RELATIONSHIP BETWEEN RISK MANAGEMENT PRACTICES AND FINANCIAL PERFORMANCE OF CONSTRUCTION AND CONSTRUCTION RELATED FIRMS IN PAKISTAN

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By

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DEDICATION

Dedicated to

My beloved parents and loving wife

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LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
Fps	Firm Performance Score
Eps	Economy Performance Score
FRAME	Financial Risk Analysis Management Evaluation
CPI	Composite Performance Index
SBP	State Bank of Pakistan
FBS	Federal Bureau of Statistics
GoP	Government of Pakistan
KSE	Karachi Stock Exchange
GDP	Gross Domestic Product
SPSS	Statistical Package for Social Science
IFS	International Financial Statistics

LIST OF PUBLICATIONS

Research Publications/Conference Papers/Books

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HUBUNGAN ANTARA AMALAN PENGURUSAN RISIKO DAN PRESTASI KEWANGAN PEMBINAAN DAN FIRMA BERSANGKUTAN PEMBINAAN DI PAKISTAN

ABSTRAK

Industri pembinaan memainkan peranan yang amat penting dalam mewujudkan peluang pekerjaan kepada berjuta-juta tenaga pekerja tidak mahir dan mahir di firma bersangkutan pembinaan di dalam ekonomi membangun. Sifat dinamik dan persekitaran kerja yang berdaya saing dalam industri pembinaan serta risiko yang sangat terdedah telah memaksa firma konstituen berterusan mencari strategi bagi mengurangkan kesan buruk pelbagai jenis risiko dan meningkatkan prestasi kewangan mereka. Berdasarkan kajian yang mendalam berkenaan model prestasi firma, kajian ini adalah bertujuan untuk memperkenalkan model Analisis Risiko Pengurusan dan Penilaian Firma yang terkini untuk analisis spesifik hubungan antara prestasi kewangan dan amalan pengurusan risiko di firma bersangkutan pembinaan di Pakistan. Kajian ini telah menggunakan analisis risiko kewangan dua tahap dan metodologi pengurusan untuk menentukan hubungan antara prestasi kewangan firma dan amalan pengurusan risiko. Ini telah tercapai, pertama, dengan menjalankan analisis prestasi kewangan berdasarkan analisis nisbah menyeluruh (menggunakan data kewangan selama sembilan tahun) dan pembangunan firma dan skor prestasi ekonomi. Dengan menggabungkan kedua-dua prestasi kewangan ini, indeks prestasi telah digunakan untuk memilih kuartil tahap tinggi dan rendah firma bagi melaksanakan analisis peringkat kedua. Kajian ini juga menggunakan kaedah soal selidik untuk mengumpul maklumat spesifik industri daripada tujuh belas firma

berprestasi tinggi dan enam belas firma berprestasi rendah (menunjukkan hampir 80 peratus kadar maklum balas) untuk menentukan tahap dan sejauh mana amalan pengurusan risiko diamalkan oleh firma berprestasi tinggi dan rendah.

Hasil konklusif mengenai kajian ini telah menentukan bahawa terdapat hubungan positif yang signifikan antara amalan pengurusan risiko dan prestasi kewangan firma bersangkutan pembinaan. Kajian ini, pertama seumpamanya di Pakistan dan memberi sumbangan yang penting kepada pengetahuan mengenai hubungan antara amalan pengurusan risiko dan prestasi kewangan firma (kawasan penyelidikan yang agak lemah) seharusnya relevan kepada para penyelidik dan pengamal industri pembinaan termasuklah firma yang disenaraikan, kontraktor pembinaan, badan profesional yang relevan dan pengawal selia industri.

Memandangkan keadaan ekonomi amat berisiko dan prestasi kewangan firma bersangkutan pembinaan bergantung pada corak pertumbuhan ekonomi negara, penemuan daripada kajian ini telah memberikan bukti secara empirikal mengenai kewujudan hubungan yang positif antara tahap amalan pengurusan risiko dan prestasi kewangan firma. Oleh itu, penekanan kepada keperluan bagi firma-firma ini untuk membangunkan dan melaksanakan proses pengurusan risiko yang lebih baik dan meningkatkan prestasi kewangan mereka adalah dengan meminimumkan kesan buruk daripada turun naik ekonomi dan lain-lain.

RELATIONSHIP BETWEEN RISK MANAGEMENT PRACTICES AND FINANCIAL PERFORMANCE OF CONSTRUCTION AND CONSTRUCTION RELATED FIRMS IN PAKISTAN

ABSTRACT

Construction industry plays a vital role in creating employment opportunities for millions of unskilled and skilled workforce in construction and Construction related industry firms in developing economies. The dynamic nature of construction industry and its competitive and risk prone work environment has forced the constituent firms to continuously seek strategies to minimize the adverse effects of different types of risks and improve their financial performance. Based on an extensive review of firm performance models, this study is aimed to introduce an updated Firm Risk Analysis, Management and Evaluation (FRAME) model for specific analysis of the relationship between financial performance and risk management practices of construction and Construction related industry firms in Pakistan. The study has used a two-stage financial risk analysis and management methodology to ascertain the relationship between firm's financial performance and their risk management practices. This has been accomplished, first, by conducting financial performance analysis based on comprehensive ratio analysis (using financial data for nine years) and the development of firm and economy performance scores. Combining these two, a performance index was worked out and used to select the high and low performing quartiles of firms for the second stage of analysis. The study then used survey approach to collect industry-specific information

from seventeen high performing and sixteen low performing firms (showing nearly 80 percent response rate) to determine the level and extent of risk management practices adopted by high and low performing firms.

The conclusive outcome of the study has been the determination of a significant positive relationship between risk management practices and financial performance of construction and Construction related industry firms. This study, first of its kind in Pakistan and an important contribution to knowledge on linkages between risk management practices and firm financial performance (a relatively weaker research area) should be relevant to both researchers and practitioners including construction industry listed firms, construction contractors, relevant professional bodies and industry regulators.

Given the highly risky economic situation and the heavy dependence of construction and Construction related industry firm's financial performance on the growth pattern of national economy, the study findings provide empirical evidence on the existence of a positive relationship between the level of risk management practices and financial performance of firms and, thus, highlights the need for these firms to develop and implement better risk management processes and enhance their financial performance by minimizing the adverse consequences of economic and other fluctuations.

CHAPTER 1

INTRODUCTION

1.1 Background of Research

During the past two decades, investments in construction industry have been decisively influenced by an increased share of investment funding provided by the private sector as compared to the public sector's financing pattern. The direct involvement of private sector has not only increased the complexity of managing construction projects but also promoted the diversification of risk management techniques and their implications on firm performance. The success of any business, including the construction and Construction related industry firms, is greatly influenced by the choices made regarding controlling risky situations during the conduct of their operations including selection and implementation of different projects. In general, these risks include the occurrence of unexpected events such as natural disasters, unforeseen site conditions, material and equipment delivery delays. As many unpleasant events are likely to occur in the construction process, however, all stakeholders are looking for profit and each aims to finish the job with maximum benefits and minimum risk.

The construction phase, being a crucial stage in an infrastructure project, has its own risk, which results in a cumulative associated risk for the project (Zaini, Adnan & Haron, 2010). These risks include the occurrence of unexpected events such as natural disasters, unforeseen site conditions, material and equipment delivery delays and equipment

breakdown. As there are many stakeholders involved in construction process many unpleasant events are likely to occur but still all stakeholders are looking for profit and each aims to finish the job with maximum benefits and minimum risk.

The construction industry generally faces both internal and external risk which not only need to be identified but also properly managed to achieve better performance for component firms and the expected growth targets for the industry and the economy. In other words, risk in the construction industry can be defined as the possible occurrence of a known or unknown event that may have a negative or positive effect on the firm itself, the construction industry and the growth of national economy. In general, however, a business firm must decide whether to take mitigating action or take no action and accept the risk. Risks of medium to high magnitude will require action to be taken to minimize an adverse impact on the business or industry. On the other hand, where the effect is negligible, the risk can be accepted. Managing risk is rightly considered as an integral part of good management and is fundamental to achieve good business and project outcomes. It can, therefore, be postulated that firm's financial performance is influenced to a considerable extent by its adoption of risk management practices.

1.2 Risk Analysis and Management

As a consequence of rapid globalization, not only the opportunities are constantly expanding for construction firms but the risks involved are also multiplying for the various stakeholders and thus, necessitating the need to develop specific risk analysis methodologies to effectively identify and manage the multitude of risks involved. Risk

management processes and their applications have gained significant importance in many disciplines including finance, banking and, insurance but more particularly in the implementation of infrastructure/construction projects worldwide.

(Valsamakis, Vivian & du Toit, 2004) refer to risk management as being the relatively loose art and science of managing risks. The degree of risk management and the actions taken will vary among the different organizations within an industry, depending on the organization's appetite for risk or the risk culture that exists in the organization. Risk management can, therefore, be seen as process of identifying potential risk events, and quantifying these in terms of the likelihood of occurrence and of the influences they could have on the firm and its business opportunities. Based on this information, it is possible to decide the strategy to be followed in addressing a specific risk that either would eliminate the risk or would minimize the adverse affect thereof on the business. Risk management also provides the opportunity to identify risk events occurring elsewhere or in other countries that may be exploited for the benefit of the construction industry in another country. The risk management process, therefore, covers not only risk identification, but also risk assessment, risk response (action) development and risk control strategy.

The purpose of managing risk is to change uncertainty into benefits for the organization by constraining threats and taking advantage of opportunities (HM Treasury, 2004). Accordingly, management of risk cannot be regarded as a linear process but rather, it

encompasses the balancing of a number of interwoven elements which interact with each other and which have to be in balance with each other for effective risk management.

(Kerzner, 2001) expressed the view that risk management and monitoring are not problem-solving techniques but should be seen as proactive techniques to obtain objective information to prevent adverse events from occurring or towards minimizing the negative impact thereof. The survival of any business, including the construction industry, depends on how well risks are identified as well as managed. This can be achieved either by eliminating the risk entirely or, at the least, reducing the adverse impact on the business firms in the construction industry to a minimum.

(Neitlich, 2009) argued that, in the construction industry, risk management is an ongoing process as it is critical to the sustained safety, security and, growth of the industry having impact on the development of the economy. Due to the complexities involved, risk management must be seen as a process that requires constant review and updating It was, therefore, important that firms in the construction industry should not only possess the ability to manage risk, but also the skill and foresight to recognize risk, since these potential risks will have a strong bearing on the growth of the construction industry firms.

(Page & Meyer, 2000) stated that a risk management model is essential to reduce the impact of risk as the model will contain full representation of a set of relationships, including the statements defining the assumptions and interactions in the model. The introduction and development of such a model can serve as a useful tool for the

construction industry to better understand the value of being able to identify risks and the worth of being proactive in the management of these risks. Any improvement in better risk mitigation by the firms in the construction and Construction related industry would not only improve their performance and strengthen the industry itself but also positively influence the growth of the national economy.

1.3 Managing Financial Risk in Construction Industry

(Mansfield, 1994) identified some major factors (finance and payment arrangements, poor contract management, shortages in materials, inaccurate estimation, and overall price fluctuations) that cause delays and cost overruns in different infrastructure projects in Nigeria.

(Assaf et al., 2006) identified the causes of delay and their relative importance in large building construction projects in Saudi Arabia. Based on the contractor's survey, the most important delay factors were: delays in contractor's progress, late payment by owners and design changes. From the view of the architects and engineers the cash problems during construction, slow decision making process of the owner were the main causes of delay.

(Odeyinka & Yusif, 1997) addressed the causes of delay in building projects in Nigeria. They classified the causes of delay as project participants and extraneous factors. Client-related delays included variation in orders, slow decision-making and cash flow

problems. Contractor related delays identified were: financial difficulties, material management problems, planning and scheduling problems etc, whereas extraneous causes of delay identified were: inclement weather, acts of nature, labour disputes and strikes.

(Al-Momani, 2000) carried out a quantitative analysis on construction delays in Jordan. The result of his study indicated that the main causes of delay in construction of public projects were related to designers, user changes, weather, site conditions, late deliveries, economic conditions and increase in quantity.

Similarly, (Odeh & Battaineh, 2002) also conducted a survey aimed at identifying the most important causes of delays in construction projects with traditional type of contracts from the viewpoint of construction contractors and consultants. Results of the survey indicated that contractors and consultants agreed that owner interference, inadequate contractor experience, financing and payments, labour productivity, slow decision making, improper planning, and subcontractors were among the top ten most important factors.

The studies (reviewed above) indicate that although risk assessment, analysis and its management has been used extensively in many sectors but the application of risk management processes (covering risk identification, evaluation, mitigation, and control) has not been practiced in the construction industry. These risks, in particular, result in projects to be completed with time and cost overruns that affect the financial performance of construction firm. These studies also show that the effect of delay in timely delivery of

construction projects is attributed to financial risk and its mitigation can be a serious threat to any industry but particularly the construction industry.

1.4 Performance Evaluation of Construction Industry Firms

Although several models have been developed and used to evaluate firm performance but only a few of these have incorporated economic and industry related factors. These models have been developed during the past few decades and have taken up performance evaluations at three (project, firm and, industry) levels. Models at the construction industry level have been used to measure the effect of economic, political, and social changes on the performance of the construction industry as a whole.

1.4.1 Ratio Analysis for Firm Financial Performance

Ratio analysis is among the most popular and widely used tools in evaluating financial performance of firms in any industry. Most performance evaluation models for construction firms have used ratio analyses based on their annual financial reports. Financial ratios generally compare various dimensions of performance among comparable units and within a single unit over time periods. As comparative tools, ratios are used to measure a firm's performance over time (trend analysis) and to compare it with that of its competitors or industry averages (comparative analysis). The figures used

in calculating financial ratios primarily come from income statements and balance sheets prepared under generally acceptable accounting practice standards.

According to (Halpin, 1985), (Newton, 1994), financial ratios are divided into four main groups consisting of Liquidity ratios, Debt ratios, Activity ratios and, Profitability ratios These four major financial ratio categories measure liquidity, profitability, leverage and efficiency of firms. Although each of the above categories includes many ratios, only some of these are considered significant. Using a single ratio is not very meaningful as it does not reflect the comprehensive financial position of a firm. A ratio becomes meaningful when it is compared with past ratios of the same firm or ratios of other firms in the same industry.

As a general rule, the higher score in profitability and liquidity ratios and the lower score in leverage ratios indicate better financial performance of a firm. (Ellis, 2006) suggested five indicators to determine 'Best in Class' status of financial health of a construction firm i.e. (1) Return on assets; (2) Return on equity; (3) Fixed asset ratio; (4) Debt to equity, and (5) Working capital turnover. In addition, (McCall, 2006) pointed out that working capital turnover was the most important ratio for construction contractors which is a direct indicator of a contractor's short term financial strength and is used to help evaluate a contractor's ability to fund construction projects. However, all of these ratios are important and have to be taken into account when evaluating the financial performance of a firm.

1.4.2 Regression Analysis for Firm Performance

The model used by (Kangari et al.,1992) applied multiple regression analysis to evaluate the performance of construction companies and developed a performance grade curve to show the relative financial position of a construction company, satisfying model limitations. (Russell & Zhai, 1996) also applied multiple regression analysis to predict construction companies' failure by using economic and financial variables. Another quantitative model based on financial ratios was developed by (Goda, 1999) with an objective to develop standard financial ratios that reflect the performance of the construction industry in Egypt. These standards could be used to compare the performance of the Egyptian construction industry with the international one. According to this study, regression analysis had provided more reliable results than that produced using the supervised neural network.

1.4.3 Risk Management Process and Practices

Risk management can simply be considered as a centre of any company's management strategy. It is the process by which different companies systematically identify and address the risks faced by their activities with the objective of achieving sustained growth performance of the company. A few studies have been carried out to assess the extent of formal training in risk management. One study, conducted by (Akintoye & MacLeod, 1997), used a questionnaire to survey 100 contractor and project management firms about their risk management practices in the construction industry. Their survey reported that 67% and 77% of the contractors and project management

firms, respectively, did not have any formal training in risk assessment and management techniques. Another study by (Baker, 1997) used a comprehensive questionnaire to study risk management level in 139 British construction and oil & gas sector companies and argued that the insight gained can aid the decision making process and can produce a more controlled risk environment with more profits for the companies.

1.5 Pakistan Construction Industry: Status and Issues

During the first quarter of a century after its birth in 1947, Pakistan's construction industry comprised of very few private constructors in Pakistan. Housing for public sector was done by the Provincial and Central Works departments through contractors, while the entrepreneurs constructed their residences mostly with the help of unqualified but skilled persons. According to (Rizwan & Sarosh,2008), beginning early seventies, large allocations were made by the Government of Pakistan to Housing Building Finance Corporation and a number of entrepreneurs, contractors and consultants entered in the construction industry with meagre managerial capability and insufficient technical knowledge. This boost led to the formation of builders and developer's associations with the objectives of improving the state of the industry as well as to provide a platform to showcase and address pertinent issues. Such associations, however, had to face several problems in dealing with authorities responsible for approving building plans, sale prices, conditions of sale, grant of house-building loans and so forth. For these and several other

reasons, these associations largely failed to make serious efforts to improve the building construction industry itself.

Even after some notable performances in the gigantic Indus Basin works which included construction of large dams (Tarbela, Mangla etc), barrages and link canals and the prestigious Pakistan Steel Mills project, the construction sector remained in a state of depression primarily due to government's negligence in terms of inadequate policies and insufficient support. By the end of twentieth century, several companies (MLC Pvt. Ltd, National Construction Ltd, Imperial Construction Company Pvt. Ltd. and Gammon Pakistan Ltd.) that had played leading roles in national construction and infrastructure projects, were on the verge of closure in the overall recessionary environment and paucity of major public development projects. During this long state of depression, a vast majority of construction related projects suffered from time delays, cost overruns, quality non-compliance and, safety failures leading to more risky work environment.

Beginning twenty-first century, the government realized that infrastructure; housing and building sectors were the backbone of country's economy and increased resources to further expand the basic infrastructure in the country. The effect initiated a number of development projects which led to increased demands for building and construction activity in the country.

Economic Survey of Pakistan (2006-2007) indicated that Pakistan was in the midst of its strongest economic expansion phase and its growth momentum was broad-based. The

three major sectors (agriculture, industry and services) have provided support to strong economic growth. The year's real GDP growth has been powered by strong (17.2 percent) growth in construction. Brisk pace of activities in private housing, high rise buildings along with large public sector spending on physical infrastructure and the on-going reconstruction activities in the earthquake affected areas contributed to the sharp increase in construction value-added. Construction with many forward and backward linkages is also making impact on the economic growth by contributing 5.2 percent or 0.4 percentage points to this year's real GDP growth.

According to Economic Survey of Pakistan (2013-14), the share of construction in industrial sector is 11.48 percent and is one of the potential components of industries. Its contribution in GDP has increased to 2.4 percent as compared to 2.2 percent last year. The construction sector registered a growth of 11.31 percent against -1.68 percent in 2012-13. This is also highest growth level achieved since 2008-09. The increase in growth is due to rapid execution of work on various projects, increased investment in small scale construction and rapid implementation of development schemes and other projects of federal and provincial governments.

The government has acknowledged in the latest Economic Survey that the strengthening of the country's infrastructure is a basic imperative for sustaining growth momentum. During the last two years, the government has taken various budgetary and non-budgetary measures which are now yielding positive results. Many national and international real estate developers have launched large construction projects in Pakistan

which has further accelerated construction activity in the country. Pakistan now offers a growing market for the construction industry and, according to "Pakistan Vision 2025", many dams and several other construction projects have been announced which has created opportunities for both foreign and local construction and Construction related sector firms.

1.6 Research Gaps

Many researchers have discussed risk management as a process that includes several types of risk such as operational risk, hazardous risk, strategic risk, macroeconomic risk and, financial risk. Out of these, it is the financial risk that has been discussed the least and that too for industries like insurance, banking, financial services etc. Only a few researchers have touched the financial risk in construction industry mostly limiting their work to project financial risk and making recommendations about a project on the basis of Net Present Value or Internal Rate of Return criteria. Whereas, the models developed by (Kangari et al., 1992) and (Goda, 1999) have focused mainly on evaluating the company performance using financial ratios without considering the effect of macroeconomic and industry related factors.

On the other hand, studies conducted on level of risk management maturity have highlighted the extent of company preferences related to different methods used to identify, analyze and manage risk. (Baker Scott, 1997) focused on the level of company maturity in terms of adoption of risk management practices and what other companies

must be doing to reduce or absorb expected as well as unforeseen risks. Focusing on the banking sector firms, (Ariffin & Kassim, 2009) analyzed the relationship between risk management practices and financial performance of Islamic banks in Malaysia. The study assessed the bank's risk management practices and how that affected their financial performance.

Given this research environment, research studies may be divided into two categories: one group of studies has focused on financial performance analyses of companies to assess and predict their vulnerability to financial failures with suggested guidelines to avoid oncoming failures; the second set of studies has focused on risk management practices of companies in one or more sectors and conducted surveys to show the level of adoption of different aspects of a systematic risk management process. However, apart from some important issues that need to be looked into in company financial performance analyses (such as the number and selection of specific financial ratios and the exclusion of macroeconomic factors in some of these analyses) one important aspect, "the relationship between risk management practices and financial performance of firms", has not been brought into focus by any study especially applicable to the construction and Construction related industry sector firms in Pakistan or elsewhere.

1.7 Research Problem

In this scenario of dearth of research studies on possible linkages between a company's financial performance and the level of its risk management practice, it was considered

important to conduct a study that focuses on this problem. It is, therefore, important to determine how the financial performance of construction industry firms is linked to and affected by their extent of identification, analysis and management of risk practices.

Given the above research gaps, the research problem has become obvious and it was, therefore, considered important that a research study must be conducted for "determining the financial performance of construction and Construction related industry firms and how their performance is influenced by their adoption of risk management practices during the implementation of construction projects.

This study has directed its focus on determining the relationship between financial performance and risk management practices in the construction and Construction related industry firms in Pakistan. It is important to note here that construction industry is directly linked to many Construction related industry firms and a steady performance of construction industry not only induces growth of its constituent firms but also positively affects the firms in Construction related industries (such as cement, iron and steel, marble and tiles, electrical and sanitary fittings with spillover effects on horticulture and transport sectors as part of the chain reaction).

In other words, there is dearth of research studies on possible linkages between a company's financial performance and the level of its risk management practice. It is, therefore, important to determine how the financial performance of construction industry firms is linked to and affected by their extent of identification, analysis and management

of risk practices. While attempting to resolve the highlighted research issues and gaps, this study has directed its focus on determining the relationship between financial performance and risk management practices in the construction and Construction related industry firms in Pakistan. It is important to note here that construction industry is directly linked to many Construction related industry firms and a steady performance of construction industry not only induces growth of its constituent firms but also positively affects the firms in Construction related industries (such as cement, iron and steel, marble and tiles, electrical and sanitary fittings with spillover effects on horticulture and transport sectors as part of the chain reaction).

The present study postulates that the risk management process consists of five inter-linked factors or steps (including risk identification, risk estimation, risk evaluation, risk response and risk monitoring) to assess the extent of risk management practices undertaken by sample construction and Construction related industry firms. These steps have been explained in detail by (Baker Scott, 1997) in his study conducted in UK which focused on the level of company maturity in terms of adoption of risk management practices and what companies must be doing to reduce or absorb expected as well as unforeseen risks.

1.8 Research Questions

Given this context, this research study has attempted to respond to the following questions:

1. What models have been developed and how different financial ratios are used to analyze firm financial performance?
2. How key macroeconomic factors influence the financial performance of construction and Construction related industry firms?
3. How the combined effect of financial ratios and macroeconomic factors impacts on the financial position of construction and Construction related industry firms.
4. Is there any relationship between financial performance and risk management practices of construction and Construction related industry firms?
5. How the above analyses may be combined to develop an industry-specific conceptual model to represent the extent of relationship between financial performance and risk management practices of construction and Construction related industry firms.

1.9 Research Objectives

Given the above background and research questions, this study has focused on achieving the following objectives:

1. To develop a firm performance score (Fps) for construction and Construction related industry firms using appropriate financial ratios.
2. To develop an economy performance score (Eps) for construction and Construction related industry firms using macroeconomic variables.

3. To develop a composite performance index for determining the relative financial position (ranking) of selected construction and Construction related industry firms.
4. To determine any variations in level and extent of risk management practices by conducting questionnaire survey of high and low performing firms.
5. To determine the extent of relationship between financial performance and risk management practices of construction and Construction related industry firms by combining the above analysis in a an industry-specific conceptual model.

1.10 Scope of Research

In general, there is a dearth of literature focusing on risk management practices and their implications on firm's financial performance. Although there are various risk management models available, particularly in the realm of project management, as proposed by (Gray & Larson, 2006), the review of literature for this research undertaking has not revealed a risk management model highlighting the above discussed relationship between a firm's financial performance and its level of implementation of risk management process covering risk identification, risk analysis and, risk response. It is, therefore, imperative to conduct a research study on construction and Construction related industry firms in Pakistan with focus on developing a conceptual model that shows the relationship between firm's financial performance and its risk management practices.

Considering the shortcomings of existing approaches/models, and staying in conformity with its overall scope, this two-stage research study has introduced a financial risk analysis, management & evaluation (FRAME) model. The study, in first stage, derived a firm performance score, an economy performance score and, combining the two, a composite performance index to determine the firm financial performance. Using the performance based ranking of sample firms, the study in stage two, conducted a risk management practices survey of highest and lowest performing quartiles of firms to determine the relationship between financial performance and level of adoption of risk management practices by selected construction and Construction related industry firms in Pakistan.

1.11 Significance of Research

The significance of this research study can be highlighted through its expected contribution in many directions. First, the study is a wholesome contribution to the existing body of knowledge on financial risk management – an area that has been least researched especially in the context of construction and Construction related industry firms. In this process, the study has developed a firm performance score, an economy performance score and, combining the two, a composite performance index to select firms showing highest and lowest financial performance. The second stage of study conducted a survey of the selected firms and determined the relationship between firm's financial performance and their risk management practices. On this premise, this research

study and its approach may be considered unique as no other similar study has been conducted especially for construction and Construction related sector firms in Pakistan or elsewhere.

In this process of conducting financial performance analysis (and determining economy performance score) this research study has analyzed the impact of macroeconomic factors such as exchange rate, interest rate and inflation rate. These are important inherent elements that may drastically influence construction and Construction related industry firm's financial performance during ever changing economic conditions leading to fluctuations in their growth with adverse consequences for the national economy.

Another significant contribution is the updating of existing firm financial performance evaluation models and development of an industry-specific financial risk analysis, management & evaluation (FRAME) model for conducting firm financial performance analysis and determining its relationship to the extent of adoption of risk management practices by the firms representing construction and Construction related industry in Pakistan. In this process, the analysis has also collected and documented industry-specific information on how firms identify risks and what methods, if any, are employed by them to analyze and control these risks. The model then uses the above information to determine the relationship between a firm's level of risk management practice and its financial performance.

1.12 Limitation of Research

The scope of this research was constrained due to some limitations. First of all, from among the various types of risk, the study mainly focuses on the financial risk. Furthermore, in order to obtain the required information for ratio analysis, only firms listed under the construction industry sector in Pakistan's major stock exchange i.e., Karachi Stock Exchange (KSE) were selected. This number was further reduced due to non-availability of required financial data of some firms for all study years, thus, necessitating the inclusion of firms from the Construction related industry sectors based on how closely their services were related to or supportive of construction industry.

Similarly, information required to conduct ratio analysis was not available for some firms and researcher's original plan (to work on all 17 ratios used by the State Bank of Pakistan) had to be limited to 10-ratio financial analysis for the study. Another limitation was the non-availability of data related to projects in the desired format and, therefore, the use of questionnaire survey approach was adopted to collect relevant information on risk management practices of selected (highest and lowest performing construction and Construction related industry) firms for determining its relationship with their financial performance.

1.13 Definition of Key Terms

1.13.1 Risk

Following ISO standardised classification, risk is defined as "the effect of uncertainty on achievement of objectives" (ISO 2009; en.wikipedia.org). According to (Mbeba, 2007) cited in (Magali et al., 2014) risk is the potential that current and future events (expected or unanticipated) may have an adverse or harmful impact on the institution's capital, earnings or achievement of its objectives.

1.13.2 Risk management

Risk management refers to a systematic process of identifying and analyzing of risks and selecting the most appropriate method to treat the risk has been acknowledged to minimize losses and at the same time increased profitability (Aris et al, 2009). In other words, risk management is a systematic approach to identifying, measuring, monitoring and managing the various risks faced by an institution.

1.13.3 Construction Related Sectors

Construction related Sectors refers to all sectors (and firms therein) that are considered supportive to construction sector such as cement, iron, steel, timber and wood, marbles, tiles and stones, electrical and sanitary works, glass, paints and varnishes, electrical lightning, power and gas, horticulture, interior decoration, transport, light-heavy

construction machinery, plastics, fibers, furniture, electrical appliances, and many more as part of the chain reaction (President, Federation of Chambers of Commerce and Industry, Pakistan, Business Recorder, December 18, 2012)

1.13.4 Financial Performance

A subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation.

1.14 Thesis Organization

This dissertation is organized into five main chapters. Chapter 1 lays down the foundations of study and introduces the research topic, defines and elaborates the complexity of risk management issues and methods generally adopted for its analysis and control, highlights the research problem, the focus and scope of the study, identifies the research questions, sets down achievable objectives of study and, explains the significance of study along with its limitations.

Chapter 2 presents the comprehensive theoretical background of various approaches and models developed and used by earlier researchers followed by an extensive review of

literature beginning with risk management as the core domain and followed by studies on applications of financial risk analysis and other studies considered relevant to the scope of research being undertaken.

Chapter 3 deals with data description and research methodology. It provides details of primary and secondary data collected and analyzed for the study. It also explains conceptual (FRAME) model, the components of financial risk analysis, management and evaluation used to highlight the relationship between a firm's financial performance and the extent of risk management practices adopted. Further, it also explains the methods and statistical analyses used to develop firm and economy performance scores and the regression models adopted and tested to evaluate the results.

Chapter 4 presents detailed results of data analysis as per research methodology with brief description of tabulated information.

Chapter 5 follows up on the results and presents detailed discussion of these results summarizing the empirical findings of the study.

Chapter 6 provides the conclusions drawn from the results of the analyses followed by discussion on implications of the study with recommendations for various stakeholders of the construction and Construction related industry as well as some suggestions for direction of further research on risk management practices and firm performance issues and options.