measurement model serves as a foundation for the structural model.

3.16.1.1.4 Structural Model

Following the investigation of the measurement model, the istructural model is the inext istep in the istructural equation modelling process. A istructural model is useful for elaborating the direct effects that variables have on one another. Fundamentally, a structural model aids in the execution and examination of linear relationships between dependent and independent variables of interest (hypothesis testing) (Steenkamp & Baumgartner, 2000)

3.16.1.1.5 Analysis of Structural Model

The standardised regression estimate and p-value are verified to determine the significance of the structural model. After that, the structural model's fitness is evaluated using a variety of indices, including relative chi-square CMI/DF, Goodness of Fit index (GFI), Adjusted Goodness of Fit index (AGFI), Comparative Fit index (CFI), normed Fit index (NFI), Root Mean square Residual (RMR), and Root Mean square Error of approximation. (RMSEA).

Chapter 4

Data Analysis

4.1 Demographic Characteristics of Sample

The information was gathered from youthful internet users. This section consists of a question concerning the respondents' attributes. Respondents were asked about their gender, age, experience, and education. The final data from 353 respondents was used in this istudy. There were 353,272 males (77.07%) and 81 (22.26) females among the 353,272 responses.

Respondents were asked about their gender after which they were inquired regarding their ages For better understanding, respondents' ages were divided into four groups (24-28, 29-33, and 34-40). The results revealed that 158 respondents were between the ages of 24 and 28. There were 63 respondents who were between the ages of 29 and 33. 51 responders were between the ages of 34 and 40.

Respondents were asked about their educational background. Matric, intermediate, graduate, masters, and MPhil/PhD were the different levels of education. 00 respondents had a high school diploma or less. 00 respondents have a high school diploma.

There are 254 people who have completed high school and have a bachelor's degree. 69 respondents hold a master's degree. And 30 of the responders hold a post - graduate degree.

4.2 Descriptive Statistics of Demographic Variables

Demographic characteristics such as gender, age, and education were also evaluated using descriptive statistics. Mean, mode, standard deviation, skewness, and kurtosis were discovered for this reason.

The mode for gender was 1, indicating that there were more male responses than female respondents. The standard deviation for gender is 0.48. skewness and kurtosis were 0.51 and -1.83, respectively, with skewness falling between -1 and +1 and kurtosis falling between -3 and +3.

The average age of responders is 2.84 years old, according to the results. The standard deviation for age is 1.02. skewness and kurtosis were -0.62 and -0.95, respectively, with skewness falling between -1 and +1 and kurtosis falling between -3 and +3.

The mode for schooling was 3.00, indicating that the majority of the respondents had completed their education. The standard deviation for education is 1.22. skewness and kurtosis were 0.33 and -0.84 respectively, with skewness falling between -1 and +1 and kurtosis falling between -3 and +3.

TABLE 4.1: Demographic Variables

Demographic Variables	Mean	Mode	Std.Div	Skewness	Kurtosis
Gender	1.54	1	0.48	0.51	-1.83
Age	2.84	2	1.02	-0.62	-0.95
Education	2.94	3	1.22	0.33	-0.84

The instruments that are used for data analysis i.e. (i) data screening, (ii) normality analysis, (iii) descriptive analysis for demographic and study variables, (iv) reliability analysis, (v) validity analysis, (vi) common method variance (CMV), (vii)

correlations analysis, (viii) multi-collinearity analysis, and (ix) partial least square-structural equation modeling (i.e. measurement model and structural model). The PLS-SEM was employed in present study because of following reasons (a) user friendly (Mujis,2010), (b) t facilitate the testing of indirect effects among latent variables (Mallinckrodt, Abraham, & Wei, 2006), (c) t has advantage over is PSS as t assist in analyzing multiple relationships, (d) t help to draw path diagrams, and (e) t easily produce equation statements.

4.3 Descriptive Analysis of Study Variables

The information about the respondents who took part in the survey was given in the preceding section. This section now contains data on all research variables' item-by-item descriptive analysis (mean, standard deviation, skewness, and kurtosis). Project governance (PG), Project quality (PQ), Project Risk Management (PMR) and Project performance (PP) . Project performance (PP) (PG) has 8 items (i.e. PG1, PG2, PG3, PG4, PG5, PG6, PG7, PG8). Project Risk Management (PMR) (PRM) has 9 items (i.e. PRM1, PRM2, PRM3, PRM4, PRM5, PRM6, PRM7, PRM8, and PRM9). Project quality (PQ) (PQ) has 5 items (i.e. PQ1, PQ2, PQ3,PQ4 and PQ5). Project performance (PP) (PP) contain 8 items (i.e. PP1, PP2, PP3, PP4, PP5, PP6, PP7, and PP8).

4.4 Partial Least Square Structural Equation Modeling (PLS-SEM)

The PLS-SEM method was applied for the research. For analysis, this technique suggests using two models (the measurement model and the structural model).

4.4.1 Measurement Model

The first level of PLS-SEM is the measurement model. There are 2 types of analysis in this model. common factor analysis (CFA) and confirmatory factor

analysis (CFA). These two analyses were displayed for the following purposes: re-specification of the model and lessoning of items of variables according to the rule of validity and reliability of variables, and i) another goal of this study is to check each variable's validity (convergent validity and discriminant validity).

4.4.2   Common Factor Analysis

The very starting phase of a measuring model is common factor analysis. Significance of measurement model is increased at this stage by confirming observed variables and their associated items. For this purpose, the outer loading for each item of each variable checked. All those Item whose values are less than 0.50 outer loading is removed based on the criterion.

4.4.3   Outer Loadings

The value of outer loadings should be bigger than 0.70 in general (F. Hair Jr et al., 2014). Items with outer loadings in the range of 0.40-0.70 should only be eliminated if doing so improves composite dependability or AVE (Hair et al., 2016). Table 4.3 shows that all components of first order structures of Project governance (PG) have outside loadings greater than 0.70.

4.4.3.1   Project Governance (PG)

"Project governance (PG)" is an overarching concept for a collection of principles that govern the management of a project (Sankaran et al., 2007). Project governance (PG) entails establishing, terminating, and maintaining a connection with the different internal and external stakeholders engaged in the project in order to arrange transactions (Heide, 1994). When employees have faith in their employer, it leads to improved governance, and when there is good Project governance (PG), project success rises. According to Ahola, Artto, and Kujala (2014), researchers in existing project-related studies are still complex in so far as the concept of Project governance (PG) and its foundation in literature, there is no arrangement originate over the classification of Project governance (PG) (Bekker, 2014). The value

and study of project management is increased from the concept of Project governance (PG), govern mentality (Mulleret al., 2014). Governance is a measure of how well an organisation functions at a higher level than management, such as how well it establishes procedures and structures to care for management (ITG, 2013). Project governance (PG) includes project practises, certification processes, stakeholder values, and mandated and common requirements (Ruuska, etal, 2009). The project's success is enhanced by the leader's trust, but this connection is strengthened by good Project governance (PG). As a result, good Project governance (PG) improves the link between leader trust and project success.

The majority of the researchers claimed that when trust is combined with governance, the organization's business costs are reduced (Das & Teng, 1998; Dyer & Chu, 2003; Gulati & Nickerson, 2008). When there is a lower degree of governance, control, and monitoring in a company, it results in more relaxed relationships, which improves commercial collaboration (Gulati & Nickerson, 2008).

TABLE 4.2: Outer Loading of Project Governance (PG)

Items	Outer Loadings
PG1	-0.041
PG2	0.779
PG3	0.908
PG4	0.839
PG5	0.833
PG6	0.729
PG7	0.795
PG8	0.881

4.4.3.2 Project Quality (PQ)

Project quality (PQ) is one of the most important factors affecting project success (Haq et al., 2016). Review of the literature also shows that an effective Project governance (PG) model may have a substantial impact on helping project managers establish and achieve quality requirements. It is also possible to improve the performance of a project by improving its quality, both in terms of design and in terms of product quality. The degree to which the aims or qualities of a project, product, or service meet the criteria is referred to as quality. If a project meets

its deadlines, costs, and scope while also fulfilling the demands of the client, the project's or product's quality is good. Performance is an interesting topic since it may mean various things to different individuals. The concept of performance is made much more difficult because it pertains to concrete items and intangible resources. Lewis, D. (2008). The following ideas for quality performance in construction projects were identified by researchers: fulfilling customer requirements, minimising rework or faults, repeat business, and time and budget competitiveness (Hoonakker & Todd, 2010).

What the customer wants is consistency as a lifelong experience, says Basu (2014) in his research. Project quality (PQ) is largely managed by lip service and several papers with checkboxes. One of the most important aspects of project success is quality. The standard of construction projects, as well as the performance of a project, may be defined as satisfying the expectations of project stakeholders (Ashokkumar, 2014). In the ISO 9001 quality management system, a quality management programme is referred to as the Project quality (PQ) framework, and it addresses three major issues: quality control, quality assurance, and quality improvement (W. E. Lewis, 2017).

TABLE 4.3: Outer Loading of Project Quality (PQ)

Items	Outer Loadings
PQ1	0.921
PQ2	0.89
PQ3	0.871
PQ4	0.909
PQ5	0.717

4.4.3.3 Project Risk Management (PMR)

Risk management is defined by Mhetre and B (2016) as "a method that involves risk recognition, qualitative and quantitative appraisal, responses with an appropriate risk handling system, and then risk monitoring. "Project risk management (PMR) is an important part of a process that aims to identify and clarify possible risks associated with a project (Ehsan & Azam, 2010).Risk management is a strategy for minimising losses and maximising available opportunities, or rather

prospective opportunities, arising from hazards. The approach necessitates the individual conducting a thorough analysis and estimate of the current as well as possible future situations (Schieg, 2006). Risk management is defined as the process of identifying and analysing hazards, as well as strategies for decreasing risk to an acceptable level. The primary goal of Project risk management (PMR) is to identify, analyse, and minimise project failure risks (Serpella & Larissa, 2014). Project Risk Management (PMR) is an important aspect of project management since uncontrolled risks can lead to project failure. Contractual, financial, organisational, political, and technical risks may all be present in a typical IT project (Zhao & Weisheng, 2014).

An effective Project governance (PG) model appears to be important to identify the risk areas involved in a project and to effectively manage them.

TABLE 4.4: Outer Loading of Project Management Risk

Items	Outer Loadings
PMR1	0.757
PMR2	0.708
PMR3	0.779
PMR4	0.74
PMR5	0.743
PMR6	0.773
PMR7	0.873
PMR8	0.866
PMR9	0.816

4.4.3.4 Project Performance (PP)

Relatively being an predecessor that may accomplished via efficient governa-nce of all mechanisms and interactions with relation to a different stakeholders of various projects, Project performance (PP) is the result of the project's activity and the achievement of its goals. When it comes to Project performance (PP), there is no one definition; rather, subjective metrics that are relevant to all project

stakeholders are used (Dai and Wells, 2004; Bosch-iRekveldt et al., 2011; Pollaneni et al., 2017).

Shrnhur etial., 1997; Atkinson, 1999; Boyne and Gould-Williams, 2003; Bosch-Rekveldti et al., 2011) found that Project performance (PP) can be measured alongside time, cost, and scope, also known as "the management triangle," as well as the quality of service provision used (Dai and Wells, 2004; Bosch-Rekveldt et al., 2011; Pollaneni et al., 2017). Shrnhur etial., 1997; Atkinson, 1999; Boyne and Gould-Williams, 2003; Bosch-Rekveldti et al., 2011).

TABLE 4.5: Outer Loading of Project Performance

Items	Outer Loadings
PP1	0.765
PP2	0.937
PP3	0.852
PP4	0.847
PP5	0.787
PP6	0.886
PP7	0.909
PP8	0.719

4.4.4 Confirmatory Factor Analysis

Following a thorough evaluation of the common factor analysis, confirmatory factor analysis is conducted for all research variables (i.e. social bridging/social bonding, ease of navigation, peer communication, perceived enjoyment, want to buy, impulsiveness, and compulsive buying behaviour). internal consistency, convergent validity, and convergent validity are all advantages of confirmatory factor analysis All latent variables have discriminant validity.

4.4.4.1 Internal Consistency (Reliability)

The reliability analysis is the first step in confirmatory factor analysis (internal consistency). internal consistency was assessed using two key criteria: Cronbach alpha and composite reliability.

4.4.4.2 Cronbach Alpha

Cronbach alpha was used as the initial criterion for determining internal consistency. t estimates reliability by looking at the correlation between variables and assuming that all variables have the same level of reliability. Cronbach alpha values ranged from 0.77 to 0.88 at the end.

4.4.4.3 Composite Reliability (CR)

Although Cronbach alpha is a common metric of "internal consistency dependability," PLS-SEM prefers composite reliability over Cronbach alpha. Cronbach alpha assumes that all items in a construct have equal outer loadings, but PLS-SEM prioritises things based on their individual reliabilities. Furthermore, Cronbach alpha is influenced by the number of items in a scale, which might reduce the scale's reliability (F. Hair Jr et al., 2014). As a result, composite reliability, which ranges from 0 to 1, is an adequate measure of reliability. Threshold values of 0.70 are recommended (Hair et al., 2016).

TABLE 4.6: Results of Cronbach Alpha

Variables	Cronbach's Alpha
PF	0.939
PG	0.875
PMR	0.922
PQ	0.913

TABLE 4.7: Results of Composite Reliability (CR)

Variables	Composite Reliability
PF	0.95
PG	0.91
PMR	0.935
PQ	0.936

4.4.4.4 Convergent Validity

Construct validity is composed of two components: discriminant validity and convergent validity (Hair et al., 2014). To evaluate convergent validity, "average

variance extracted (AVE)" is considered and should exceed 0.50 (Bagozzi and Yi, 1988). In this study, AVE value exceeded from this threshold for each construct as depicted in Table.

TABLE 4.8: Convergent Validity

Variables	Average Variance Extracted (AVE)
PF	0.707
PG	0.596
PMR	0.617
PQ	0.748

4.4.4.5 Discriminant Validity

The discriminant validity of all study variables is checked as the final step in confirmatory factor analysis. The Fornell-Lacker method of determining discriminant validity is used for this purpose. The square root of average extracted variance of research variables is compared using the Fonell-Lacker method showing the correlation coefficients of the various variables. The correlation values of variables are less than the square root value of their respective variables, as shown in **Table 4.11**.

TABLE 4.9: Discriminant Validity

	PF	PG	PMR	PQ
PF	0.841			
PG	0.743	0.772		
PMR	0.669	0.892	0.786	
PQ	0.663	0.885	0.788	0.865

4.5   Cross Loadings

Examining cross loadings is another method for determining discriminant validity. The requirements for establishing discriminant validity would be that the indications outer loading on its associated constructs must be higher than on other constructs. The cross loadings of every indicator are represented in the table.

Every item is loaded on its own construct, as can be seen in the table, and no thing is loaded on another. Loading with its related construct also has a better value than loading with other constructs. As a result, discriminat validity has been established.

	PF	PG	PMR	PQ
PF1	0.765	0.594	0.568	0.436
PF2	0.937	0.696	0.617	0.59
PF3	0.852	0.629	0.551	0.559
PF4	0.847	0.636	0.542	0.677
PF5	0.787	0.628	0.514	0.557
PF6	0.886	0.633	0.536	0.558
PF7	0.909	0.645	0.596	0.588
PF8	0.719	0.522	0.582	0.48
PG1	-0.012	-0.041	-0.216	-0.018
PG2	0.575	0.779	0.66	0.668
PG3	0.703	0.908	0.789	0.785
PG4	0.626	0.839	0.88	0.828
PG5	0.64	0.833	0.634	0.76
PG6	0.5	0.729	0.776	0.613
PG7	0.57	0.795	0.512	0.777
PG8	0.664	0.881	0.834	0.67
PMR1	0.568	0.706	0.757	0.564
PMR2	0.553	0.674	0.708	0.632
PMR3	0.453	0.673	0.779	0.502
PMR4	0.458	0.658	0.74	0.664
PMR5	0.473	0.58	0.743	0.606
PMR6	0.471	0.684	0.773	0.457
PMR7	0.606	0.771	0.873	0.702
PMR8	0.588	0.764	0.866	0.711
PMR9	0.53	0.762	0.816	0.707
PQ1	0.628	0.782	0.68	0.921
PQ2	0.509	0.703	0.679	0.89
PQ3	0.518	0.684	0.673	0.871
PQ4	0.666	0.864	0.71	0.909
PQ5	0.516	0.759	0.655	0.717

4.5.0.1 Summary of Measurement Model

Overall summary of results obtained in measurement model are displayed in following table.

TABLE 4.10: Summary of Measurement Model

Latent Variables	Items Retained	Outer Loading	Alpha	CR	AVE
1. PG	PG1, PG2, PG3, PG4, PG5, PG6, PG7, & PG8	0.04-0.90	0.939	0.95	0.707
(with 8 items)					
2. PQ	PQ1, PQ2, PQ3, PQ4 & PQ5	0.71-0.92	0.875	0.91	0.596
(with 5 items)					
3. PMR	PMR1, PMR2, PMR3, PMR4, PMR5, PMR6, PMR7, PMR8 & PMR9	0.70-0.87	0.922	0.935	0.617
(with 9 items)					
4. PP	PP1, PP2, PP3, PP4, PP5, PP6, PP7, & PP8	0.71-0.93	0.913	0.936	0.748
(with 8 items)					

4.5.1 Structural Model

For evaluating the research hypotheses among all study variables, a structural model was employed after assessing the measurement model and all study variables.

4.5.1.1 Specification of Structural Model

In the second model, which is a structural model, there are seven variables, each having a mean. Seven latent variables were identified. Project governance (PG) is independent variable. Whereas Project performance (PP) is dependent variable.
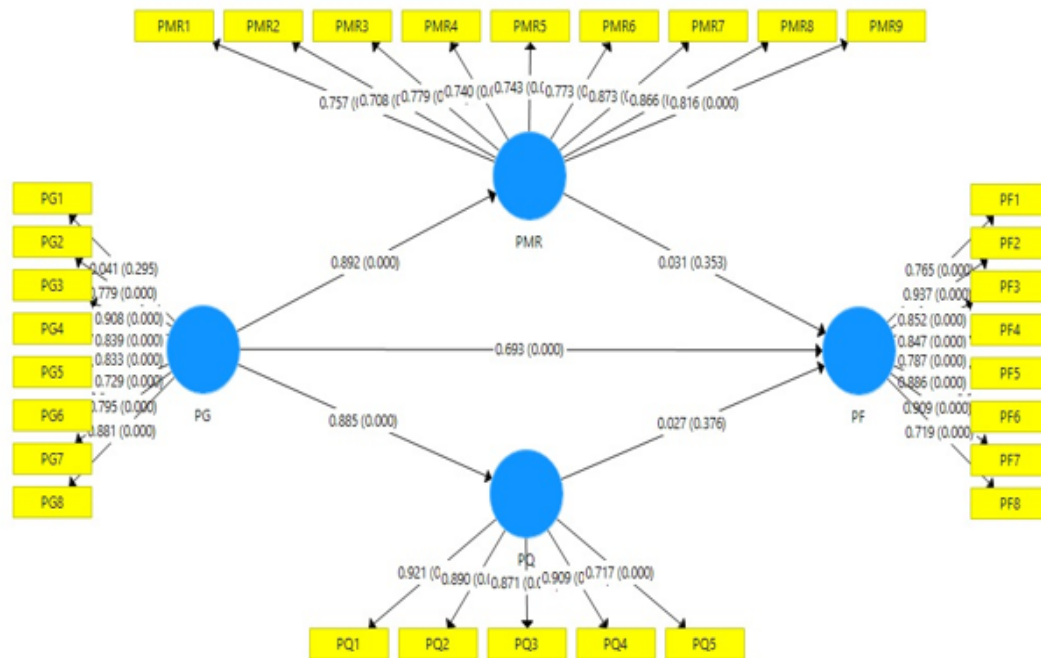
FIGURE 4.1: Structural Model

4.5.1.2 Multi-Collinearity Test

To determine whether there was any collinearity, a multicollinearity test was used. For all research variables, the variance inflation factor test was used to assess for multicollinearity. The results showed that there was no multicollinearity concern because the VIF score was less than the O'Brien, 2007 suggested threshold of 10. Results were presented in following Table

TABLE 4.11: Results of Collinearity Analysis

Construct	Variance Inflation Factor (VIF)
Project governance (PG)	1
Project quality (PQ)	8.5
Project Risk Management (PMR)	4.87
Project performance (PP)	4.6

4.5.2 Hypothesis Testing

Following are the research hypotheses that were tested through structural model.

H1: The link between Project governance (PG) and Project performance (PP) is significant.

The link between Project governance (PG) and Project performance (PP) is significant. Results were a good indication of what to expect. i.e β= 0.693, p= 0.00 that exhibited that Project governance (PG) has significant positive relationship with Project performance (PP)

H2: There is a positive link between Project governance (PG) and project management risk.

A substantial positive link exists between project management risk and the governance of projects. Results were a good indication of what to expect. i.e β= 0.892, p= 0.00 that exhibited that Project governance (PG) has no significant positive relationship with Project management risk.

H3: There is a favorable link between Project quality (PQ) and Project governance (PG).

There is a strong positive link between Project governance (PG) and Project quality (PQ). Results were a good indication of what to expect. i.e β= 0.885, p= 0.00 that exhibited that Project governance (PG) has significant positive relationship with Project quality (PQ).

H4: The connection between project management risk and Project performance (PP) is negligible.

Insignificant link exists between Project performance (PP) and project management risk. Results were a good indication of what to expect. i.e β= 0.031, p= 0.353 that exhibited that Project management risk has insignificant relationship with Project performance (PP).

H5: The connection between Project quality (PQ) and Project performance (PP) is insignificant.

The connection between Project performance (PP) and Project quality (PQ) is insignificant. Results were a good indication of what to expect. i.e β= 0.027,

p=0.376 that exhibited that Project quality (PQ) has insignificant relationship with Project performance (PP).

4.6   Mediation Analysis

This concept of mediation describes the link between independently and interdependent notions (Hair et al., 2016). The goal of indirect effect in our research is to evaluate Hypothesis 4, that states that project qulaity plays a mediating role between project governance and project performance and Hypothesis 5 that states that project risk management has a role in bridging the gap among project development and organizational execution The probability value of the intermediate path (PG > PQ > PP) is (p = 0.353), as shown in the table. This demonstrates that perhaps the approach is insignificant. As a result, Hypothesis 4, which argues that project quality mediates the relationship among project development and organizational performance, is likewise rejected.
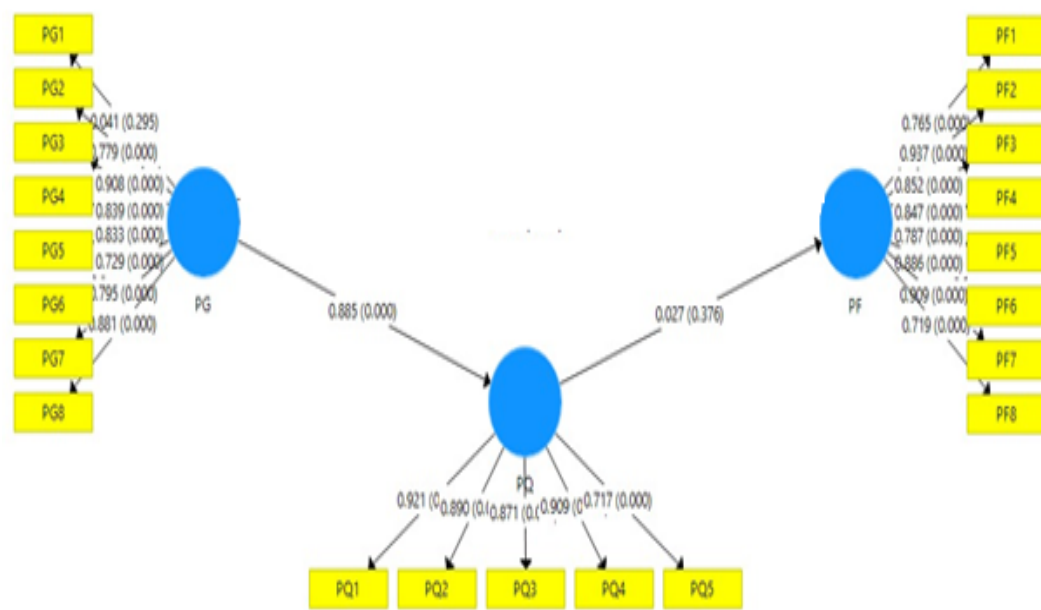
While putting towards the proof Hypothesis 5, which claims the project risk management acts as a buffer between project development and organizational performance. The probability value of an intermediate path (PG > PRM > PP) is (p = 0.376), as shown in the table. As a result, this approach is likewise unimportant.

As a result, Hypothesis 5, stating that project quality performs a mediating function between projects governance and project performance, is likewise rejected.
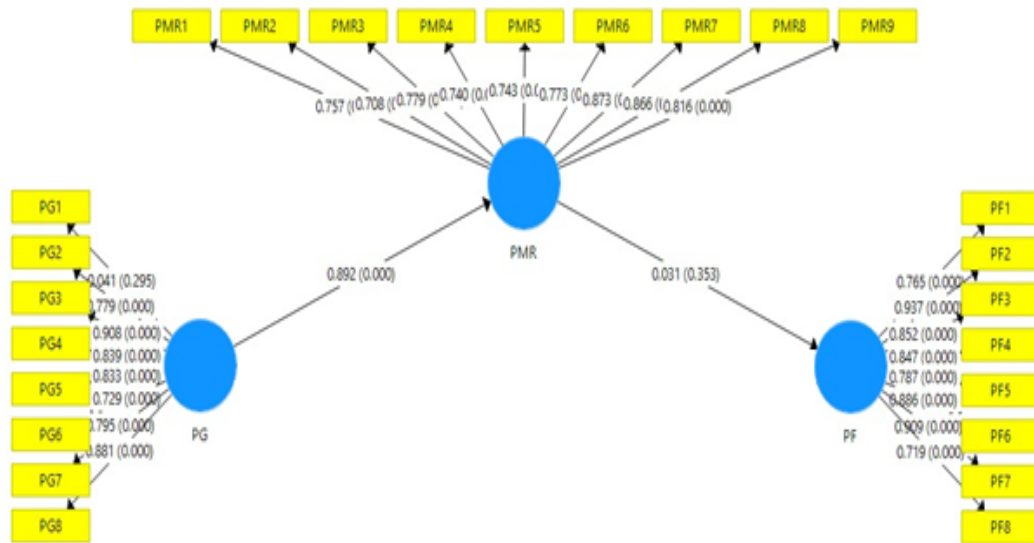
	P Values
PG → PMR → PF	0.353
PG → PQ → PF	0.376

Chapter 5

Discussion and Conclusion

The results of this research project will be discussed in this chapter. It covers the debate of theories, as well as their acceptance and rejection. Furthermore, the theoretical and practical implications, limits, and future research study areas will be explored. The study's result will be given in the end.

5.1 Discussion

The extant literature has revealed that significant research has been carried out within Project governance (PG) and Project performance (PP) domain to explore the relationship of PG and Project performance (PP) (Jeong et al., 2019; Khanaghaet al., 2018). Mostly, the research on relationship of PP and performance has been carried out in organizations (Pittino et al., 2016).

Research by Martens et al., (2018) Kuura et al., (2014), has emphasized the importance of studying PG in project-based organizations and suggested other variables to be explored to further expand their research. Applying the Resource-based View (RBV) theory, the objective of the research study was to observe the relationship of PG and Project performance (PP) in IT industry within the contextual settings of Pakistan.

The study also examined the role of Project quality (PQ) and Project management risk as mediator in the relation of PG and Project performance (PP) The research

was conducted in IT sector of Pakistan, The results of the study concluded that Project governance (PG) is positively associated with Project performance (PP) which depicts that better Project governance (PG) enhances Project performance (PP) . Hence, hypothesis H1 is accepted. Furthermore, there is also positive relationship of Project governance (PG) and Project quality (PQ) Based on these relations, Project quality (PQ) act as mediator in the relationship of Project governance (PG) and Project performance (PP). Thus, hypothesis H2 is also accepted. Study also reveals the positive relationship of Project governance (PG) and project management risk.

The details regarding each hypothesis are as follows:

5.1.1 Hypothesis 1: Effective Project Governance has a Positive Significant Effects on Project Performance

To determine the impact of Project governance (PG) on Project performance (PP) , Hypothesis 1 was proposed which stated that there is positive association between Project governance (PG) and Project performance (PP) . The results (β= 0.693, p= 0.00) supported the hypothesis H1. Literature has revealed that a strong connection exists between Project governance (PG) and Project performance (PP) (Kuura et al., 2014). Similarly, the positive relationship of governance and performance has also been identified by (Rauch et al., 2009). The results of our study are also in line with the study of (Martens et al., 2018) in which positive association of Governance and Project performance (PP) was also found. These results also indicate that if the IT organizations in Pakistan also exhibit better Governance, can ultimately enhance the performance of these organizations.

5.1.2 Hypothesis 2: Effective Project Governance has a Positive Significant Effects on Project Risk Management

Hypothesis 2 was developed to investigate the influence of Project governance (PG) on Project risk management (PRM), stating that there is indeed a positive

relationship among Project governance (PG) and project management risk. The findings (= 0.892, p = 0.000) backed with hypothesis H2.

The results of this research is pretty similar to earlier research. (Zhang, 2017; Choi, & Williams, 2016) which also determined the positive relationship between entrepreneurial orientation and technological orientation. Project performance (PP) is the consequence of the project's activity and attainment of its goals, instead of a precursor that may be achieved by effective governance of all elements and relationships among a project's numerous stakeholders. Risk management is defined as the process of identifying and analysing hazards, as well as techniques for lowering risk to an acceptable level. The primary goal of Project Risk Management (PRM) is to identify, analyse, and manage project risks. (Serpella & Larissa, 2014).

5.1.3 Hypothesis 3: Effective Project Governance has a Positive Significant Effects on Project Quality

Hypothesis 3 was developed to investigate the influence of Project governance (PG) on Project quality (PQ), stating that there is indeed a positive relationship among Project governance (PG) with Project quality (PQ). The outcomes ($\beta=$ 0.885, p= 0.00) supported the hypothesis H3.

A quality management program is referred to as the Project quality (PQ) framework in the ISO 9001 quality management system; that deals with three key issues that are quality control, quality assurance and quality improvement (W. E. Lewis, 2017). Project quality (PQ) is one of the most important factors affecting project success (Haq et al., 2016).

Review of the literature also shows that an effective Project governance (PG) model may have a substantial impact on helping project managers establish and achieve quality requirements. It is also possible to improve the performance of a project by improving its quality, both in terms of design and in terms of product quality.

5.1.4 Hypothesis 4: Effective Project Quality Mediates the Relationship between Project Governance and Project Performance

Hypothesis 4 was developed to investigate the mediating function of Project quality (PQ), which asserts that Project quality (PQ) mediates between Project governance (PG) and Project performance (PP). The results supported the hypothesis that Project quality (PQ) mediates the relationship of aforementioned variables. The values $\beta= 0.027$, p=0.376 that exhibited that Project quality (PQ) has insignificant relationship with Project performance (PP).

5.1.5 Hypothesis 5: Effective Project Risk Management Mediates the Relationship between Project Governance and Project Performance

Hypothesis 5 was developed to identify the mediating function of Project management risk, that claims that Project management risk mediates the relationship between Project governance (PG) with Project performance. The results supported the hypothesis that Project Risk Management (PMR) mediates the relationship of aforementioned variables. The values $\beta= 0.031$, p= 0.353 that exhibited that Project Risk Management (PMR) has insignificant relationship with Project performance (PP).

5.2 Theoretical Implications

The new research adds to the existing body of evidence on Project governance (PG) and performance in a number of important ways. Firstly, the software business in developing nations is still nascent; as a result, there are very few studies in the past literature that have focused on software firms in countries like Pakistan. Secondly, the software sector in developing nations is still mostly unregulated. A number of connections between Project governance (PG), Project quality (PQ),

and project management risk have been explored. (Abednego & Ogunlana, 2006; Haq et al., 2016; Khan, 2012; Zwikael & ismyrk, 2015). Project management risk and Project quality (PQ) have never been studied, though. So far as we know, this is the first study to examine both hypotheses (Hypothesis 4). (Hypothesis 5). As a result, the study's theoretical implications were also addressed.

5.3   Limitations of the Research

There were certain limitations to our research as well. Our research was cross-sectional in character due to the time constraints. Only those projects that have been finished were considered by the responders. Due to financial and time restrictions, we only collected information from software companies in Rawalpindi and Islamabad. As a result of this constraint, the sample size is limited. Furthermore, because the research was done in the software industry, the findings cannot be applied to other industries. Furthermore, because the data was obtained from single informants from each organisation, the study's conclusions may be influenced by bias. Because persuading the participants to complete the surveys was difficult due to their busy schedules, convenience sampling was used to collect the data. The results may differ if the same research model is performed in developed nations because the study was done in the context of Pakistan, which is a developing country.

5.4   Conclusion

The primary goal of this research project is to investigate the influence of Project governance (PG) on Project performance (PP) in Pakistani IT companies. Data was collected from public and commercial IT businesses in Pakistan for this study using self-administered and digital questionnaires to see what influence Project governance (PG) has on Project performance (PP) in the presence of a mediator (Project quality (PQ)) and a control group (Project management risk). A total of 350 questionnaires were distributed. The model was tested using five hypotheses.

Project governance (PG) and Project performance (PP) are positively related, thus H1 is accepted. H2 has also been accepted because of the beneficial relationship between Project governance (PG) and Project quality (PQ).

H3, i.e., the positive connection between Project governance (PG) and project management risk, has also been acknowledged. In addition, the results have shown that project management is a risky endeavor and has insignificant as a mediator in the relationship of Project governance (PG) and Project performance (PP); hence H4 is rejected. In addition, the results of the study on the function of Project quality (PQ) in mediating the relationship between Project governance (PG) and Project performance (PP) in Pakistan revealed that Project quality (PQ) did not mediate the relationship between Project governance (PG) and Project performance (PP) in Pakistan. Therefore, H5 is rejected.

There are several limitations to this study as well. The study's primary weakness is the limited sample size, as the data was obtained from Pakistan's twin cities, Islamabad and Rawalpindi. To further verify the study model, future research may look at additional business sectors and incorporate different mediating and moderating variables.

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Appendix-A

Questionnaire

Dear Respondent

I am a MS Research Scholar at Capital University of Science and Technology, Islamabad. I am conducting a research on Impact of Project governance (PG) on Project Performance: Mediating role of Project Management Risk and Project quality (PQ). Kindly answer these questions based on your experience in current job and organization. Your answers will be kept strictly confidential and will be used only for research purpose. Your kind cooperation in this regard will be highly appreciated please.

Sincerely,

Muhammad Ehtasham,

MS (Project Management),

Faculty of Management and Social Sciences,

Capital University Science and Technology, Islamabad.

Section 1: Project Governance (PG)

Please tick the relevant choices: 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

1	The board has overall responsibility for the project governance.	1	2	3	4	5
2	The organization differentiates between projects and in on-project-based activities	1	2	3	4	5
3	Roles and responsibilities for the projects are defined clearly.	1	2	3	4	5
4	Disciplined governance arrangements, supported by appropriate methods, resources and controls are applied throughout the project life cycle.	1	2	3	4	5
5	Every project has a project sponsor who is the single point of accountability in and to the organization for the successful outcome and benefits from the project	1	2	3	4	5
6	Each project has a project manager who is accountable to the project sponsor for the successful achievement of the project objectives or deliverables.	1	2	3	4	5
7	The board or ts delegated agents decide when independent scrutiny of projects is required and implement such assurance accordingly	1	2	3	4	5
8	There are clearly defined criteria for reporting project status and for the escalation of risks and issues to the levels required by the organization.	1	2	3	4	5

Section 2: Project Performance (PP)

Please tick the relevant choices: 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

1	The application developed is reliable	1	2	3	4	5
2	The application is easy to maintain	1	2	3	4	5
3	The users perceive that thesystem meets intended functional requirements	1	2	3	4	5
4	The system meets user expectations with respect to response time	1	2	3	4	5
5	The overall quality of the developed application is high	1	2	3	4	5
6	The project was completed within budget	1	2	3	4	5
7	The project was completed within schedule	1	2	3	4	5
8	There are clearly defined criteria for reporting project status and for the escalation of risks and issues to the levels required by the organization.	1	2	3	4	5

Section 3: Project Management Risk (PR)

Please tick the relevant choices: 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

1	Lack of an effective project management.	1	2	3	4	5
2	Project progress not monitored closely enough	1	2	3	4	5
3	Inadequate estimation of required resources	1	2	3	4	5
4	Poor project planning	1	2	3	4	5
5	Project milestones not clearly defined	1	2	3	4	5
6	Inexperienced project manager	1	2	3	4	5
7	Ineffective communication	1	2	3	4	5
8	Inexperienced team members.	1	2	3	4	5

9	Team members lack specialized skills required by the project	1	2	3	4	5

Section 4: Project Quality (PQ)

Please tick the relevant choices: 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

1	Our system implementation 100% free from faults	1	2	3	4	5
2	We always adhere to the Coding standards in implementing our systems.	1	2	3	4	5
3	Our quality team is continuously reviewing the ongoing project	1	2	3	4	5
4	Our quality team is 100% independent to review any ongoing project.	1	2	3	4	5
5	The project we deliver almost meet user expectations.	1	2	3	4	5

Appendix-B

TABLE 5.5: Item wise Descriptive Analysis

Code	Statement	Mean	Std.Div.	Skewness	Kurtosis
PG1	The board has overall responsibility for the project governance.	3.91	0.91	-0.23	-1.03
PG2	The organization differentiates between projects and on-project-based activities	3.91	1.12	-0.41	-0.81
PG3	Roles and responsibilities for the projects are defined clearly.	3.91	1.24	-0.66	-0.52
PG4	Disciplined governance arrangements, supported by appropriate methods, resources and controls are applied throughout the project life cycle.	3.91	1.06	-0.75	0.49
PG5	Every project has a project sponsor who is the single point of accountability in and to the organization for the successful outcome and benefits from the project	3.91	1.24	-0.7	-0.6
PG6	Each project has a project manager who is accountable to the project sponsor for the successful achievement of the project objectives or deliverables.	3.91	1.21	-0.55	-0.35

Code	Statement	Mean	Std.Div.	Skewness	Kurtosis
PG7	The board or its delegated agents decide when dependent scrutiny of projects is required and implement such assurance accordingly	3.91	1.18	-0.23	-0.56
PG8	There are clearly defined criteria for reporting project status and for the escalation of risks and issues to the levels required by the organization.	3.91	1.11	-1.03	0.42
PRM1	Lack of an effective project management.	3.19	1.2	-0.22	-0.53
PRM2	Project progress not monitored closely enough	2.77	1	-0.09	0.52
PRM3	Inadequate estimation of required resources	3.12	1	-0.31	0.34
PRM4	Poor project planning	3.11	1.36	-0.26	-1
PRM5	Project milestones not clearly defined	2.62	1.18	-0.03	-1.06
PRM6	Inexperienced project manager	3.08	1.22	0.15	-0.76
PRM7	Ineffective communication	2.62	1.04	0.2	-0.49
PRM8	Inexperienced team members.	2.87	1.29	0.34	-0.79
PRM9	Team members lack specialized skills required by the project	3.31	1.15	-0.29	-0.36

PQ1	Our system implementation is 100% free from faults	2.86	0.99	-0.42	0.07
PQ2	We always adhere to the Coding standards implementing our systems.	3.48	1.04	-1.14	0.87
PQ3	Our quality team is continuously reviewing the ongoing project	3.23	1.16	-0.69	-0.33
PQ4	Our quality team is 100% independent to review any ongoing project.	3.04	0.95	-0.53	0.29
PQ5	The project we deliver almost meet user expectations.	3.06	1.31	-0.17	-1.15
PP1	The application developed is reliable	3.2	1.13	-0.44	-0.67
PP2	The application is easy to maintain	3.06	1.03	-0.25	-0.11
PP3	The users perceive that the isystem meets intended functional requirements	2.96	1.2	-0.26	-0.7
PP4	The system meets user expectations with respect to response time	3.14	1.22	-0.58	-0.65
PP5	The overall quality of the developed application high	3.14	1.07	-0.54	-0.63
PP6	The project was completed within budget	3.19	1.1	-0.5	-0.47

PP7	The project was completed within schedule	3.15	1.21	-0.36	-0.65
PP8	There are clearly defined criteria for reporting project status and for the escalation of risks and issues to the levels required by the organization.	2.78	1.26	-0.08	-1.21