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Utilising factor analysis on political risks including strategies of managing firm-specific risk factors for multinational construction projects in Pakistan

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Abstract

Purpose – The purpose of this article is to investigate the influence that firm-specific characteristics, such as organisational capabilities, risk management methods and stakeholder relationships, have on political risks (PRs) that are associated with multinational construction projects in Pakistan.

Design/methodology/approach – The methodology employed in this investigation involved the acquisition of data through the use of questionnaires administered to experts in the construction industry. The research applied a quantitative method, and the sources of the data are from the Pakistani stakeholders. One hundred questionnaires were used for the data collection during field visits. Based on the data, it has been ensured that the valid questionnaires were utilised, and the data were tested for validity and reliability. The analysis tool utilised was SPSS software. For the questionnaire, a total of 15 firm-specific factors were considered in order to design the survey, which specifically targeted the identified features. The factors identified as risks were investigated using quantitative method to determine firm-specific risks.

Findings – It was found that when stakeholders have a better grasp of these dynamics, they are better able to strengthen their resilience and efficacy in managing PRs, which ultimately increases the likelihood that the project will be successful.

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Research limitations/implications – International construction projects (ICPs) in emerging countries are substantially impacted by PRs, which can have a considerable impact on their success and sustainability. The study is localised and not generic as it is limited to Pakistan, and the risk factors considered are firm-specific but related to PRs.

Practical implications – By identifying key risk factors, these firms can develop targeted risk management strategies, leading to enhanced decision-making and more efficient resource allocation. Effective strategies include diversification, local partnerships and comprehensive risk assessments tailored to the unique challenges faced by international contracting firms in Pakistan.

Social implications – ICPs in emerging countries like Pakistan face critical problems, which include the presence of PRs. Although the larger political environment plays a significant part, the manner in which businesses navigate and mitigate PRs is also influenced by firm-specific elements.

Originality/value – The study is novel in terms of the factors looked at, the data, the conceptual framework and the findings of the study. The dynamic political scene, which is characterised by instability, policy changes, corruption and geopolitical conflicts, poses significant dangers to the timeliness of projects, the expenses of such projects and the investments that are made in those projects.

Keywords Risk management, Project management, Risk mitigation, International construction enterprise (ICE), Firm-specific, Political risk

Paper type Research paper

1. Introduction

With the need to fill the economic pockets of various nations, the governments and regulatory bodies have to collaborate with the professional bodies in that nation for the success of international construction projects (ICPs) (Mehmood, 2022; Pheng and Hou, 2019; Utama *et al.*, 2016). This is achieved through the elaboration of adaptable standards and the provision of enabling policies for the construction firms to run their activities in that nation (Nallaperuma-Arachchige *et al.*, 2023; Ganbat *et al.*, 2019; Amaechi, 2016). However, these construction forms compete among themselves to win construction contracts. Another aspect of these ICPs is that there are challenges with executing these construction projects to achieve successful completion due to the political climes in that region. Thus, there is a need to identify and mitigate the political risks (PRs) through political risk management (PRM) (Ullah *et al.*, 2024; Deng *et al.*, 2014; Deng and Low, 2014). In the same vein, looking at the range of levels of project management, the firm-specific risks have been looked at across various businesses in different climes (Khan *et al.*, 2024; Jancenelle *et al.*, 2016; Wang and Reuer, 2006).

In Asia, various studies that are based on PRs have been identified on international projects across China, Pakistan, India, Vietnam, Indonesia, Malaysia and Hong Kong (Nguyen Chau *et al.*, 2024; Hoang *et al.*, 2023; Ullah *et al.*, 2019, 2024; Ibrahim *et al.*, 2024; Deng *et al.*, 2014; Yap and Cheah, 2020; Jha and Devaya, 2008). In Pakistan, International Construction Enterprises (ICEs) play a significant part in the development agenda of the country. Their projects contribute to the improvement of infrastructure, the expansion of the economy and the improvement of international cooperation. It is important to note that these construction projects are not immune to PRs, which can be caused by a variety of variables (Deng and Low, 2014; Ullah *et al.*, 2019, 2024; Cline *et al.*, 2019; Nguyen Chau *et al.*, 2024). Among these PR factors identified in ICPs include government instability, policy ambiguity, corruption and geopolitical tensions (Murphy and Albu, 2018; Ling and Hoi, 2006; Iankova and Katz, 2003; Fan and Xiao, 2023; Abdul-Rahman *et al.*, 2012). However, there are concerns about how PRs should be handled in ICPs as well as assigning the personnel responsible for handling PRs in construction firms (Hood and Nawaz, 2004; Alon and Herbert, 2009; Al Khattab *et al.*, 2007; Azman, 2020). Moreso, there is a complicated political climate in Pakistan that is characterised by instability, policy uncertainty and regulatory obstacles; thus, there is a need for PRM (Ullah *et al.*, 2024; Anchor and Benesova, 2016; Jiang *et al.*, 2021; Jiang and Martek, 2023).

Howbeit, there are other recent studies which looked at some of the other risks including delays in construction. One of the findings made from the literature review is that most of the recent case studies were reported in developing climes of Africa and Asia. For instance, some project delays

were reported in construction works from both local and international constructions in Ethiopia (Yohannes Hailu *et al.*, 2023), Nigeria (Egwim *et al.*, 2023), Malaysia (Alhammadi *et al.*, 2024), Iran (Amini *et al.*, 2023) and Pakistan (Ayat *et al.*, 2023; Hassan *et al.*, 2023; Razzaq *et al.*, 2018). The ICEs in Pakistan have identified various factors based on the political climes in the country (Arfad, 2024; ICCI, 2024; Azad, 2016; Omer, 2020). However, various business models have to make management decisions that consider risk reduction (Mueller-Saegebrecht, 2024). In a study by Azman *et al.* (2021), a sample of 86 Malaysian publicly traded construction companies was conducted using the data from 2003 to 2016 to investigate the influence that institutional regulations have on the productivity of the construction industry. However, other studies identified human factors and government policies as impacting factors in construction works with the case study of Malaysia, although they did not relate it to PRs (Moshood *et al.*, 2020; Taofeeq *et al.*, 2020). The business environment is believed to be the primary element that determines changes in productivity during construction (Azman, 2020; Scott *et al.*, 2024). While there are various types of risks that are related to firms, there is a need to consider the PRs that are firm-specific, particularly within the construction sector (Fan and Xiao, 2023; Azman *et al.*, 2021, 2023).

Thus, the purpose of this study is to shed light on the intricacies and implications of PRs on firm-specific variables that are occurring within multinational construction projects in Pakistan by providing an in-depth examination of such risks. To that end, this paper is outlined in the following sequence: Section 1 is where the introduction is presented, and the conceptual framework is presented in Section 2. The considerations made for the variables are in Section 3, while the study's methodology is presented in Section 4. The results were evaluated and discussed in Section 5 as the study draws to a close with the presentation in Section 6.

2. Literature review

In this section, the literature review of this paper is presented.

2.1 Research conceptual framework

Earlier studies have found that the use of a conceptual framework has helped address the solution for mitigating risks in PRM (Deng and Low, 2014; Ullah *et al.*, 2024). To conduct this research, the research framework considered bears upon the firm-specific factors for PRs on ICPs by construction firms, there is the need to classify these PRs. There is a known risk associated with the uncertainty that surrounds the stated project aim (Al Khattab *et al.*, 2007; Bahamid *et al.*, 2022; Han *et al.*, 2005; Han and Diekmann, 2001). This is because distinct persons have varying perceptions of risks within any construction firm, the non-construction firm or within societal institutions, in general. There is an inherent level of risk in the construction sector, locally and globally. At the international level, the risk impact is much greater due to the strength of the news media and social media. Due to the complicated nature of their operational environment, ICPs are subject to a variety of PRs that are firm-specific (Fan and Xiao, 2023; Azman *et al.*, 2021, 2023).

More studies have looked at different aspects of risk management in the construction industry (Ullah *et al.*, 2024; Bahamid *et al.*, 2022; Al Khattab, 2011; Azman, 2020). However, the analysis of project performance across the entirety of its lifecycle is more successful than concentrating exclusively on implementation (CII, 2003; PMI, 2021; Ward and Chapman, 1995). This is because it allows for a more thorough management of these risks in emerging countries like Pakistan (Ahmad *et al.*, 2019, 2021; Abdul-Rahman *et al.*, 2012; Azad, 2016; Arfad, 2024). Thus, this framework will enable us to accomplish the purpose of this study, which includes fostering collaboration on political structures through construction firms by evaluating the risk assessment, the risk frequency and the management of PRs on ICPs in Pakistan. The study further demonstrates the positive effects that PRM can have on the goals of ICPs and track the growth in the sector. Thus, the research framework for analysing data connected to ICPs is presented in Figure 1, which provides an overview of the framework.

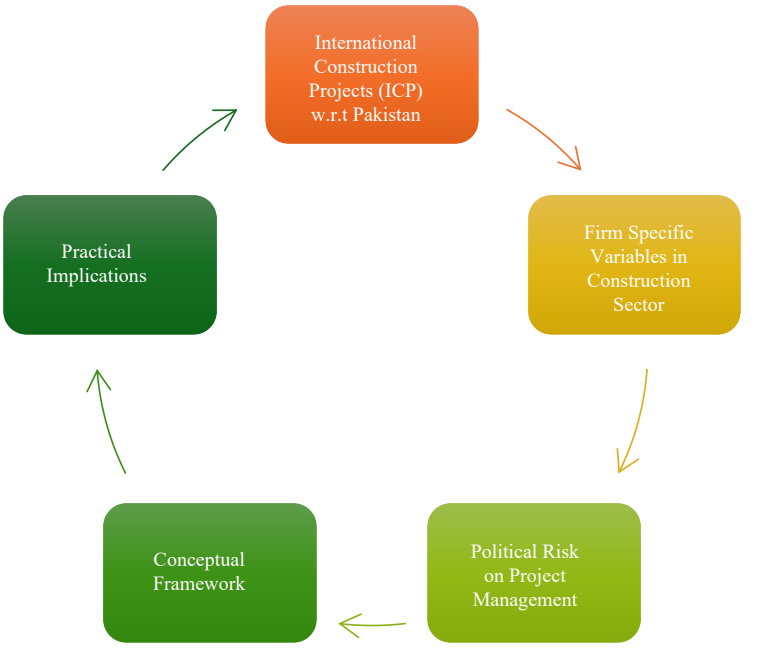


Figure 1.
Concept for the research framework

Source(s): Authors' own work

The conceptual framework in academic research serves as a foundational structure that elucidates the theoretical underpinnings and guiding principles of a study (Adom *et al.*, 2018; Luft *et al.*, 2022). It provides a comprehensive roadmap for understanding the relationships between key concepts, variables and constructs investigated within a specific research context. In essence, the conceptual framework outlines the theoretical lenses through which the researchers interpret and analyse their data, helping to frame research questions, hypotheses and the overall methodology employed (Adom *et al.*, 2018; Luft *et al.*, 2022). By clarifying the connotations and interconnections of various theoretical perspectives, the conceptual framework enhances the coherence and rigour of the study's findings, ensuring that interpretations are grounded in established theories and principles. Moreover, it aids in synthesising existing knowledge with new empirical insights, thereby contributing to the broader academic discourse and advancing understanding within the field of study.

2.2 Theoretical aspects

The theoretical aspects of the study revolve around several key components essential for understanding and managing risks, including PRs, in international contracting contexts within Pakistan. Firstly, the study explores foundational theories of risk management such as decision theory and portfolio theory (Ho *et al.*, 2024; Lathief *et al.*, 2024). Decision theory provides a framework for understanding how decision-makers assess risks, make choices under uncertainty and optimise outcomes based on risk preferences and probabilities. This is particularly relevant in international contracting where firms must navigate diverse risks ranging from financial uncertainties to geopolitical tensions. Portfolio theory, another cornerstone, informs strategies to diversify risk across different projects, regions or markets. It suggests that by spreading investments or operations, firms can potentially reduce overall risk exposure while optimising returns. In the context of international contracting in Pakistan,

where political instability, inflation and regulatory changes can significantly impact operations (Azad, 2016; Razzaq *et al.*, 2018; Ullah *et al.*, 2024), portfolio theory offers insights into structuring contracts and projects to mitigate these risks effectively. However, factors like inflation may affect both decision-making and investment portfolios, as seen in Nwosu *et al.* (2024), as such inflation hedging through real estate can also be a strategy to deploy against PR due to inflation or currency devaluation. Ho *et al.* (2024) consider the PR from the firm level to understand the investment portfolios of using equities, while Lathief *et al.* (2024) consider the decision-making aspect of investments that is needed to quantify the risks.

A recent study carried out by Ernst and Young Global Limited (EY) based on an academic literature review and impact study of PR in Cline *et al.* (2019) has shown that there are various impacts of PRs to various firms handling projects, as it also affects production operations, causes reduced revenue generation and leads to a reduction in sales, among other things. Notably, there are other risks that are found in the financial sector as well as the construction section (Cline and Williamson, 2020; Ekanayake *et al.*, 2021; Cline *et al.*, 2019; Ullah *et al.*, 2024). Within the construction sector, one risk that is found is the supply chain resilience and managing the related vulnerabilities for construction works (Ekanayake *et al.*, 2019, 2020, 2021). The study conducted by Ekanayake *et al.* (2021) looked at the vulnerabilities of the supply chain affecting the construction industry in Hong Kong. That study portrayed the specific capabilities of project professionals which will enable them to handle various challenges faced within construction projects, as it also enables good management of these projects.

Recent studies also looked at other firm-specific factors like competitive advantage in diverse sectors considered in the theoretical aspects (Faizan *et al.*, 2024; Oyombe, 2023; Oladapo *et al.*, 2023). In line with the theoretical aspects, the next theory considered is the resource-based view (RBV). Barney (1991) stated that for RBV, the sustained competitive advantage of a firm is dependent on the resources which the firm possesses that are of great value, scarce, distinctive and non-replaceable. Consequently, it can be inferred that construction workers, firms, contractors and suppliers can acquire a competitive advantage if they are able to acquire greater cash, win grants or develop additional resources. This is because these qualities directly influence the competitiveness and performance of the concerned parties. Moreover, the value of any resource is very important to the survival of any firm to ensure smooth resource management. To have resources that the firm would not easily lose enhances the firm's sustainability and ensures that the firm would not be ready to possibly replace those resources. In the interest of details, the resources could be described based on the 4M's of resource management (i.e. manpower, material, machinery and money).

Conversely, the dynamic capability theory or dynamic capability view (DCV) is an additional robust approach to strategic management (Oladapo *et al.*, 2023; López, 2005; Arend and Bromiley, 2009). The upper management of successful firms is required to design strategies to adapt to major and discontinuous changes while maintaining essential capacity levels, as this is portrayed by the dynamic capability theory (Oladapo *et al.*, 2023; Teece, 2014; Teece *et al.*, 1997). This is done in order to ensure that their firms continue to successfully compete in their respective industries. The concept of DCV, which has its origins in organisational theory, refers to the ability of an organisation to consciously alter its resource base. The term "capability" is defined as the ability of the firm to grow by combining, constructing and reconfiguring its capabilities to handle rapidly evolving settings (Oladapo *et al.*, 2023; Teece *et al.*, 1997). While the conceptual discourse considers firm-specific risk, the theoretical discourse emphasises that in order to respond swiftly and effectively to changes within the environment, it is vital to have a combination of different capabilities that occur internally and externally.

There are also some studies that have utilised various methods to address the challenges of firms across various climes. While Siddiqui *et al.* (2024) looked at PRs in Chinese firms,

Kotcharin and Jantadej (2024) looked at firm-specific characteristics of PRs. However, other studies considered the behaviour of the professionals to PRs, such as Ekanayake *et al.* (2021) looked at the perception of PRs from the professionals in Hong Kong whilst Ullah *et al.* (2024) looked at the perception of PRs from the professionals in Pakistan. Thus, there is a need for this study to delve into the theoretical underpinnings of factor analysis for the risk factors, including PRs specific to construction firms operating in Pakistan. By applying theoretical frameworks of PR analysis, the study seeks to provide a comprehensive understanding of how factor analysis can be utilised as a practical tool to manage these complex risks effectively. Thus, this theoretical foundation forms the basis for the study's empirical approach, aiming to bridge theoretical insights with practical applications in the field of international contracting in Pakistan. However, there are various limitations to the study as it does not nitpick contract types.

2.3 Research questions

The following are the research questions considered in this study.

(1) What are the identified firm-specific factors and the risk management strategies of risks for ICEs?

(2) What are the factors that bear upon the firm-specific factors for PRs on ICPs?

(3) What is the comparative impact of PRs considered for construction firms against host/home countries when classifying these risks?

3. Considerations for variable selection

In this section, the considerations made for the selection of variables are presented.

3.1 Firm-specific variables for political risks on ICPs

Identification of variables that contribute to political risk level due to the fact that the selection was carried out with a range of literature sources related to this subject. It is a significant component of this ongoing research. There are a variety of credible sources that provide information on PR regarding construction firms (Odediran and Windapo, 2017; Kerur and Marshall, 2012; Maseko, 2017; Madushanka and Tilakasiri, 2020). These sources include PR advisors, multinational firms, partners, the general public and numerous organisations. For the purpose of analysis, large businesses frequently make use of specialised data mining technologies. Using this data framework, risk managers are able to evaluate and control PRs across a variety of scenarios, with a particular emphasis on the events that have an effect on the probability of each scenario. However, there are different studies that have identified these PRs (Sun *et al.*, 2021; Zhang *et al.*, 2019; MBI, 2024). The procedure is both specific and malleable throughout the course of time. The research also identifies implications across research, practice and society by demonstrating the practical application of factor analysis in managing risks for international contracting professionals in Pakistan. It bridges theory and practice by illustrating how factor analysis can effectively mitigate risks in real-world contracting scenarios (Abdul-Rahman *et al.*, 2012; Al Khattab *et al.*, 2007; Bing *et al.*, 1999; Azad, 2016).

Studies have been seen on firm-specific risks on different ranges of factors (Fan and Xiao, 2023; Abdul-Rahman *et al.*, 2012; Murphy and Albu, 2018; Ling and Hoi, 2006; Iankova and Katz, 2003). Some studies also reflect other variables that are considered for identifying PRM in Pakistan's Construction Industry. While there is a wide range of factors, these factors were selected using a systematic approach on the present study. The identified firm-specific variables are coded using C01–C15, as shown in Table 1.

Table 1. Political risk events based on firm-specific variables with tabulated literature identified

Firm-specific variables		Al Khattab *et al.* (2007)	Bing *et al.* (1999)	Deng and Low (2014)	Deng *et al.* (2014)	Silvio and Tássia (2016)	Lodhi *et al.* (2017)	Azad (2016)	Mshelia and Anchor (2019)	Bon-Gang (2018)	Wang *et al.* (2004)	Chang *et al.* (2018a, b)	Bu-Qammaz *et al.* (2009)	Sohrabinejad and Rahimi (2015)
C1	Internationalisation of the firm	X	✓	X	X	X	X	X	✓	X	✓	X	X	X
C2	Empirical knowledge of political risks	X	X	✓	X	X	✓	X	X	X	✓	X	X	X
C3	Contribution of the firm to the local economy	✓	X	X	X	✓	X	✓	X	X	X	X	X	✓
C4	Firm's nationality	X	X	✓	X	X	X	X	X	✓	X	✓	X	X
C5	Nature of firm's operation	X	X	✓	X	X	X	X	X	X	X	X	X	✓
C6	Relationship to the government	X	✓	X	X	X	X	X	X	X	✓	✓	X	X
C7	relationship to the power groups	X	X	✓	X	X	✓	X	X	X	X	✓	X	X
C8	Degree of acceptance the firm	✓	X	X	✓	X	X	X	X	✓	X	X	X	X
C9	Degree of localisation	X	X	✓	X	X	X	✓	X	X	X	X	X	✓
C10	Size of facility	X	✓	X	X	✓	X	X	X	X	X	X	✓	X
C11	Abilities to deal with political risk	X	X	X	X	X	✓	X	X	✓	X	X	X	X
C12	Level of technology and technology transfer	X	X	✓	X	X	X	X	✓	X	X	X	✓	X
C13	misconduct of contractors	X	X	X	✓	X	X	X	X	✓	X	X	X	X
C14	Extent of the firm's market dominance	X	X	✓	X	X	X	X	X	X	✓	X	X	X
C15	Ownership shares of the subsidiary	X	X	X	X	✓	X	X	X	X	X	X	X	X

Source(s): Authors' own work

3.2 Determining political risk events using firm-specific variables

Recent research has focused on evaluating the performance of international contracting corporations (ICCs) in international operations under a range of risks, including PR (Bu-Qammaz *et al.*, 2009; Chang *et al.*, 2018a, b; Cooper *et al.*, 2014; Mshelia and Anchor, 2019). Foreign investors have difficulties due to PR, which stems from governmental choices (El-Sayegh, 2014; Howell, 2014). Due to their political unpredictability, African markets present a range of risks in different locations, which affects global strategies (Mshelia and Anchor, 2019; Odediran and Windapo, 2017). When entering a particular market, ICCs must incorporate a thorough PR assessment (PRA) framework (Al Khattab *et al.*, 2007; Deng and Low, 2014; Mshelia and Anchor, 2019; Ullah *et al.*, 2024).

Companies need strategies to evaluate local markets and lessen the effects of PR (Cline *et al.*, 2019; Howell, 2011). PR analysis influences ownership structures, entry strategies and investment decisions by changing from risk identification to risk management (Al Khattab *et al.*, 2007; Deng and Low, 2014; Mshelia and Anchor, 2019). There are literature covering PRs regarding ICCs that reflect different planning activities (Zhang *et al.*, 2019; Sun *et al.*, 2021; MBI, 2024). Invariably, there is a range of works carried out on sustainable construction practices in the construction sector that relate to emerging countries like Pakistan (Bakhtawar *et al.*, 2022; Ahmad *et al.*, 2021; Sajjad and Eweje, 2014).

PR analysis has not received much attention lately, despite the interest in numerous markets, particularly those in Africa (Mshelia and Anchor, 2019; Nwosu *et al.*, 2024; Odediran and Windapo, 2017) compared to those in Asia (Al Khattab *et al.*, 2007; Azad, 2016; Deng and Low, 2014; Moshood *et al.*, 2020; Mshelia and Anchor, 2019). Taking limitations into account and utilising modelling tools such as fuzzy Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) and Analytic Network Process (ANP), this work investigates the methods that ICCs use to identify PR in regional markets (Bu-Qammaz *et al.*, 2009; Sohrabinejad and Rahimi, 2015). The tabulated review of the literature on PR from earlier studies is seen in Table 1.

4. Research methodology

Within this part, the methodology that will be utilised for this study is presented.

4.1 Research method

In order to analyse the fundamental activities that are done by ICCs in actively managing international operations on construction contracts and project delivery, there is a need to formulate the methodology. Based on the purpose of the study, the steps taken to investigate the tasks are set out to achieve this objective. Hundred questionnaires were sent to industry experts with substantial knowledge and experience from ICPs within Pakistan. The survey targeted key project team members, including Project Managers, Employers and Engineers, across various regions such as Karachi, Islamabad, Lahore, Peshawar and Balochistan. The collated data summary includes the valid and invalid responses. From this data collation, there were 60 valid responses received, yielding a 60% response rate, suitable for analysis. Most respondents have over 20 years of experience and have navigated multiple political events in their careers. The majority of respondents were from China International Contractors (CICs), active in African and Asian markets.

Also, the detailed technique that is outlined in this document involves the review of the relevant literature, pilot tests, survey responses, factor analysis and data analysis. The method used was validated and identified as a quantitative research method (Cohen *et al.*, 2018; Roni *et al.*, 2020). The research methodology that was used for this study was developed based on the use of a pilot study that was derived from an earlier proposed methodology that was found in the relevant literature (Walewski *et al.*, 2002, 2004; Ullah *et al.*, 2019, 2024; Deng *et al.*, 2014). On the other hand, it is of the utmost importance to emphasise that the cornerstone of the research framework is comprised of the development along with knowledge from both current and historical sources.

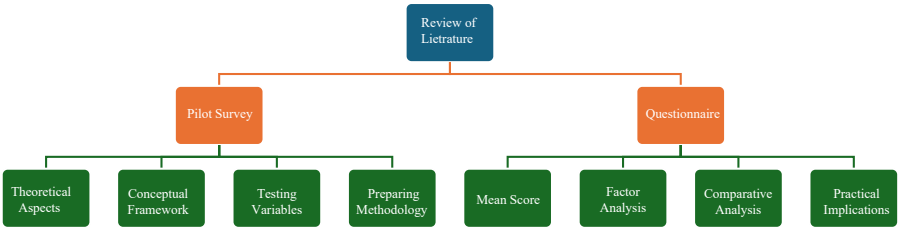
4.2 Research design

The research method involved data collection for the quantitative method which includes the use of questionnaires. This method provides an explanation of the procedures and methods for data collecting, which helps to create a research strategy that is logically connected. Considering that 100 questionnaires were sent to industry experts, the success of the study hinged upon two key areas – substantial knowledge and experience gained from ICPs within Pakistan. The survey targeted key project team members, including Project Managers, Employers and Engineers, across various regions such as Karachi, Islamabad, Lahore, Peshawar and Balochistan. Questionnaires were utilised in this investigation as a result of their demonstrated usefulness in previous research on PR (Ullah *et al.*, 2024; Walewski *et al.*, 2004; Iankova and Katz, 2003; Fidan *et al.*, 2011). The tool used for the analysis was SPSS software. The study considers both recent and earlier studies on PRs. The process of the research is a quantitative method, and the sources of the data are from the Pakistani stakeholders using the data collected during field visits. Based on the data, it has been ensured that the valid questionnaires were utilised, and the data were tested for validity and reliability. Other criteria for variable selection were based on relevant factors that are firm-specific but also relevant to the construction sector (see Table 1). To ensure that a more systematic discussion on the study was conducted, there were exclusion criteria. To ensure methodological consistency in the study, firm-specific literature not related to the construction sector and literature not written in English were excluded. Figure 2 represents the research design that was used for this study.

During the fieldwork on the research, significant members of the project team participated, and they gave insightful contributions. In addition to laying the groundwork for the research strategy, the study also included pilot surveys that were carried out by experienced international project managers who had more than 20 years of management experience. It was because of their contributions that the questionnaire was improved, and as a result, there are now 15 factors, which are known as the firm-specific variables (C01–C15). The information that was gathered is the primary source that was employed in this inquiry when it comes to the questionnaire. It is strongly suggested that respondents are urged to contribute characteristics that were based on their own personal experiences. A well-constructed questionnaire was developed to collect information from firms regarding the PR that they face when their ICPs are located in Pakistan using an industry database (PAKPWD, 2024; MOHW, 2024). This questionnaire survey is focused on the variables that are specific to the enterprise, i.e., firm-specific variables. The breakdown on the experience of the Practitioners who participated in the study is given in Table 2.

5. Results and discussion

This section gives the results and discussion on the research work.



Source(s): Authors' own work

Figure 2. Research design

5.1 Evaluation of firm-specific risks

Considerations in the present research were made in accordance with the results of surveys, information records, the input of the researcher and the observations of the participants. The majority of the participants were connected with ICPs and Joint Venture (JV) projects across Pakistan. The purpose of these projects was to investigate firm-specific risk appraisal and management of PRs in multinational construction projects. The research objectives of the study were successfully accomplished, and the findings of the study highlighted the fact that the implementation phase was more susceptible to psychological risk. For the most part, it utilised a qualitative heuristic approach for firm-specific risk assessments, and the risk management technique that was selected was collaboration, particularly through JV projects. The research utilised a case study methodology for the purpose of examining case studies, as recommended by earlier studies in this area (Rowley, 2002; Patnaik and Pandey, 2019; Silvio and Tássia, 2016). On the other hand, factor analysis was carried out in this research (Flora and Flake, 2017; Goretzko *et al.*, 2021; Widaman, 2012) while the statistical analysis was performed on the quantitative data using SPSS v18. This tool was used for the organisation of quantitative data for analysis, which was accomplished through the use of coding, statistical and quantitative analysis.

5.2 Reliability analysis

For the purpose of determining the reliability of a Likert scale with five points, Cronbach's coefficient was utilised in this investigation. The value of alpha has to be no <0.7 and range anywhere between 0 and 1 in order for it to be regarded as reliable. When it comes to this particular instance, the Cronbach's alpha (α) value exceeds 0.70, when the Cronbach's alpha value is 0.781, indicating a significance level of 0.000. As a consequence of this, each and every one of the data is trustworthy and appropriate for factor analysis. All of the factors maintain items that have a load of >0.50, which is considered to be extremely significant, in order to enhance the relevancy of the information. When it comes to determining the inner reliability of the factors, there are two methods: Cronbach's alpha must be ≥0.70, i.e. Cronbach's $\alpha \geq 0.70$; or the correlation between items and totals must be ≥0.30, i.e., $x \geq 0.30$.

5.3 Mean score ranking technique

Previous studies conducted by Deng *et al.* (2014) and Ullah *et al.* (2024) have demonstrated that the mean score (MS) technique is a strategy that is both simple to implement as well as very effective. Utilising the same methods, the data that were acquired from the questionnaire that was used in the study was processed. Calculating the MSs allowed for the determination of the degrees of significance associated with each variable. The method of statistical analysis known as factor analysis was utilised in order to investigate the relationships that exist between the various categories of variables, using a measurement scale called the 5-point Likert scale. To analyse the MS, the 5-point Likert scale was deployed (Moshood *et al.*, 2020; Ullah *et al.*, 2024). The scale reflects scores as very low (1.00–1.49), low (1.50–2.49), medium (2.50–3.49), high (3.50–4.49) and very high (4.50–5.00).

Table 2. Breakdown on the experience of the practitioners who participated in the study

Parameter	<3%	3–5%	5–10%	10–15%	15–20%	>20%
Total working experience (years)	1.2	3.3	13.1	34.3	41.2	7.9
International construction Experience	2.7	8.9	27.2	36.9	21.0	3.4
Experienced political events	4.3	23.9	43.8	19.7	6.1	1.3

Source(s): Authors' own work

5.4 Variables rankings

The concept of mean scoring is utilised extensively in engineering research for the purpose of classifying variables that are connected with one another (Hwang *et al.*, 2014). Within the scope of this investigation, 15 variables were categorised based on their MS. Additionally, the defendants were asked to score all of the variables using a Likert scale with 5 (five) points; a value that is >3.000 will indicate that the variable has a greater sense of relevance/significance. The range of values for the variables that are indicated as firm-specific variables is between 3.7167 and 4.2000. The results demonstrated that the professionals engaged in the evaluation of the variables.

When determining whether or not a dataset is suitable for factor analysis, it was stated that there are two significant issues that need to be taken into consideration: (1) the strength of the link between the variables and (2) the measurement of the size of the model (Creswell and Poth, 2016). In the expressions of model size, the proportion of model sizes and variables in this research is higher than the percentages stated in prior studies (Widaman, 2012; Nájera *et al.*, 2023). This demonstrates that factor analysis may be carried out with a sample size that is suitably large. When it comes to the degree of association that exists between the variables, the correlation matrix (CM) should be equal to or greater than those variables. In addition to this, it indicates that there is an adequate sample size to conduct the analysis of the factor. For determining the strength of the correlation between the variables, it is recommended that the CM be equivalent to or larger than 0.3 ($CM \geq 0.3$). Additionally, the Bartlett's test of sphericity ($p < 0.05$) and the Kaiser–Meyer–Olkin index ($KMO \geq 0.50$) should be considered. These recommendations were made by earlier findings (Bartlett, 1954).

5.5 Factor analysis of variables

5.5.1 Factor: describing the variables. Further conversations are necessary in order to modify and access several factors. It is conceivable to combine the real value of the factor by drawing connections between variables that have relatively high factor loads. Thus, these linked variables are mentioned here, based on the findings of the study as included in the findings made. The variables that are unique to the firms or companies are termed the firm-specific variables, and they are clarified in the next sub-section.

5.5.2 Factor: firm-specific variables. The variables gathered are frequently linked to the aspect of international contractors who account for 21.02% of the total change. All variables are significantly overwhelmed by this factor, this factor consists of 15 variables. The Cronbach's alpha is equal to 0.750, the KMO table (0.584) and Bartlett's test ($\chi^2 = 348.444$, df = 105, significance = 0.000) indicated that the variables approved all the experiments essential for the analysis of factors. For other variables, the factor analysis can be seen in Table 3. These factors highlight that international contractors perform a significant part in the impact of the political risk level (PRL). Since the impact of PR is linked to firm-specific features (Azman *et al.*, 2021, 2023; Azman, 2020), political events may affect different enterprises in altered techniques reliant on their sole appearances. Relations with administrations, command groups (i.e. trade unions, professional links, conservational and advocacy clusters) and the host community may be the responsibility of international entrepreneurs or organisations.

Associations can form the societal and political atmosphere in which international entrepreneurs operate. Virtuous and close relations with host governments, security forces and the public create a beneficial environment for international entrepreneurs, whereas undesirable approaches surge the probability of undesirable significance for international entrepreneurs. It can upsurge the attentiveness of the local economy or the interests of citizens by diminishing the probability of undesirable political influences or consequences (Ullah *et al.*, 2024; Alon and Herbert, 2009; Al Khattab *et al.*, 2007).

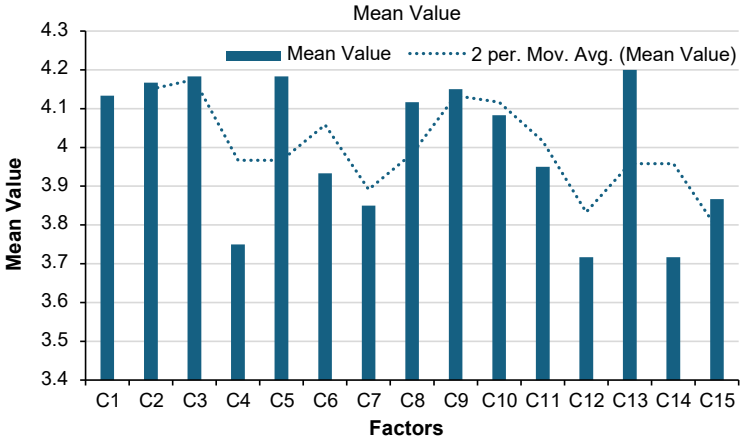
Variables	Mean value	SD	Rank	Communalities
C1	4.1333	0.92913	6	0.694
C2	4.1667	0.97714	4	0.865
C3	4.1833	0.87317	2	0.606
C4	3.7500	1.15897	13	0.675
C5	4.1833	1.08130	3	0.831
C6	3.9333	1.13297	10	0.651
C7	3.8500	1.20486	12	0.575
C8	4.1167	0.78312	7	0.739
C9	4.1500	0.79883	5	0.758
C10	4.0833	1.07816	8	0.649
C11	3.9500	1.14129	9	0.683
C12	3.7167	1.22255	14	0.746
C13	4.2000	0.91688	1	0.716
C14	3.7167	1.32884	15	0.696
C15	3.8667	1.22774	11	0.627
Cronbach's alpha				0.750
Eigenvalues				8.872
Variance (%)				19.811
Cumulative variance (%)				19.811
KMO measure of sampling adequacy				0.584
Bartlett's test of sphericity				$\chi^2 = 348.444$
Df				105
Significance				0.000

Source(s): Authors' own work

Table 3. Factor analysis of firm-specific variables

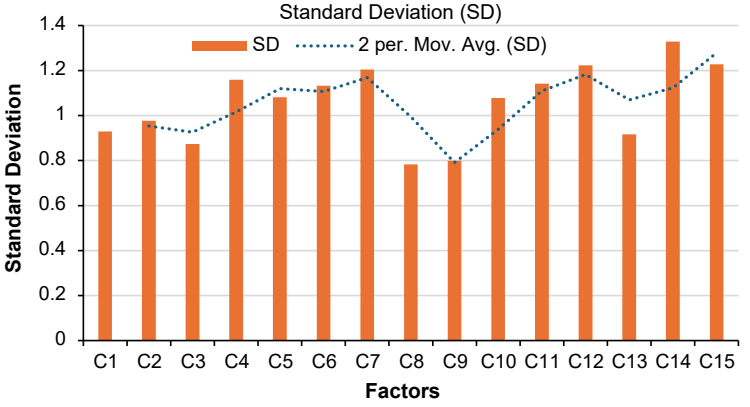
This factor analysis highlights the essential role that international contractors play in the context of project risk management as well as PR on the particular circumstances in the firms of a nation (Al Khattab *et al.*, 2007; Cline *et al.*, 2019; Deng and Pheng, 2013). Different companies within the country may be impacted by political events since they have their own distinct features. In that light, there is a range of critical risk factors on ICP available in literature (Viswanathan and Jha, 2020; Liu *et al.*, 2016; Wang *et al.*, 2004). Each critical risk factor depends on the political climate, the base nation under consideration and the respective construction firms. Though the success of a project is important, the construction firm must also make a profit (Han *et al.*, 2007). The concept of probability, its impact, sensitivity to catastrophic events, management concerns or recent losses are some of the different criteria, as these factors can be considered in further works, as they are excluded from this study due to the scale of economic analysis required. The results of the mean value and standard deviation are seen in Figures 3 and 4, respectively.

For the purpose of determining the level of significance, the mean and standard deviation of every factor are computed using the total sample (Moshood *et al.*, 2020). In the event that two or more components have the same mean value, the fact that the component with the lower standard deviation is deemed to be more valuable is taken into consideration (Moshood *et al.*, 2020). In order to conduct an analysis of the components that have relatively high mean values, which signal higher impacts in decision-making, a measure was established in this study for the purpose of identifying those aspects that are considered to be critical. We defined the critical factors that impact construction firms; the firm-specific risk factors are those with mean values higher than the average of all mean values. Table 3 displays the results of the ranking of these factors. From the mean value of the firm-specific factors in Figure 3, it falls within the medium and high range, based on the Likert scale. However, the deviations are very low, as seen in Figure 4, and this also portrays the consistency of the results of the firm-specific factors obtained.



Source(s): Authors' own work

Figure 3.
Mean values for the factors obtained on firm-specific variables



Source(s): Authors' own work

Figure 4.
Standard deviation values for the factors obtained on firm-specific variables

Another technical indicator used is the moving average, as this approach has been considered by Chang *et al.* (2018a, b) to predict the long-run returns as well as the volatility of stocks and related risks. To improve upon the data from the mean value and the standard deviation in the present study, the researchers have considered the use of the moving average. This is a forecasting method utilised to predict these critical factors by using the two-period moving average, as seen in Figures 3 and 4. It can be seen that the starting critical factor, C2 down to the last critical factor, C15 on both charts. However, the trendline did not originate from the first critical factor, C1 as the trendline for the two-period moving average requires two points to be weighted. With this moving average, the researchers are able to identify the technical indicator that can help to level the critical factors action by filtering out every noise or anomaly from random aspects of the critical factors. As such, the areas outside the trendline could be used to balance the ones that are inadequate, as this finding is supported by recent moving average studies (Ilomäki *et al.*, 2018; Chang *et al.*, 2018a, b).

5.6 Comparative risk impact analysis of firm-specific variables

The comparative risk impact analysis of firm-specific variables in this research identifies the factors across the construction firms, host country and home country. As a general rule, the participation of a particular company in international projects has the potential to create a scenario that is able to be maintained by foreign contractors and to reduce the likelihood of unwanted political practices or repercussions. It is noteworthy to add that we used a simple comparative approach to compare the three components, based on the literature review and the researchers' consideration to fit into the research. These three components are the construction firms, home county and host country. However, the most important component that bears the primary function of the critical factors is the former.

According to Haseeb *et al.* (2012), community initiatives within the course of construction projects (such as community members along with neighbourhood residents) along with applicable public research institutes have a significant impact on the achievements of building projects. However, as demonstrated by a few cases, the incorporation of the regional preferences of contractors in a country into the activities of their firms as well as their contributions towards the local economy has the potential to reduce the impact of PR (Deng and Low, 2014; Rice and Mahmoud, 1986). These risk mitigation systems should be exceptional, goal-purposed and one-of-a-kind to effectively mitigate PR. Thus, the comparative risk impact analysis on firm-specific variables using comparisons of construction firm, home country and host country is given in Table 4.

5.7 Strategies for managing risks on firm-specific variables

The strategies for managing risks are considered with respect to (w.r.t.) the firm-specific risks in this research. The first strategy is developing a PRM plan. Through the process of translating planned events into measurable quantities, policy risk management during measurement helps to improve performance evaluations and distribute resources more effectively. Taking these measurements helps assess risk tolerance, which in turn guides judgements regarding risk acceptance, risk avoidance or risk management. Appropriate risk mitigation can be accomplished by providing the necessary precautionary measures and ensuring safety on construction sites. Simon (1984) highlights the usefulness of undertaking a comprehensive risk analysis for construction projects that include many countries.

Table 4.
Comparative risk impact analysis on firm-specific variables regarding construction firm, home country and host country

Firm-specific variables		Construction firms	Home country	Host country
C1	Internationalisation of the firm	✓	✓	✓
C2	Empirical knowledge of PRs	X	✓	✓
C3	Contribution of the firm to the local economy	✓	✓	✓
C4	Firm's nationality	✓	X	✓
C5	Nature of firm's operation	✓	X	X
C6	Relationship to the government	✓	✓	✓
C7	Relationship to the power groups	X	✓	✓
C8	Degree of acceptance the firm	✓	X	✓
C9	Degree of localisation	✓	X	X
C10	Size of facility	✓	✓	✓
C11	Abilities to deal with PR	X	✓	✓
C12	Level of technology and technology transfer	✓	✓	✓
C13	Misconduct of contractors	✓	X	✓
C14	Extent of firm's market dominance	✓	✓	X
C15	Ownership shares of the subsidiary	✓	X	X

Source(s): Authors' own work

The strategies for managing risks considered in this section aim to uncover underlying relationships between variables, identifying key factors that influence outcomes. By combining the methodologies described by different authors, PR factors identified from the worldwide research during data collecting were integrated with other study variables (Abdul-Rahman *et al.*, 2012; Al Khattab *et al.*, 2007; Bing *et al.*, 1999; Azad, 2016). In risk management, factor analysis enables professionals to identify and prioritise various risk factors, including PRs specific to operating in Pakistan. By understanding these latent variables, firms can develop targeted strategies to pre-emptively mitigate potential risks, ensure safety in construction projects and enhance resilience in their contracting operations. Table 5 gives some of the strategies for managing these risks with the rankings.

These strategies for the risk mitigation in Table 5 give an outlined solution along with the rankings as per the researcher's experience but further work could focus on developing a comprehensive solution. Within this framework, there should be a good risk management plan, as well as considerations or strategies for risk mitigation. As soon as a plan for risk management has been developed for the organisation, there will be the need to begin ranking the identified risks according to the significance they hold. This ranking of the risks will enable proper risk mitigation as well as the smooth running of the operations in that business. Thus, considering the risk paths, identifying the risks, analysing the implications of the risk and controlling these risks on ICPs are important.

5.8 Theoretical implications

The research also offers significant theoretical implications for ICEs. Following upon the theoretical aspects of this research by identifying key risk factors, there are theoretical implications identified. The theoretical implications of the paper stem from its use of factor analysis to systematically identify and categorise PRs specific to multinational construction projects in Pakistan. This methodological approach contributes to the body of knowledge by offering a structured framework to understand how PRs such as regulatory instability, contract disputes and local labour issues affect project outcomes. The study enhances PR theories by incorporating firm-specific strategies, demonstrating how companies can leverage their resources, negotiation capabilities and local partnerships to mitigate these risks in politically volatile environments.

Moreover, the paper advances the theoretical understanding of risk management for ICEs. It emphasises the need for adaptive and firm-specific risk mitigation strategies, such as diversification and localised risk assessments, to address the complexities of political uncertainty. This adds to existing theories by highlighting the importance of contextualising

S/N	Strategies for managing risks	Rankings
1	Identification of key risk factors	1
2	Resource allocation and optimisation	4
3	Dynamic capability development	8
4	Enhanced decision-making processes	5
5	Stakeholder engagement and communication	7
6	Regular risk assessments and audits	2
7	Developing competitive advantage	6
8	Inflation hedging through real estate portfolio	9
9	Good practices on risk transfer or risk avoidance	3

Note(s): The rankings about the strategies for managing risks
The scale for the ranking is 1–9, where 1- highest, and 9- lowest
Source(s): Authors' own work

Table 5.
Strategies for managing risks w.r.t. firm-specific variables with the rankings

risk management strategies to specific geopolitical landscapes, enhancing firms' ability to proactively manage and reduce the impact of PRs on multinational construction projects.

5.9 Practical implications

The research offers significant practical implications for ICEs. By identifying key risk factors, these firms can develop targeted risk management strategies, leading to enhanced decision-making and more efficient resource allocation. Effective strategies include diversification, local partnerships and comprehensive risk assessments tailored to the unique challenges faced by international contracting firms in Pakistan.

This work emphasises the importance of adopting a comprehensive and strategic approach to managing PRs for ICEs. By continuously monitoring the political environment, ICEs can anticipate potential risks and implement timely interventions to minimise adverse effects. This proactive stance allows firms to be better prepared for the challenges posed by political instability, thus safeguarding project timelines and profitability. Additionally, the study recommends refining data analysis methods, advocating for the inclusion of diverse data sources such as government statistics and industry reports to enhance risk management strategies. However, a more robust data analysis is recommended by using a case study in future studies, as well as heterogeneous data from multiple sources, such as government statistics, news reports and industry databases (see ENR, 2023; ONS, 2022, 2024; PAKPWD, 2024; MOHW, 2024).

Further, the research underscores the value of forging strong local partnerships. These alliances not only provide deeper insights into the political and regulatory landscape but also help ICEs navigate cultural complexities, allowing for more informed decision-making. Local collaboration strengthens relationships with stakeholders, fostering goodwill and ensuring smoother project execution. Alongside this, conducting thorough risk assessments at every project stage ensures that ICEs can anticipate potential challenges, thereby developing tailored mitigation strategies that align with the socio-political conditions of the host country. This holistic approach contributes to more resilient and adaptable project management frameworks.

6. Conclusions

This study explores the impact of firm-specific variables on PRs in ICPs, focusing on Pakistan's ICE. Key PRs identified include permit delays, project abandonment, local property issues, contract disputes, labour concerns, negative media coverage and employment requirements. These risks peak during the project execution phase, following an upward trend from the conceptual stage and decreasing during the transfer phase. Also, the study integrates theories of PRA and organisational management theories that are firm-specific in international businesses like ICEs.

The research offers significant practical implications. By identifying key risk factors, firms can develop targeted risk management strategies, leading to enhanced decision-making and more efficient resource allocation. These strategies, including diversification, local partnerships and comprehensive risk assessments, are tailored to the unique challenges faced by international contracting firms in Pakistan. Additionally, the findings can inform training programs and policy formulation, ensuring that professionals are better equipped to handle specific risks and creating a more favourable environment for international contracting.

However, the study has limitations, as the findings are specific to Pakistan and may not be generalisable to other regions. The sample size and diversity could impact the robustness of the factor analysis, and the dynamic nature of the contracting environment means that

identified risks may evolve over time. Future research should aim to broaden the geographical scope, increase sample sizes and incorporate longitudinal studies and qualitative insights to build on these findings. Integrating other risk management tools can provide a more comprehensive approach to managing risks in international contracting. However, further work can examine how geopolitical factors, government policies and regulatory changes can create uncertainties and impact business strategies. Lastly, another limitation of the study is that it is not generic but based on a localised area (Pakistan); hence, more robust data analysis is recommended by using a case study in the future study, as well as heterogeneous data from multiple sources, such as government statistics, news reports and industry databases like ENR, PAKPWD and ONS.

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