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Exploring the Inherent Estimating Risks in Quantity Surveying (QS) Consultancy Services Pricing

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Abstract

This study aims to identify the potential inherent risks associated with the pricing of quantity surveying (QS) consultancy services; and also to establish statistical significance of the identified inherent risks to QS consultancy services pricing. The study adopted survey questionnaire which was administered to 79 QS practitioners who were drawn by simple random sampling. The factor analysis and chi square test of independence were the main tools used for data analysis. The main inherent risks which are significantly related to QS consultancy services pricing to include corporate internal risks which comprised of associated business risks; financial risks; logistical and infrastructural risks; and managerial and operational risks.The study also uncovered corporate external risks as an inherent risk to the pricing of QS consultancy services. Corporate external risk variables identified by the study include organizational and societal risks; legal risk; and regulatory risks. Finally, the study found location risk as an inherent challenge to the pricing of QS consultancy services. Location risk factors identified by the study comprised of political risk and force majeure risk. The novelty of the paper is demonstrated by a conceptual framework, which facilitates the understanding of the interconnectivity between these risk typologies.

Keywords: risks, inherent, practitioners, quantity, surveying, consultancy

1. Introduction

Risk has attracted the attention of many fields of endeavours over the past decades. As a result, attempts have been made to conceptualize and contextualize it in various fields. The construction industry is no exception as far as risk management and mitigation are concerned. For instance, Flanagan and Norman (1993) perceived risk as the unknown that has negative impact on cost. In another vein, risk is exposure to economic, financial and profit loss and physical damage as a result of uncertainties (Chapman, 2001). While adding on, Yusuwan *et al*., (2009) perceived risk as the probability of negative occurrence.

The construction industry is highly susceptible to risk irrespective of the nature of the project cost, quality, size and parties involved (Smith, 2003). Similarly, the risky nature of the construction industry is traceable to long duration of construction; high capital requirements; complex processes; and unfavorable working environment (Gajewska and Ropel, 2011). Other risk factors in the construction industry consist of project complexity; speed of construction; and location of the project (Wang and Liu, 2004). Construction industry risks are predictable and unpredictable (Yusuwan *et al*., 2008). The inability of practitioners to mitigate construction risks has resulted into poor performance; cost and time overrun during project delivery (Baffoe-Bonnie, 2013). Construction risk cannot be vanquished totally, rather it can be mitigated; passed on to other parties or contained (Uher and Toakley, 1999).

However, evidence abound from the failure of many construction projects as a result of the poor mitigation of construction risks (Mills, 2001). Similarly, the poor mitigation of construction risk has led into abysmal performance of project managers; and increased project cost and duration (Memon *et al.*, 2012). The disregard for adoption of robust risk management measures by other professionals in the construction industry has subsequently made quantity surveying practice risky **(**McGaw, 2007).

According to Yusuwan *et al.,* (2009) risk is inherent in every professional responsibility including quantity surveying consultancy in the construction industry. This implies that there is an inherent risk in the pricing of quantity surveying consultancy services. Unfortunately, research effort in addressing the risk associated with the pricing of quantity surveying consultancy services has been minimal. This is evident in a systematic review by De Azevedo *et al.,* (2014) on opportunities for improving risk management in

the construction industry which concluded that risk management becomes a broad and complex endaevor when management seeks to use risk as a competitive advantage. Similarly, Serpella *et al.,* (2014) explored knowledge-based approaches for construction industry risk management by using two level expert panels and concluded that knowledge-based risk management approaches will motivate contractors and project owners to improve their risk management functions. Tipiliand Ilyasu (2014) evaluated the impact of risk factors on construction project costs in Nigeria by survey questionnaires to contractors, architects, quantity surveyors, and engineers which led to the conclusion that the impact of risk factors is related to time related risk; quality related risk; and cost related risk. Rawash *et al.,* (2014) adopted heuristic approach for modeling risk assessment in engineer procure construct contract management of the construction industry. Specifically, this study concluded that projects that adopt structured risk assessment approaches have achieved their financial and schedule targets; and meet the expectations of project stakeholders. Finally,Swarna and Venkatakrishnaiah (2014) conducted a fault tree analysis for risk management in the construction industry and concluded that risk identification in the construction industry must be based on the collection of information on construction risks; their consequences; and corrective actions required to lessen the impact of risks. It is palpable from the studies above that risk management is limited within the context quantity surveying practice including its key activities such as the pricing of QS services. Considering the forgone problems associated with QS consultancy services pricing in terms of inherent risks, it is novel to conduct a study that addresses the inherent risks associated with the pricing of QS consultancy services in the construction industry.

Risk identification is one of the key processes in the systematic management of risks (Zou *et al*., 2006). The aim of this paper is to identify the inherent estimating risks associated with the pricing of quantity surveying consultancy services. The identification of these associated pricing risks inherent in QS services pricing will enable the implementation of appropriate risk management methods to ensure effective risk response.

This paper comprised of a comprehensive review of pertinent literature on the concept of risk; risk and price; types of risk; and risks at various stages of project implementation. The review of pertinent literature culminated into the formulation of hypotheses which were tested. The literature review was

followed by the research methodology adopted; the analysis and discussion of results and finally the conclusion of the paper.

2. Review of Literature and hypothesis

Risk is the measure of uncertainty occurring (Wang *et al.,* 2014); which in most cases leads to failure of projects (Hubbard, 2009). According to Boisnier and Chatman (2002) risk is any event that has a negative impact on the success of achieving the performance objectives of a firm. In the construction industry, risk influences the objectives of a project during construction, commissioning or use (RAMP, 1998). Risks are classified by considering their magnitude, scope, frequency of occurrence and duration (Heitzmann *et al.,* 2002). Risks are classified as idiosyncratic risks and covariate risks (Ward and Chapman, 1995). Idiosyncratic risks affect individual firms while covariate risks affect several firms simultaneously (Vasilaky *et al.,* 2014). For instance, covariate risks consist of major drought or floods, fluctuating market prices which in many cases affect wide range of firms irrespective of their sectors of operation (Chiappori *et al.,* 2014).

The effects of risk are indefinite. A few of these effects of risks include decrease in project functionality; increased cost and project duration (Rezaian, 2011). Effects of risk are classified as tangible and intangible losses which manifest in either short or long term (Jaffee *et al.,* 2008). The effects of risks are assessed based on their impact on short term and long term outcomes of business and livelihood (IFC, 2007). Risks have effect on performance flows in business organization (Cowell *et al.,* 2007). Performance flows involve the movement of goods and services, income and damage to assets (Jaffee *et al.,* 2008).

From the foregoing, it is clear that idiosyncratic risks are internal risks while covariate risks are external risks. Fluctuating market prices are covariate risks; this implies, they are external risks. This establishes that pricing in general and for that matter consultancy services pricing has an associated risk. In this case, the impact of risk on pricing and other associated consulting business variables are demonstrated in Figure 1.

Having established the connection between risk and price above, a detailed consideration of risk and price related issues are necessary. Existing works suggested that pricing risks are problems business organizations in the

pricing of their products or services (Dana, 2005). Two main types of pricing risk are encountered by price setters: direct and indirect pricing risks (Inderst, 2009). Direct pricing risk affect specific commercial transactions such as the purchase and sale of goods; and the processing of goods and services which make customers vulnerable (European Union, 2010; Dohring, 2008; and Papaioannou, 2006). Direct pricing risks inhibit the effective pricing of pricing of goods and services financially and physically (Malkiel, 2003; and Santomero, 1997). Financial pricing risks have impact on the profit of service providers (Marrison, 2002; UNEP, 2004; and Morrison *et al.*, 2009). Financial risks are assessed based on short or long net risk basis (Rappaport, 2005). A short net risk position exists when there is a purchase commitment with corresponding consultancy services contract (Jaffee *et al.*, 2008). In long net risk position, purchases are made without any sales or intention to provide services to clients (Treacy and Wiesema, 1992; and Beechy and Conrod, 1998).

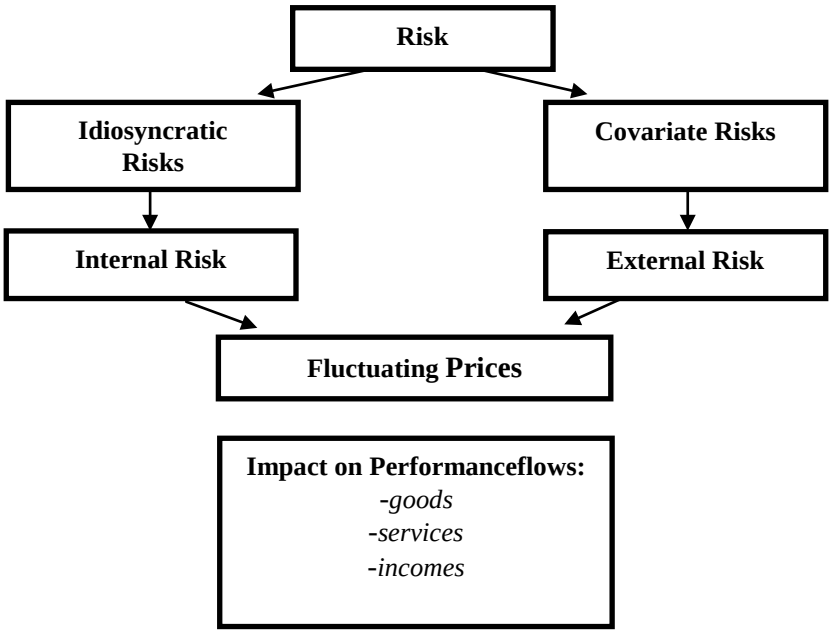

Figure 1: Two main types of pricing risks

Different types of risks have impact on the pricing of consultancy services. The first type of pricing risk is market related. Market related risks are volatile issues which have impact on the price; quality and availability of services (Buehler *et al.*, 2008). Market related risks have impact on the inputs and outputs of service delivery (Croxton *et al.*, 2001). Support services in the nature of financial and logistics are affected by market related risks in the supply chain of the consultancy services delivery system (Ye and Masato, 2012). Logistical and infrastructural risks have impact on the logistics and infrastructure needed to provide services to clients (Tseng *et al*., 2005). Logistics and infrastructure risks have impact on the timing, availability and information flow for consultancy services delivery to clients (Malhotra, 2005). Logistic related risks have impact on the decision taken by consultancy services providers regarding pricing; decisions on the level of provision of future services and marketing (Komninos, 2002). Managerial and operational risks are closely associated with human judgment and decision making in the pricing of services or products (Barton *et al.*, 2002). The pricing of consulting services delivered to clients is is affected by both managerial and operational risks (Jaffee *et al.*, 2008). Demand risks have impact on the efficient flow of services and other resources such as information and cash which subsequently delay the delivery of consulting services to clients (Wilding, 2007). Demand risks occur in the downstream of the consulting services provision supply chain with much impact on processes, controls, assets and infrastructure (Christopher and Peck, 2004). However, supply risks occur at the upstream of the firm which have impact on both customers and suppliers (Braithwaite, 2003).

Technology also poses risk to business transaction such as consulting. Technological risks are the inherent technical problems encountered during the procurement of goods and services, which specifically technical failures leading to underperformance (Edler and Georghiou, 2007; Barringer, 2003; and European Union, 2010). Technological failures leading to poor performance during consulting services delivery have impact on the value of the service hence their pricing (Pissas, 2007). Equipment and tools failure during the implementation phase of consultancy projects can arise from technical or technological weaknesses which affect the smooth implementation of projects (Harris, 2003). Another form of risk that affects the procurement of consultancy services and their pricing is organizational risks (WTO, 2004). In some cases, societies have had the cause to oppose the delivery of projects. In such cases societal risks may occur as a result of lack

of acceptance and uptake of services by consultancy services users (WHO, 2003).

It is important to note that risks occur at various stages of consultancy services delivery. It is therefore essential to delve into these risks in order to have a better understanding of the inherent risks they pose to the pricing of consulting services. Risks occurring during the conceptual phase of consultancy projects make the implementation of the project unfeasible (Abdou, 1996). Consultancy projects that are severely affected by risk during the conceptual phase always fail to receive regulatory approval and funds for project take off (IFC, 2007; UNEP, 2006). In some cases, consultancy projects fail to receive regulatory approval which makes them high risk ventures with relatively high probability (Shyti and Paraschiv, 2014). According to UNEP (2006) risks at the project the implementation phase span between project concept development and implementation which have impact on resource inputs and project output.

Similarly, risky factors at consulting project implementation phase include time overrun, cost overrun and services not meeting the expectation of the client (Kreydieh, 1996). Risks arising from time and cost overrun have high probability and impact which lead to poor performance (Guo, 2004; and Haider, 2009). Financial risks occur at all stages of consultancy project implementation with high probability and impact on the finances of the consulting process (Nair and Yescombe, 2008). Financial risks consultancy project implementations consist of fluctuations in interest rate; currency instability; and inflation (Pirog, 2005; and Gray and Irwin, 2003).

During the implementation of consultancy projects, legal risks in the form of disputes occur due to contractual default at any stage of the project; these create circumstances for renegotiation of the contract making the project to be of high probability and impact (Samuels, 2006; Likosky, 2009). However, legal risks can be mitigated by obtaining sovereign guarantee if the client is a government of a country (Doh and Ramamurti, 2003; Bedoucha, 2010; and Gupta *et al.*, 2002). Regulations affect the implementation of consultancy projects in their jurisdiction of implementation (Antolin and Stewart, 2009). These regulations sometimes put the project at risk by frequent revision of contract terms which affects the pricing of the services to be provided (Grabel, 2002).

Political risk factors such as violence and intolerance undermine the smooth implementation of consultancy assignment in a particular location (Howell, 1998). The probability and impact of political risk on the pricing of consultancy services is high (Hillson and Hulett, 2004). In most developing countries, change in government has resulted into the change in contracts or their abandonment entirely (Rotberg, 2002). When a consultancy project is varied for political expediency, the pricing of the consulting services are affected negatively (Clarke, 1999). Natural phenomenon like force majeure is another risk which has impact on the implementation of consultancy projects and the subsequent pricing of related services. Force majeure risks are in the natural catastrophes such as floods, earthquakes which hamper the smooth implementation of consultancy projects (UNEP, 2006).

From the above review; it is clear that service providers encounter financial risk in their quest to provide services to clients. These risks encountered affect the pricing of consultancy services. It is also apparent from the review that consultancy services providers are not insulated as far as pricing risks are concerned. Similarly, other types of risks which affect the pricing of consultancy services pricing are market oriented, logistical and infrastructural, operations and management, technology, organizational and societal challenges. Other challenges which could have potential impact on QS consultancy services pricing occur as regulatory requirements, political challenges and force majeure.

From the above synthesis, it is appropriate to hypothesize that:

Hypothesis: The pricing of quantity surveying consultancy services is significantly affected by inherent risks:

(H1) financial risks, (H2) market related risks, (H3) logistical and infrastructural risks, (H4) managerial and operational risks, (H5) technological risks, (H6) organizational and societal risks, (H7) legal risk, (H8) regulatory risks, (H9) political risk, and (H10) force majeure risks.

3. Methodology of the Study

This study adopted the survey which administered a structured questionnaire which is considered as an efficient tool (Doloi, 2008). The survey involved quantity surveying (QS) consultancy practitioners who have provided

considerable services to clients in the construction industry. These QS practitioners had encountered various forms of risks in the pricing of the services provided to clients during construction project delivery. The sampling frame for this study were QS practitioners registered with the QS Division of the Ghana Institution of Surveyors (GhIS). Survey questionnaires were administered to 79 QS respondents who were selected by simple random sampling from a sampling frame of 372 QS practitioners registered with GhIS. The five point likert scale was used to measure the responses concerning the pricing risks encountered in the provision of QS consultancy services to clients. The Chi square test statistic was used to test the hypothesis while the factor analysis was used to categorize the data into useful structure for analysis, interpretation and discussion.

Factor analysis is suitable for data summary and reduction to controllable structure for better understanding and interpretation (Doloi, 2008). The factor analysis is also suitable for ascertaining the existence of interrelationship among factors. A fundamental step in using factor analysis for data analysis is the determination of adequacy of survey data by conducting the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of specificity (Zhang, 2005). The KMO ranges between 0 and 1. KMO values closer to 1 indicate a high level survey data adequacy hence the reliability of factor analysis. For instance Field (2005) recommended KMO values more than 0.5 to be satisfactory for the use of factor analysis.

4. Analysis and Discussion of Results

4.1 Factor Analysis

The KMO value for this study was 0.700, which indicate the adequacy of the survey data. Using the Principal Component Analysis (PCA), the average communalities for extraction was 0.607. Three components were established for extraction. These include, component 1 which accounted for 34.469% of total variation; component 2 which had 14.268% of total variance not explained by component 1; and component 3 accounted for 11.972% of total variance not accounted for by component 1 and 2 respectively. The three components cumulatively accounted for 60.709%. This satisfied the cumulative proportion of variation criteria which clearly stated that extracted components should explain more than 50% of variation in the data set (Osei-Hwedie, 2010).

4.2 Components Extracted

The extracted components with their respective variables comprised of component 1 with four (4) variables; component 2 with three (3) variables; and component 3 consists of two (2) extracted variables. In all nine (9) variables have been extracted cumulatively at 60.709%. Considering the various risks under factor 1, it is clear that they border on more internal issues of the firm; hence it makes sense to label factor 1 as corporate internal risk. Corporate internal risks are events within the consulting firm which have impact on the operations of the firm and the pricing of services provided to clients. Corporate internal risks militate against the internal environment of the firm and have impact on key operations such production and pricing of goods and services.

The Factor 1 christened corporate internal risk has variables notably associated business risk (factor loading= 0.727); financial risk (factor loading= 0.709); logistical and infrastructural risk; and managerial and operational risk with their respective factor loading in column 2 of Table 1 below. Infrastructural and financial risks are the new kind of risks that affect the routine management of business of firms (Auerswald *et al.,* 2005). Infrastructural risks include risks associated with information technology which could be in the form of virus attacking the pricing software or consulting data. In terms of Infrastructural risk, internal elements of buildings such as walls, windows, and doors (LaBarge and Kijewski-Correa, 2013) can be destroyed by burgling or the vagaries of the weather if they are not properly maintained. Financial risks have inherent risks notably appraisal costs; closing costs; costs for points to buy down rates; and deposits placed on hold as collateral (Borio and Disyatat, 2009) which will affect the pricing of consulting services if they enter into financial agreements to secure funds to provide a particular service to a client. Managerial and operational risks are related to the routine management and operations to deliver services to clients. In a bid to provide services to clients, consultants encounter managerial and operational risk factors which have impact on the pricing of QS services provided to clients. Managers are critical to the successful management of businesses, like wise consulting managers are crucial to the successful management of consulting engagements and the subsequent pricing of services provided to clients during the consulting engagement (Carpenter, 2000).

In providing services to clients, QS practitioners are confronted with emerging technologies, failure of machines and equipment, and cost cutting as indicated by Harris (2003) and Barringer (2003) earlier. These are risks occurring in the internal environment of the QS consulting firm which have impact on the pricing of QS services provided to clients. It is therefore clear that associated business risk; financial risk; logistical and infrastructural risk; and managerial and operational risk which is all herein named 'corporate internal risk' in Table 1 below have impact on QS consultancy services delivery and their pricing as well.

Similarly, Factor 2 in Table 1 below borders on corporate external risk. According to Miles (2011) corporate external risks are events occurring outside the firm which cannot be controlled. In observing the risks under factor 2 closely, it is clear that organizational and societal risks (factor loading=0.766); legal risk (factor loading=0.710); and regulatory risk (factor loading= 0.830) are risks that the QS consultant cannot control hence they were given the factor description 'corporate external risk'.

Organizational and societal risk factors affect the performance of employees at the workplaces including consulting firms. In consulting firms, organizational and societal risks reduce the morale of workers leading to poor services provision to clients. Similarly, Hoel *et al.,* (2002) identify organizational risk as the cause of lower job satisfaction, lack of motivation for job and lack of commitment to an organization. Human related issues such as illness and death; and fraud and theft are internal risks affecting corporate organizations including QS consulting firms. Also, organizational and societal risks have impact on the operations of the QS firm with concomitant effects on the pricing of consulting services. In QS consultancy practice; construction projects are mostly located in communities of which the society is a key stakeholder. Agitations and violent confrontations from the project communities constitute societal risk to QS consultancy contract and subsequently the pricing of the services. These societal risks can halt or delay the progress of construction projects hence, catastrophic effect on the QS consultancy services and their pricing. In situations of delay as a result of societal risk where the QS consultant has already mobilized the requisite resources for the consulting assignment, extra cost will be incurred which may not be recovered through pricing. Legal risk borders on the terms and conditions of the consultancy contract. When disputes arise during QS consultancy services delivery as a result of noncompliance with the terms and conditions of the consulting contract, delays may occur culminating into the QS consultant not meeting set targets in terms of cost management,

personnel management. Similarly, market forces such as high inflation will overrun the planned budget for the consulting assignment. In an instance where the terms and conditions of the consulting contract do not consider legal encumbrances, the pricing of the services to recover extra cost incurred becomes problematic. In most jurisdictions, projects are delivered within some stipulated regulations. Such situations include the price that can be charged; stringent regulations for service delivery *inter alia* have impacted upon the pricing of services provided to clients. It is therefore clear that Factor 2: corporate external risk which comprises of risk variables in Table 1 below has impact on the pricing of QS consultancy services.

Factor 3: location risk as shown in Table 1 below has two risks namely political risk (factor loading=0.883); and force majeure risks (factor loading=0.841). Considering the fact that these risks occur with respect to the locations of consulting projects, it makes sense to consider them under the banner of 'location risk'. Construction projects are delivered at specific locations of which the QS consultant is a key participant in providing services. In the event of natural disaster at the site of project, the project may be brought to an abrupt end or delayed. The disruption caused by force majeure risk has the potential of impacting negatively on QS consultancy services thereby affecting the pricing of the services as well. Political upheavals disrupt the delivery of construction projects at a particular location. According to Beardshaw *et al.,* (2012) political risks are uncertainty events necessitated by political conditions which militate against business objectives. Political risk factors which have impact on consultancy services pricing include bribery and corruption and to some extent kickbacks. When a project is compromised by bribery, corruption and kickbacks, QS projects consultants ought to recover whatever money they sunk into the project hence unfair pricing tactics may be adopted. Protests and strikes against projects can have political connotation which have negative impact on consultancy services pricing. Other political events which are deemed risky to QS consultancy services pricing include taxation, war, terrorism and contract default, these may occur as there is change in government.

Table 1. Component Profile of concept of risk

Description of Factors and Variables	Factor Loading	Variance Explained
Factor 1: Corporate internal risk		
1. Associated business risk	0.727	34.469
2. Financial risk	0.709	
3. Logistical and infrastructural risk	0.710	
4. Managerial and operational risk	0.727	
Factor 2: Corporate external risk		
1. Organizational and societal risk	0.766	14.268
2. Legal risk	0.710	
3. Regulatory risk	0.830	
Factor 3: location risk		
1. Political risk	0.883	
2. Force majeure risks	0.841	11.972

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

4.3 Test of Hypotheses

The hypothesis derived was tested to ascertain the strength of the risk variables involved in the in study. This is to establish statistical evidence as far as the inherent risk of Quantity surveying consultancy services pricing is concerned. The hypothesis testing also provided the basis upon which the findings and conclusions of this study can be generalized within the context of the study population.

H_o: The pricing of quantity surveying consultancy services is not significantly affected by inherent risks:

(H1) financial risks, (*H2*) market related risks, (*H3*) logistical and infrastructural risks, (*H4*) managerial and operational risks, (*H5*) technological risks, (*H6*) organizational and societal risks, (*H7*) legal risk, (*H8*) regulatory risks, (*H9*) political risk, and (*H10)* force majeure risks.

H_1: The pricing of quantity surveying consultancy services is significantly affected by inherent risks:

(H1) financial risks, (*H2*) market related risks, (*H3*) logistical and infrastructural risks, (*H4*) managerial and operational risks, (*H5*) technological risks, (*H6*) organizational and societal risks, (*H7*) legal risk, (*H8*) regulatory risks, (*H9*) political risk, and (*H10)* force majeure risks.

The hypothesis above measured ten variables which were considered for their inherent impact on the pricing of QS consultancy services. From Table 2 below, the Chi square test of independence clearly indicated that there was a significant relationship between the independent variables and quantity surveying consultancy services pricing with financial risks (X^2_{cal}= 78.532, df = 4, p< 0.01, $X^2\alpha$ =9.488); market related risks (X^2_{cal}= 35.076, $X^2\alpha$ =7.815, df = 3, p< 0.01); logistical and infrastructural risk (X^2_{cal}= 57.769, $X^2\alpha$ =9.488, df = 4, p < 0.01); managerial and operational risk (X^2_{cal}= 29.405, $X^2\alpha$ =7.815, df = 3, p< 0.01); technological risk (X^2_{cal}= 14.924, $X^2\alpha$ =7.815, df = 3, p = 0.02); and organizational and societal risk (X^2_{cal}= 37.646, $X^2\alpha$ =9.488, df = 4, p< 0.01); legal risk (X^2_{cal}= 37.266, $X^2\alpha$ = 9.488, df = 4, p< 0.01); regulatory risk (X^2_{cal} = 38.911, $X^2\alpha$ =9.488, df = 4, p< 0.01); political risk (X^2_{cal} = 22.962, $X^2\alpha$ = 9.488, df = 4, p< 0.01); and force majeure risks (X^2_{cal}= 19.165, $X^2\alpha$ = 9.488, df = 4, p = 0.01). For each independent variable, $X^2_{cal} > X^2\alpha$ at $p < 0.05$, this implies that the null hypothesis can be rejected.

The impact of financial risk on the pricing of consultancy services cannot be underestimated, thus, according to Alexander (2003) financial risk has increased the rate of market risk which has subsequently increased the price of goods and services. Similarly, over exposure to financial risk in an economy where quantity surveying consultants operate has culminated in to pricing pitfalls (Akintoye and MacLeod, 1997). The impact of market related risks has been recognized by Cont (2006) as a phenomenon that negatively affect the pricing of goods and services including QS consultancy services.

Table 2. Chi-square Test of Independence for QS Consultancy Services Pricing and Inherent Risks

Independent Variables	Chi-Square (X^2_{cal})	$X^2\alpha$	df	*p*-value	Decision
1. Financial risk	78.532[a]	9.488	4	.000	Reject
2. Market related risk	35.076[a]	7.815	3	.000	Reject
3. Logistical and infrastructural risk	57.769[b]	9.488	4	.000	Reject
4. Managerial and operational risk	29.405	7.815	3	.000	Reject
5. Technological risk	14.924[a]	7.815	3	.020	Reject
6. Organizational and societal risk	37.646[c]	9.488	4	.000	Reject
7. Legal risk	37.266	9.488	4	.000	Reject
8. Regulatory risk	38.911	9.488	4	.000	Reject
9.Political risk	22.962	9.488	4	.000	Reject
10. Force majeure risks	19.165	9.488	4	.010	Reject

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 19.8.
b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 15.6.
c. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 15.8

The negative impacts of logistical and infrastructural risks; managerial and operational risks; and technological risks is over 70% (Badenhorst-Weiss and Waugh, 2014), a phenomenon which affects key business activities such as the pricing of consultancy services. The procurement of goods and services such as consultancy services including quantity surveying services is adversely affected by organizational and societal risk; regulatory and political risk (European Union, 2010). When organizational and societal risk; regulatory and political risks affect the procurement of consultancy services, the pricing of the services provided are consequently affected negatively.

5. The Interconnectivity of Pricing Risk Typologies

This study uncovered three main inherent estimating risks of quantity surveying consultancy services pricing. These include corporate internal risks; corporate internal risks; and location risks. Construction projects are delivered within the framework of operations of contractor firms which are confronted by internal risks within firm; and external risks which emanates from outside the contractor organizations. Similarly, construction projects operations take place in specific locations. These locations have their own inherent risks which also affect the construction projects within that vicinity. The pricing of services provided by the QS consultant is thus affected by this risk nomenclature: corporate external risks; corporate internal risks; and location risks. Figure 2 demonstrated the interconnectivity of these three main risk typologies affecting the pricing of QS consultancy services.

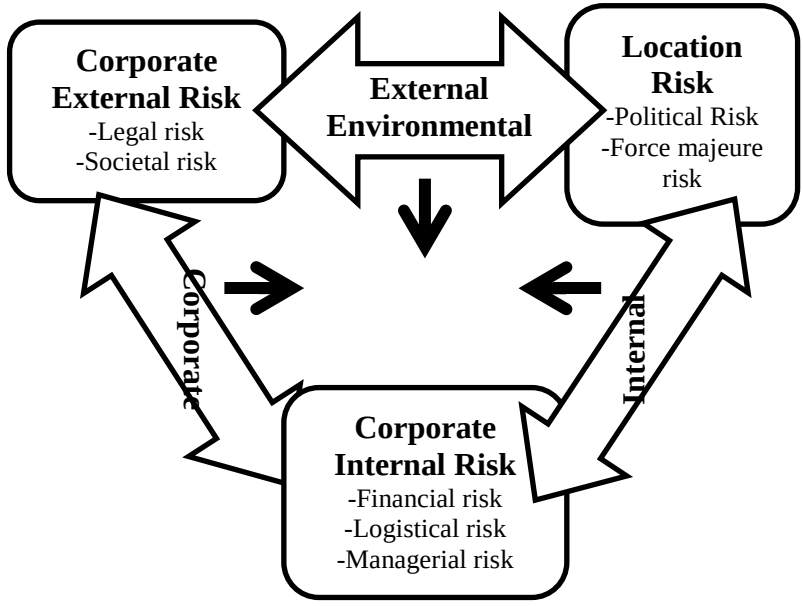

Figure 2. Risk typologies affecting QS Consultancy Services Pricing

From the conceptual framework below in Figure 2, it is clear that political risk is both location and internal corporate risk. Within the internal corporate environment, corporate politics can be detrimental to the pricing of QS services while partisan politics within the location of consulting projects can affect the pricing of services.

6. Conclusion

Risks of various dimensions have impacted upon construction industry operations over the years to the neglect of QS consultancy services pricing. Inherent pricing risks have had significant impact on the pricing of QS consultancy services in the construction industry. These inherent pricing risks have affected the performance of QS practitioners in their bid to provide quality services to clients. In this regard, the aim of this paper was to identify the inherent estimating risks associated with the pricing of quantity surveying consultancy services; this provide QS consultants the opportunity to adopt the requisite mitigation measures during the pricing of their consultancy services. The study uncovered three main types of inherent estimating risks associated with the pricing of QS consulting services. These risks include corporate internal risks; corporate external risks and location risks. This study has uncovered key risks which militate against the pricing of QS consultancy services. These main findings include corporate external risk; corporate internal risk; and location risk. These three main risks of pricing QS consultancy services are mainly environmental from the perspective of the corporate and location risk factors. The study also found that these environmental risk factors are both internal and external.The study found that key variables of the typologies of QS services pricing risks identified above in figure 2 are generally environmental factors. Theoretically, study provides an identification, understanding and assessment of key environmental risk factors that militate against the pricing of QS consultancy services. Similarly, the paper presents a novel exposition of the nature of risks confronting QS consultants as far as the pricing of their services is concerned. The managerially and practically, the adaptability of the findings of this study will enhance an optimized pricing of QS consultancy services. Finally, it is recommended that future studies should focus on the simulation of these risks confronting the pricing of QS consultancy services.

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