DETERMINANTS OF CLOSURE OF LOCAL CONSTRUCTION COMPANIES IN RWANDA

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Determinants of Closure of Local Construction Companies in Rwanda

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

Signature…….…… ……Date……

Gakuba Fulgence

This thesis has been submitted for examination with our approval as the university Supervisors.

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DEDICATION

This research thesis is dedicated to my entire family especially my father Mr Gakuba Athanase and my mother who tireless kept the momentum on my studies. To my wife, my two little children Anorld Ngoga Gakuba and Dylian Ganza Gakuba who always make feel complete while talking to them and refreshing my memory. Their presence during my research made me feel stronger and it encouraged me to think further towards achievement of the objectives of my research.

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ABBREVIATIONS AND ACRONYMNS

BPS:	Board of Postgraduate Studies
EPC:	Engineering, Procurement and Construction
EPC:	Engineering, Procurement and Construction
GDP:	Gross Domestic Products
GNP:	Gross National Product
IMF:	International Monetary Fund
JKUAT:	Jomo Kenyatta University of Agriculture and Technology
MINECOFIN:	Ministry of Finance
MINEDUC:	Ministry of Educations
PCA:	Principal Component Analysis (PCA)
PMBOK:	Project Management Body of Knowledge.
PMI:	Project Management Institute
RCC:	Rwanda Construction Company
REC:	Rwanda Engineering Council
RPPA):	Rwanda Public Procurement Authority
USA:	United States of America
USD:	United States Dollar
WEO:	World Economic Outlook

WTO: World Trade organization agreements

ABSTRACT

Globally, construction companies experience high risky closure because of its unique features such as long period, complicated processes, unexpected environment, financial intensity and dynamic organization structures. All these uncertainties make the termination of construction companies is one of the pitfall of the construction industry. The sector is highly fragmented and very sensitive to many determinants. The industry has high rate of business closures. Business failure, collapse and bankruptcy are common terms used to define the status of the company closure. The ease in entering the construction market with limited financing resources results in many companies competing on a limited market share and being exposed to business closure. Rwanda is no exception. This situation is very detrimental to the economy of Rwanda. This is the motivation for this study. The objectives of the research were to describe severity of the determinants of construction company closure in Rwanda, to assessing the failure trends of the construction company leading to closure in Rwanda and to develop a framework to salvage the local contractors' businesses from failure and/or collapse. An online questionnaire survey of 132 respondents was adopted in this study. From review of the literature related to business performance, a list of determinants of business closures was made. Based on those determinants, research instruments were developed and used in data collections within several firms' managers and other important stakeholders such as engineers and architects. Subsequently, data were analyzed using descriptive methods in order highlight severity of various determinants of contractor business closures in Rwanda. Additionally, expert views of the respondents were outlined. Finally, the data analysis results were used to formulate a framework for salvaging contractors from failure or collapse. Financial challenges were observed to be the most severe cause of contractors' closures, followed by managerial challenges at the corporate and site levels. From the study findings, it is recommended that the construction industry adopts the project management procurement method in project planning and implementation, as amplified in the schematic framework developed in the study. Accordingly, more effort should be devoted to development of human resources for financial and operational management. Additionally, clients should consider more seriously provision of advance payments in construction projects in order to strengthen the contractors' cash flow from the very onset of the project implementation. Further research in this area should investigate more causes of failure of the contractors in general

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Worldwide, the commercial atmosphere within which construction companies are hinged remains dynamic (Lee *et al.,* 2001). According to Abbasnejad and Moud (2013) construction companies resisting to adapt and respond to the intricacy of the novel tend to experience endurance problems. Increasingly due to advanced users' requirements, eco-friendly awareness and limited resources on one side, and high competition for construction business in the marketplace on the other side, contractors have to be capable of continuously improving their performance (Samson & Lema, 2005). Otherwise, their competitiveness shall fail and cause collapse of the company.

Despite the construction industry being complex, different players not limited to owners (clients), contractors, consultants, stakeholders, and regulators in the industry play major roles in the development and achievement of society's goals. In industrialized countries construction industries pings itself as one of the largest industries by nature of contribution, that accounts to about 10% of the Gross National Product (GNP) (Navon, 2005). Rwanda is no exception; the local construction industry is one of the main economic engines among the sectors, supporting the Rwandan national economy. However, many local construction projects report poor performance due to many evidential project-specific causes such as: unavailability of materials; excessive amendments of design and drawings; poor coordination among participants; ineffective monitoring and feedback; and lack of project leadership skills (UNRWA, 2006). The ever-important macro-level political and economic factors have also been related to poor projects performance (UNRWA, 2006 & 2007).

The major focus for any construction company in this unpredictable competitive construction environment is to ensure success by maintaining its presence and stability in the market (Ejaz *et al.,* 2013). The ease of entry into the construction

market results in a large number of the companies competing on limited services and consequently exposing every one of them to business failure (Assaf *et al.*, 2015). The risk failure and or collapse therefore remains high for both small and large construction firms.

Rwanda Gross Domestic Products (GDP) is mainly divided into Agriculture with 34.1%, Industry 15.1% and Services 50.3% as per RDB 2017 Report. Rwanda maintained its economic growth since 2014 with Gross Domestic Products (GDP) for construction sector being at 7.5% from 4.7% in 2013. Today, its economic growth in Sub Saharan Africa is among the 6 best countries for fast-growing economy in Africa (Global Economic Perspective report 2017), and Rwanda economic growth forecast was expected at 7% in the year 2019. Rwanda economic growth is mainly contributed by Tourism, Remittances from Diaspora and Agriculture production due to presence of good harvest (Ahadzie, 2011). Therefore overall, the role of the construction industry remains high in Rwanda. Contactor's failure or collapse cannot be said to come from the economy.

Rwanda also has been ranked second country in Africa for ease in doing business, after Mauritius which is ranked 1st in Africa, and consequently positioned number 49 and 56 respectively worldwide. This is as result of introducing many reforms in business strategies that include online registration of company and tax payment subsidies for the investors. The report on investment opportunity in real estates and construction, showed that construction industry contributes to more than 7% to the national GDP and recorded a growth of 9.4 % (2013/2014) because of sustained expansion in private constructions and public works. Construction spending in this sector in the year 2015 was 546 million USD at growth of 10 % (2014/2015), and Real Estate spending in 2015 was 471 Million USD with growth of 7 % (2014/2015). These statistics imply that the business environment has been made fairly well conducive for a contractor to exist in it (Chilipunde, 2010).

Normally starting up of the business is always associated with many risks of which the entrepreneur has minimal or no control over it. The entrepreneur always expects a certain level of failure in due course of running the business because of the

unexpected risk factors. Despite professional market analysis on construction industry (where risks, benefits, and keenness in the construction industry are analyzed), uncertainty remains with the investor. The analysis made by Statistic Brain Research Institute in USA has shown Finance, Insurance and Real Estate as being the best investment sectors with failure rate at 58% and ranked Construction at 8th Position with failure rate of 47%, and the Information and Transportation, Communication and Utilities being the worst investment (Chai & Yusof, 2013). It was also noted in the report that most of the businesses fail within few years of their registration; their failure rate recorded is at 50% within first two years. Among strongest reasons for failure as highlighted in the findings of the Statistic Brain Research Institute are incompetence in business which stands at 46%, and lack on managerial skill with 30%. This is a pointer to the things ailing construction companies in Rwanda.

According to Dissanayaka and Kumaraswamy (2009), the risks in business is associated with many factors including but not limited to financial change in the economy, the founder dies, national monetary inflations, oil price hike, rising interest rate and material prices increase for which price effect was not anticipated to aggravate the contract. These are among few and most has been identified in literature review from other scholars.

Among the business sector, construction industry has higher rate of failure due to interdependent nature of construction and as per the United State statistics. The average rate of failure in construction industry is almost 14 percent, while average failure rate for all industry is under 12 percent according to US Census Data for the year 1989 to 2002 (Construction Business Owner, 2011). BizMiner well renowned financial data and market Analysis Company, provides failure rate among different investment related to construction industry the failure rate at 23.6 percent. This failure rate is very higher compared to some other sectors, and therefore gives importance to find out how to minimize the failure in the market (Fapohunda & Stephenson 2010).

In Rwanda the construction market is always saturated with large and small local companies from within and foreign contactors from other parts of Africa, Asia, and Europe and also from it has become increasingly hard for the company survival if factors that lead to failure are not managed. This calls for concerted efforts at the policy, firms and project levels of the construction industry of Rwanda in dealing with this situation collectively.

Company failure is a multidimensional phenomenon and complex to the undertaking of the performance of a company. Most of the theories underline the relationships between local companies' performance (and closure) and some environment determinants. A lot of research on companies insist upon company growth, business creation, and its expansion and but never concentrates on the dark side of the business related to failure of the company (Damoah & Kumi, 2018). The challenges are that most of the practitioners and scholars only deal with definitions of failure, insolvency and bankruptcy but they never look at the borderline case whereby a company intends to fail for its survival. They do not devote their time on researching between healthy companies and firms which are likely to fail. Clear and timely identification of those elements that may result to total collapse of the company is important for a Government or insurance company so that bail might be availed to re-sustain existence of the company. Note that since the company failure affects social economy of millions lives of the population, it should be given big weight in the research and should be well known by all beneficiaries.

According to Levratto, (2013) company closure or insolvency from the economic viewpoint is a set of situations of failure such as non-repayment of a debt, the inability to pay dividends to the stakeholders, financial distress or the like which may lead to judicial proceedings. Default is another word describing the company unable to make profit and its capital does not create value because continuous series of enterprise services become inconsistent (Sledzik, 2015). The company's inability to repay its due amounts is a clear signal of default and this gives a distinction between safe and risk operating companies. A company is said to be in insolvency if it cannot reach its economical goal in any environmental constraints, such as social and legal.

The business closure is a continuous and cumulative process which gradually changes from small difficulties to the more complex problem (Levratto, 2013).

From legal point of view, company insolvency is defined based on judicial criteria introduced in the Insolvency Act enacted in every country at a given period. Insolvency whether of its definition in economic or legal point of view, the fundamental indication is the company unable to pay its social, financial and economic needs which results to bankruptcy (Levratto, 2013). The nature of definitions becomes effective when the Judge decides that the company is unable to do repayment when the claim falls due. Most of scholars consider a failure when a company presented to the court its legal credentials requiring for its liquidation or reorganization. It is at this instance that the court starts its proceedings by freezing all payments and assets of the company in crisis to ensure compensations required to the clients are not at high risks.

1.2 Statement of The Problem

Because the construction sector is one of the leading sectors in economic development in a country, its growth should be well monitored. However, in the case of Rwanda, failure of local construction companies has been a common occurrence, even before the 1994 genocide in the country. Lack of a proper business plan or visionary company owner(s) or managing director, has among other things adversely affected the growth of local companies. The company insolvency or bankruptcy in its early years of establishment has been a common trend in construction industry in Rwanda. As a results of World Trade organization agreements (WTO).The large well-known companies from East Africa and abroad, which was established many years before the genocide are currently dominating construction markets in Rwanda. The newly established local companies suffer failures within first few years of operation and as a result fewer local construction firms exist in the market today. Local companies sometimes are regarded to be weak operating together with strong experienced international companies creates an economic imbalance in the sector and consequently inequitable distribution of the economy in the local society.

Company insolvency or closure is the result of many related factors which cannot be treated in isolation. These factors need to be well analyzed at different times with change in economic environment and other dynamics happening in the country. The company growth rate should also be monitored to ensure the mission of private driven economy policy is maintained. The issue of the company insolvency is relevant to other players in construction industry besides contractors. The stakeholders' mainly in construction industry are owners or clients, contractors and subcontractors with objective of ensuring cost effectiveness, high quality or specifications are respected and timely executed of the project (Assaf, *et al.,* 2015). Company failure is associated with this cost, time, quality and failure of either of them may result into litigations, bankruptcy and asset lien.

Continental free trade praises the private sector as the most important pillar for sustainable growth of an economy or a private sector driven economy. Accordingly, Rwanda Government has in recent times embarked on empowering the private sector, through regulating law, changes in private sector policy in doing business and introducing incentives to the investors. Among the factors for sustainable private sector driven economy is the presence of permanency of private companies in the market i.e., companies having stable cash flow and income, stable security and safe bonding system in the country.

However, despite having introduced a conducive business environment, the private sector driven economy has been steadily growing at low pace of which the Government of Rwanda still plays a key role in public investment. In order to bring the total change for the private leading economy, it is crucial for the Government to phase out its big investment in the economy and allow the private sector to lead the economy, by creating more avenue which support private sectors' development. Considering poor financial capacity of private companies in Rwanda today the country should formulate policy. For example, to reduce or eliminate Government involvement in investment in a number of key sectors. At this stage of economic development, the Government can develop private sector through Public investment in heavy project and privatize those infrastructure facilities. Additionally, those

projects of relatively lower investment cost can be left free for the private sector development include estates, apartments and hotel etc.

In the olden days, there existed a weak company regulatory policy through which the company's owners re-registered their companies in different names to escape from being blacklisted or declared bankrupt and this loophole were mainly because there was no well-established control registration system. Eventually, the Rwanda Procurement Authority (RPPA) was well established and most of the companies were blacklisted, and others closed business. Multiple registration left many projects uncompleted and contracts ended in litigation. At the same time the Government, banks and surety institutions suffered big damages and some of the contractors went into exile in avoidance of legal proceedings related to the contractual damages. Therefore, for the Government to maintain its vision of developing private sector in leading the economy as per vision 2020, it is important to minimize the closure of the construction companies. The problem can be understood and contained when extensive research is conducted. This requires proper statistical analysis and Government focus in development of the sector.

It has been noted that economic shock or political change results to closure of companies and consequently affects many people's incomes and their social welfare. The Government or Private Sector Federation should always monitor the company's economic tendencies at earlier stages before the insolvency stage. Normally any investor feels more secure in investing in a country with a stable economy where their monies are more secure. Rwanda for the last 7 years has maintained its economic development and has been named as good place to invest. Rwanda being a developing country which cannot entirely finance its budget, the situations creates fears for some investors to open their construction businesses despite the good economic progress.

1.3 Objectives of the Study

1.3.1 Main Objective

The aim of this study is to investigate the determinants of closure of local construction companies for more sustainable working environment. The purpose of the study is to form the basis for creating a framework to salvage the local contractors' business as which tend to fail, collapse and close persistently.

1.3.2 Specific Objectives

The specific objectives of the study are:

1. To describe severity of the determinants of construction company closure in Rwanda.
2. To assessing the failure trends of the construction company leading to closure in Rwanda.
3. To develop a framework to salvage the local contractors' businesses from failure and/or collapse.

1.4 Research Questions

The study was guided by the following research questions:

1. What is the severity of the determinants of construction company closure in Rwanda?
2. What are the failure trends of the construction company leading to closure in Rwanda?
3. What is the framework to salvage the local contractors' businesses from failure and/or collapse?

1.5 Justification of the Study

The research is motivated by the many years on failures of construction companies in construction sector worldwide and particularly in Rwanda. The failure of the companies creates threat to the new companies' entering the market and this makes it

important to study the risks. Rwanda Vision 2020 pillar is focuses on development of human resources for excellent services; there is no question that this industry plays a sensitive role in achieving this objective. The causes of failure and collapse if not well studied and explained at different decision-making levels which as a result will keep the sector shaky and unstable. Qualified graduates and other businessman interested in the sector will not attempt to invest in the sector due to the long history on failures and the sector will not grow like other sectors. Considering the employment opportunity embodied in the sector and its impact on the economic front, it is necessary for the Government to boost its development through proper monitoring of the factors which cause company closure and improving investment policy to attract local and international investors in the sector.

1.6 Significance of the Study

The construction industry in general has a significant impact on the country‘s economy since projects are tied to a range of businesses in several industries. When projects are awarded to local contractors it is highly likely that they would subcontract local contractors and would hire local suppliers than international contractors, which are nowadays mainly from China, whose companies import every input including foremen and laborers from their country. In addition, a strong and effective local construction industry will contribute greatly to the country‘s economy in many areas including in saving the hard earned foreign exchange which would have been paid to international companies and their staff. Therefore, identifying and comparing of local and international contractors’ performance differences will help local contractors improve their performances to a higher level that can convince clients by being competitive with their international contractors‘, and eventually contribute the aforementioned and much more benefits to the country. The findings are expected to contribute to existing knowledge of technical consultants (Architects, Engineers, and Quantity Surveyors), in construction project administration and its management resulting in higher proficiency in project supervision and measurements.

The conclusion of the research will give indicators on the failure trend of the companies in Rwanda and the possible interventions period required before insolvency. The stakeholders to the research are contractors, engineering firms, policy makers, Government institutions, Insurance Companies, institutions scholars and banks. The study gives confidence to the new companies to register their companies with enough knowledge on associated risks in the sector. It also adds insight to the scholars for their further research in developing a stronger framework of argument for avoidance of closures, which is more conducive for all academicians.

1.7 Scope and Limitations of the Study

1.7.1 Scope

The study was conducted in Kigali province, Rwanda. Kigali province, Kigali was preferred among other provinces in the Country since it had the largest share of on-going commercial/ mixed urban development projects as per the information obtained on 22nd August 2017 from the Rwanda Housing Authority.

The research was propagated in investigating the determinants of closure of local construction companies in Rwanda as whole. The purpose of the study is to form the basis for creating a framework to salvage the local contractors' businesses which tend to fail, collapse and close persistently.

1.7.2 Limitations

The scope of the study for data collection was limited to Kigali province only, Rwanda. The study would have covered a wider scope but limited financial resources constrained the study. A budget had been drawn to enable the study to be completed within the estimated budget. Kigali was chosen owing to financial constraint of the researcher.

The study realized challenges in accessing construction project managers since one required permission from the head office to access the sites. In most contractor offices, the requests to access their sites were turned down. The administrative

assistants made sure that one couldn't get access to ask for permission from the relevant person in charge. To counter this, the construction project managers from the selected list of on-going projects were friend requested in Linked-in (a professional network), contacts established, and permission was requested to do a site survey.

1.8 Definition of Terms

Company closure: refers is the term used to refer to the actions necessary when it is no longer necessary or possible for a business or other organization to continue to operate. Once the organization has paid any outstanding debts and completed any pending operations, closure may simply mean that the organization ceases to exist.

Company collapse: involves a financial bankruptcy or insolvency of a firm followed by legal declaration of termination of existence of the firm. However, this phenomenon is not a sudden one. It is a gradual process where the signs and symptoms develop over years.

Company failure: refers to a company ceasing operations following its inability to make a profit or to bring in enough revenue to cover its expenses

Company insolvency: As per Levratto (2013) company closure or Insolvent or concept of insolvency is defined as a set of situations of failure such as the non-repayment of a debt, the inability to pay dividends to the stakeholders, the financial distress etc. which may lead to judicial proceedings.

Local construction company: A type of business, company, enterprise or similar organization created and operating to construct a wide variety of buildings, developments, housing, path, pavement, roads, motorway and other types of construction projects locally.

1.9 Assumptions of the Study

This study was based on the following assumptions:

i. The findings of the study can be replicated to other Provinces in Rwanda
ii. The critical site factors were not attributed to peripheral pressures such as legal issues, government regulations, socio-political pressures and environmental concerns.

1.10 Outline of the Study

The study report is organized into five chapters, as follows.

Chapter One gives an overview of the thesis. It presents the background information on the topic, the problem of the research, the purpose, objectives, research questions, and study justification, significance of the study, the scope, limitations and assumptions of the study.

Chapter Two provides the reader with a review of the literature related to company failures and collapses. It covers what has already been documented concerning construction failures recorded for construction companies around different places over the world.

Chapter Three presents the research methodology. It describes the research design and strategy, target population, the sampling techniques, the sources of information and operationalization/measurement of variables. It outlines the procedures adopted in data collection and analysis. Finally, the chapter presents the ethical considerations made in the planning and conducting of the study, and reporting the results of the research.

Chapter Four presents the data analysis and the findings. It gives the severity indices of various causes of construction company collapses and expert views on the

strategies that may be used to minimize or eliminate the collapses in Rwanda. On the basis of the findings, formulation of a framework for salvaging the local contractors' businesses from failure and/or collapse is presented.

Chapter Five presents the study conclusions and recommendations, in order to provide an overview of the whole project outcome. The conclusions have been drawn from the study findings in Chapter Four, while the recommendations are based on the conclusions. Finally, areas for further study are highlighted.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the research work that was done by various scholars in the field related to determinants of closure of local construction companies. The closure tendencies are mostly found in undeveloped countries and literature highlights on some key concepts which as results makes change in Paradigm. This includes; the empirical review, the critical site factors, measurement of effective site management and modern technologies for site management. Finally, the chapter looked into the theoretical and conceptual framework as well as the research gaps

2.2 The Construction Company Closure

Business failure mostly appears in a critical situation as a consequence of a complex process and is rarely dependent on a single factor. Arditi *et al.,* (2000) found budgetary and macroeconomic issues as the main reasons for construction company failure in the US. Over 80% of the failures were caused by five factors, namely insufficient profits (27%), industry weakness (23%), heavy operating expenses (18%), insufficient capital (8%) and burdensome institutional debt (6%). All these factors, except for industry weakness, are budgetary issues and should therefore be handled by companies that are cognizant of the effects of these factors on their survivability.

Kivrak and Arslan (2008) examined the critical factors causing the failure of construction companies through a survey conducted among 40 small to medium-sized Turkish construction companies. A lack of business experience and country's economic conditions were found to be the most influential factors to company failure. A scrutiny of the sub-factors related to the lack of business experience confirms that difficulties with cash flow and poor relationship with the client drove the contractors‟ failure. In addition, preparing an accurate and realistic bid proposal

with the profit margin being carefully determined is highly critical (Arslan *et al.,* 2006). However, due to high competition, companies are usually forced to reduce their profit in order to win the bid and this would increase the default risk substantially. Kangari (1988) found that more than half of business failures in construction were due to unrealistic profit margin.

Schaufelberger (2003) studied business failure at the subcontractor level and found that the primary causes of subcontractor business failure were insufficient capital/excessive debt, lack of managerial maturity, lack of early warning measures, increase in project scope, poor billing procedures, failure to evaluate project profitability, unfamiliarity with new geographical areas, and poor use of accounting systems. Davidson and Maguire (2003), based on their accountancy experience, identified ten most common causes for contractor failures: (i) growing too fast; (ii) obtaining work in a new geographic region; (iii) dramatic increase in single job size; (iv) obtaining new types of work; (v) high employee turnover; (vi) inadequate capitalization; (vii) poor estimating and job costing; (viii) poor accounting system; (ix) poor cash flow; and (x) buying useless stuff. Osama (1997), on the other hand, presented a study of the factors that contribute to the failure of construction contractors in Saudi Arabia and found that the most important factors were: difficulty in acquiring work, bad judgment, and lack of experience in the firm's line of work, difficulty with cash flow, lack of managerial experience, and low profit margins. In the following sections, the determinants of construction company closure are highlighted.

2.2.1 Budgetary Issues

Construction cost consists of the direct construction cost, indirect construction cost and risk allowances. The cost components have been categorized as follows: The Direct construction costs are all costs that can be specifically recorded with an activity in a project. The direct cost cover the largest portion of the total project cost and these costs can be budgeted, monitored and controlled far more effectively than the indirect costs. And they mainly include material, labor, equipment, and subcontract costs. On the other hand indirect construction costs are all costs, which

cannot be directly booked under a specific activity in a construction project but required to keep the whole project operational. These costs are also called overhead costs, which mainly include the head office and site overhead costs (Yamane, 2006).

It is very crucial to integrate risk allowances in the pricing for a construction project. This helps to recompense the negative impacts of different risks such as contractual, technical, political and economic risks. Whereas, contractual risks are usually stemming from the contract agreements with the project owner, subcontractors and suppliers, technical risks are usually associated with the clarification of the technical specifications, working drawings, construction technology and difficulties in understanding new method of constructions. Political and economic risks reflect the impact of political situations, stability of economic policies, inflation and price fluctuation of the inputs (material, labor, equipment and other related costs) on the execution of the intended construction project (Yamane, 2006).

Project managers and schedule (timing) analysts do often face with the problem of how to analyze the complicated delays and resolve the claims resulted from it. In addition, in most of the contracts of construction, it is not specified which method would be used to evaluate and analyze delays. On the other hand, the contractor and client have different views against analysis and determination of responsibility for delay. As a result, calculating delays and determination of responsibilities of each of the party is an important issue. Therefore, project managers must have a systematic approach for analyzing delays and allocation of responsibilities. Since there are different methods to analyze delays such as: pervasive influence technique, Bar chart or Gant chart technique, collapse technique or (but because), critical path method, time impact technique, global impact technique, net impact technique, impacted as-planned technique, collapsed as-built technique, sectional technique or snapshot technique, isolated delay type technique. So choosing an appropriate delay analysis technique for calculation of the effects of delay on project is a critical decision that is discussed in this paper (Hoshino & Livengood, 2011).

Early project closure can be influenced by several factors. Although timely completion of the project is one of the determinants of its success, it is important to

manage each project based on its uniqueness (Divakar & Subramanian, 2009). Project success factors can be classified into managerial factors, efficient project planning and clarity of objectives. Kog and Loh, (2012) identify two stages within project lifecycle as the delivery and post-delivery stages. The delivery stage focuses on standard measures which involve "doing things right" while the post-delivery stage is the concern of the consumers and organization to ensure that things were done right. It is based on this approach that "getting things right" is perceived to be more significant compared to "doing things right". Zulu and Chileshe (2008) give a comprehensive framework which entails efficiency, impact on the team, impact on the client, organizational success and preparedness for the future.

Sweis *et al.*, (2008) studied the causes of delay in residential projects in Jordan and concluded that financial difficulties faced by the contractor and too many change orders by the owner are the leading causes of construction delay. Abd El-Razek *et al.*, (2008) in a similar study in Egypt found that the most important causes of delay are financed by contractor during construction, delays in contractor's payment by owner, design changes by owner or his agent during construction, partial payments during construction, and non-utilization of professional construction/contractual management. Sambasvian and Soon (2007) identified the delay factors and their impact on project completion in the Malaysian construction industry. The results indicated that the ten from a list of 28 different causes of delay were: contractor's improper planning; contractor's poor site management; inadequate contractor experience; client's inadequate financial resources and payments for completed work; problems with subcontractors; shortage in material; labor supply; equipment availability and failure; lack of communication between parties; and mistakes during the construction stage. Assaf and Al Hejji (2006) conducted a survey on time performance of large construction projects in Saudi Arabia. The survey had 73 different causes of delay. He studied the importance of various causes from the viewpoint of contractors, consultants, and owners. The most common cause of delay identified by all the parties was "change order." He also found that about 70 percent of the projects experienced time overruns.

2.2.2 Scarcity Resources

Abdul-Rahman and Alidrisyi (1994) it was observed that in material management practices in a fast developing country, in Malaysia for example, there were great challenges related to theft of materials on construction sites, vandalism of materials and construction equipment, waste of construction materials, and misuse of materials by labor on site. Thieves can directly impact on the success of a project and diminish the potential profitability of the project being constructed (McDowall, 2002).

Banks (1990) stated that many contractors feel that the best way to help control jobsite theft is to develop a thorough job site anti-theft plan before the start of construction work. The first step is to decide on a sensible, written security plan during the preconstruction period. Money should be set aside when preparing the estimate for proper lighting, alarm systems, fencing, watchdogs, and security guard services if applicable (Banks, 1990).Therefore, security responsibilities should be assigned to the project manager, project engineer, superintendent, or any other employee who is in a position of responsibility. One of these individuals should be made responsible for the accountability of materials and equipment on site. This will ensure that everything is properly recorded when it is stored on site. Police and fire departments should also be contacted and a good line of communication established.

There is a variety of ways through which construction contractors can reduce construction waste or demolition debris at the job site. The following general practices are common: Proper storage and control including proper handling; Avoiding unnecessary setting by looking for a suitable available length; Protection of installed items as necessary and avoiding working to inaccurate dimensions which, for example, can cause over excavation; Purchasing materials in bulk where possible and avoiding individual packing for volume purchases; Using returnable containers and packing materials; Reusing non-returnable containers on the site of the maximum extent possible; Collecting and storing scraps at cutting and fabricating locations, for materials that are heated, mixed, exposed to environmental conditions, or otherwise subject to spoilage, limiting preparation of these materials to quantities which can be installed within their expiration times. Working in smaller batches will

reduce the necessity to throw out expired or spoiled or surplus materials; and salvaging and/or recycling damaged components, products, and materials (Banks, 1900).

2.3 Previous Research Works on Construction Companies' Closure

Delay in construction is a global phenomenon affecting not only the construction industry but the overall economy of countries as well (Sambasvian and Soon, 2007; Parchamijalal and Shahsavand, 2016). Delays in construction are caused by several factors. Ahmed et al. (2003) grouped delays into two categories – internal causes and external causes. Internal causes arise from the parties to the contract (e.g. contractor, client, and consultant). External causes, on the other hand, arise from events beyond the control of the parties. These include the act of God, government action, and material suppliers

Construction delay is generally acknowledged as the most common, costly, complex and risky problem encountered in construction projects. Because of the overriding importance of time for both the owner and the contractor, it is the source of frequent disputes and claims leading to lawsuits (Ahmad et al (2003). Delays do not always result from a single catastrophic event. They frequently develop slowly during the course of work. To determine the critical delay, we have to compare as-planned and as-built schedules (Last, 1997)). Delays can cause substantial damages to an owner. This has motivated the owners to devise contract provisions and project processes to anticipate, manage and compensate for such delays, so that they could be in safe position than the contractor (Brennan, 2002). The successful execution of construction projects and keeping them within estimated cost and prescribed schedules depend on a methodology that requires sound engineering judgment.

Many studies have been carried out to assess the causes of delays in construction projects. A report published by the World Bank in 1984 has supported the fact, which I have raised in above paragraph too. It stated that most of the projects executed in many developing countries have faced difficulties due to three reasons, namely: (1) unclear policy of the government; (2) lack of appropriate project design, and (3) lack of institutional capabilities. The delay in public construction works has

immensely affected the cost of the project. Sjoberg (2000) estimated that, a 14-18-month delay would generate an additional cost of $261 million to $344 million to the state and local governments in USA. Ogunlana *et al.,* (1996) studied the delays in building projects in Thailand, as an example of developing countries' economy. In this case they found three types of prevailing problems; (i) problems of shortages, mainly supply of resource (ii) problems caused by clients and consultants, and (iii) problems caused by the incompetence of contractors.

Mansfield et al (1994) studied the causes of delay and cost overrun in construction projects in Nigeria. The findings of the study were financing and payment for completed works, poor contract management, changes in site conditions, shortage of material and improper construction planning. In 2002, Thomas and Ellis studied problem of delays in highway construction in Florida, USA. Out of many factors, most important causes found in research are: (i) construction work taking as business as usual;(ii) lacking team accountability for timely project completion; (iii) utilities are unidentified or incorrectly located; (iv) delays in relocation of utilities; (v) differing or unseen site; (vi) inadequate planning by contractor; (vii) design errors and omissions.

Most of the research has indicated that the smaller the firms in size has great chance of failure due to poor financial capacity, less support from creditors as a buffer for the market contractions and fails to attract competent personnel as they cannot offer career development equal to the Large organization. It was also evident that older company which are well established would as well fail because of mismatch between resources, capacities and the demand of competitive Environment.

The reasons for company failure (Strischek, 1998) by Surety Information office (SIO) indicated five major factors include poor estimating and job cost reporting, project mismanagement, poor business plan, poor communication, and poor financial management. The red flagships were identified for each cause as early indicator tendency to the failure of the company. He emphasized the importance of early intervention and little plain talk with borrower and lenders in avoidance of total failure.

The company closure in Saudi Arabia was as results of lack of the contractor's experience in construction industry which is more competitive, War was ranked as second which bring destruction and lower the trend of sector development, Thirds was Poor Project Management which includes management of the project scope, time, cost, quality, risks, procurement, communication and human Resources, Fourth was costing practice without proper system of computing reasonable marginal profit leads the company losing contracts, the Fifth availability of Project team leader at the site who is technically knowledgeable with strong communication skills, the Sixth neglect of instruction from owners which results to reworks created less confidence of company to the client, Seventh is type of the contract entered, the clients more prefers lump sum contract to avoid much risk on his side and in turns contractor takes all risks, reimbursable contract both shares the risk, the last is the Poor cash management and lack of capital in terms of money received from lending institutions and sequence of pay back may results to failure (Assaf *et al.,* 2015)

On another scholar failure is mainly caused by political influences in the funded projects, Poor financial management system for which may accumulate high interest rate and poor accounting system, lack of managerial experience of the company and poor decisions due to inexperienced nature, Business Environment for which the lowest gets offer, and lack of business growth due to underestimation of the bids (Enshassi, *et al.,* 2006).

The company fails due to excessive acquiring works which are non-manageable without properly streamline them against the associated risks (Holgeid & Thompson, 2013).The clear view is needed for each project before embarking into another and should be well structured. Failure to have well organized projects with proper project risks profile may lead to the failure of the company. Excellent company Governance and risks assessment resulted from internal Risk control mechanism helps the company to predict and adjust its business to avoid any failure (Barnes, 2005). The failure is always unpredictable regardless of well drafted policy and management of its implementation. The Business need constant monitoring of its risks and adaptation is very important for the company survival. Learning how the business develops and maintains consistence learning is very critical in minimizing the future

failure, but this is not common as a results failure has become common (Al-Emad & Rahman, 2017).

Construction companies are always at high risks due to unpredictable business environment related to internal and external factors during operation of the company (Megha & Rajiv, 2013). The factors include fragmented nature of the industry, high competition, high uncertainty and associated risks, and considerable fluctuation in construction volume (Faridi & El-Sayegh, 2006). This affects a range of important factors in running business including interest rate, inflations rate, Company marginal profits, and reduction in new works (Arslan, 2008). The research conducted in 40 construction companies through interviewing top manager Levels and companies Owners concluded ranking Business Management, financial conditions, and owner's managers Characters as most important parameters to the success of the company.

The research indicates that budgetary and macroeconomic issues represent 83% of the reasons for construction company closure. The company which act vigorous to administrative measures at the time of budgetary crisis and implement new strategies policies to maintain its budgetary conditions for its sustainability in the market can stay in the market (Gebrehiwet & Luo, 2017). The maintaining overall GDP growth of Underdeveloped has been a big challenge since our economic stability is unpredicted and depends on external markets and low productivity due to shortage of raw material and rainfall. Therefore, the whole functionality of the sector is hampered with this economic uncertainty which are beyond Government control.

According to Abduljawwad and Almaktoom (2021) business closure is the inability of the firm to pay its obligations on time. These includes its day to day operations cost which are important for the company to run its business without any difficulties. Closure appears in a critical situation a consequence of a sharp decline in sales which may either be a result of recession, Loss of major customer, Low supply of raw materials, inefficiency in resources of management etc. The company is considered failed if it realized rate of return on invested capital, with allowances for risks is significantly and in a series of lower than prevailing rate on similar Investments. The

failure is the outcomes of a complex process and does not depend on single factor alone (Arditi *et al.,* 2000).

As per study of turnaround strategies for small firms conducted by Boyle & Desai (1991) the causes were expressed in form of an Environment Response Matrix distribution. The Environment represented in Vertical axis and divided as Internal Environment and external Environment; whereas Internal Environment are those events under management control and External Environment being those beyond the control of management (Yu & Kwon, 2011). In the article the author presented budgetary issues as one major determinants to the closure of the company. Among this component is insufficient profits 'heavy operating expenses', insufficient capital which mainly are burdensome institutional debt and receivable difficulties which constitute the budgetary issues (Arditi *et al.,* 2000).

The insufficient profit and high operation cost all are related to the nature of the tender and traditional nature of low profit margin. Low profit Margin is a result of harsh competitive environments in the bidding process of an opportunity (Odeh & Battaineh, 2002). This is a common practice in many unstructured companies for which small companies competes with larger companies. The results to this, small companies' bids for lower cost of the implementation due to less experiences in the market and as the projects failed to complete due to shortage of funds. The companies end in bankruptcy and being liquated. This create poor working environment and company operation became fragile (Boustani, 2021).

The insufficient capital and burdensome institutional debt depend on the firm's age and size in the business. The Large companies with long established stands a better change to be supported by financial institutions in running their business. The good historical financial background with good Cash flow, Capital etc. supports the companies in borrowing money from financial institutions and is contrary to small companies which just started the market (Pekuri *et al.,* 2015). Human Resource with lack of business knowledge or managerial experiences hampers the growth of the firms and leads to closure of the company (Arditi, et al., 2000).Lack of managerial

experience includes poor decision of manager, lack of commitment, poor working habits.

According to the research conducted in Ghana Construction industry on the same theme of company closure, it was found that most severe determinants of business failure identified were suspension of projects of previous government, delay in collecting debts from new political heads, financial demands from political heads, non-payment of interest on delayed payments, assigning incompetent project leader at the site, lack of access to capital, undervaluing of work done, change in government policies, low profit margin due to competition, delay in collecting payments, frauds/pilfering, lack of material control systems, poor monitoring and control, poor estimation practices, awarding contracts to incompetent political party members, poor tendering/selection procedure, high and unstable inflation and national slump in the economy (Donkor, 2011). The country being undeveloped likewise Rwanda, they both share more less the same determinant to the firm failure and only different surfaces on political willingness of the leaders in developing the sector, Economy, political stability and zero Torrance character of the state.

2.3.1 Contractor Failures and Collapses in Rwanda

To minimize the damages, the contractors acquires surety and good performance bond from commercial banks and ensure the site safety of laborer's, materials and equipment. In case the company fails to implement the contracts, the bonding companies suffers damages caused by the contractor (Hamzah, 2012). The financial loss by the bank or insurance is incurred once contractor violate contractual obligations as stipulated in the contract which is worrisome to these financial institutions. The insurance can be in terms of bank guarantee or sureties which is liable to the damage caused by the contractor. The recovery of insurance is unpredictable until the late stage of commission of the project. Any deviations from contractual obligations by the contract may results into attempt to freeze the Guarantees and always is to the benefited by the client (Gaba, 2013)

The current situation is that the managing directors of most of the companies lack engineering or managerial skills, and many companies are having limited financial

capacity that does not allow them to recruit qualified professionals. As a result, the company lacks potential credit line from the bank and well paid permanent professional staffs. This makes its operations difficult and not well sustained in the market. The government has improved several policies and now private sector capacity is growing steadily (Ramanathan *et.,al* 2012).

Today the Rwanda construction sector is unpredictable but vibrant, and it's mainly affected by the economic system and political environment, which fluctuate overtime. And of history, the Rwanda construction sector before genocide of the of 1994 was very weak and award of contracts was based on ethnicity but not based on any form of procurement process. There was total lack of transparency in awarding the tender, and government used Royal Decree of 1959 and the order of the king of Belgium governing procurements of goods, works and transport which was regulated in 1971. Also, before genocide, private sector was almost nonexistent, and projects were implemented by government and few political affiliated companies. Therefore, the construction industry is recently resurrected sector and new in Rwanda, and its sustainability remains unpredictable. This requires high attention from all stakeholders to ensure its growth to the acceptable standards.

Rwanda Public Procurement Law and guidelines established in 2007, explain that contractor assumes all responsibilities of the works after signing of the contract and takes over contractual obligations of his sub-contractors. The contract is mutually agreed by both parties in business and becomes effective once signed. To this stance, the contract is mainly tailored to protect the client interest whereas contractual obligations and responsibilities are owned by the contractor including all types of risks during implementations. It should be noted that the extent of risks depends mainly on the model of procurement used by the client in ensuring risks are minimized and any unknowns does not adversely affect time of completion of the project, project contract value and technical specifications to the satisfaction to the client. In minimizing the damages, it's a pre- condition for contractor to acquire different types of insurances from insurance companies prior to the signing of the contract. This gives assurance to the client while awarding the tender to the

company. As of the consequences to fail to execute the contract as per the terms set in the contract, the insurance company suffers the losses.

Rwanda Government vision to become a middle-income country by 2030, it has opened its boarders into a free market for all nationals or companies with minimum conditions to enter the market. This is in line on easy in doing business and has attracted many international companies and investors into the market. However, it has internally created imbalances in the local companies with limited experiences and limited financial capacity; their survival in competitive environment has not been easy. Their having to compete with international company as has hampered the local companies' growth and they have failed in its steady pace.

The country's vision and economic development needs experienced companies in many engineering fields and this does not allow a local company to grow at a normal pace. Those smart local companies have survived due to merging their little or non-existence experiences with international companies for their survival in the market or through competing in local tenders. The overall benefits do not bring much profit to the local companies, since they lack experience and financial capacity.

Rwanda Engineering Council has created a new initiative to protect local firm interests by introducing some directives into the tenders. The international companies have to make Joint venture or associate to impact their experiences to the local firms. This action protects local companies and lead them in acquiring experiences from international companies. The second main issue is lack of skilled and well-trained Engineers in many Engineering sectors and their involvement becomes insignificancy in international tenders. In support of government, the Ministry of Educations (MINEDUC) and Rwanda Engineering Council (REC) are steadily upbringing engineers and managers who are competent to deliver the projects.

It has been noted that contractual agreements between the Joint Ventures for international firms and local, give local companies small contractual roles which do not allow them to grow at a fast pace. These has been mostly marked in Engineering, Procurement and Construction (EPC) contracts for which design the parts are executed remotely by the International company in their home offices and as a result

local engineers gains no experiences. The country's optimism of achieving most of its main objectives in alignment to the vision 2020 within shortest period results in local construction companies failing to make tangible progress.

It was noted during world economic recession of 2008 to 2012, the Rwandan companies rippled effected of collapse of mortgage industry in USA resulting to closure of some financial institutions, construction companies including low turn up in construction registration permits within Rwanda Development Board. This period of world economic shock affected the already good trend made in construction industry in Rwanda and person Incomes. Rwandan GDP also dropped from 11.2% to 5.6% in the year 2008 to 2009 as per IMF World Economic Outlook, March 2009; Rwanda – MINECOFIN. It is therefore imperative to closely monitor the sector to ensure the incomes of individuals are maintained.

2.3.2 Distribution of Construction Works in Rwanda

The classifications of construction companies in Rwanda is based on the value of contracts of completed projects in the different sectors of construction. The Construction sectors are divided into groups which includes Buildings, Roads and Bridges, Dams, Marshland Development and Hillside irrigation and Drinking water supply. The below tables identified the companies in different sectors which was part of sample size for the research and grouped in different categories from A to F as per the research from Rwanda Public Procurement Authority (RPPA) (Augustus, 2014; RPPA, 18/01/2019).

Table 2.1: Distribution of construction works in Rwanda

S.No	Sectors	Bid Value for tender (X)	Category	Number of companies	%
1	Buildings	X>2billion	A	28	1.539307
		1.5<X>2Billion	B	6	1.539307
		0.8<X>1.5Billion	C	31	**1.539307**
		0.3<X>0.8Billion	D	130	1.539307
		0.1<X>0.3Billion	E	1624	1.539307
2	Roads and Bridges	X>2Billion	A1&A2	18	**1.1501**
			B1	0	**0**
		1.5<X>2Billion	B2	8	**0.5112**

		0.8<X>1.5Billion	C	23	**1.4696**
		0.3<X>0.8Billion	D	44	**2.8115**
		0.1<X>0.3Billion	E	1472	**94.0575**
3	Marshland Development and Hillside Irrigation	X>2Billion	A	4	**0.2699**
			B	0	**0**
		0.8<X>1.5 Billion	C	9	**0.6073**
		0.3<X>0.8 Billion	D	16	**1.0796**
		0.1<X>0.3Billion	E	8	**0.5398**
		X<0.1Billion	F	1445	**97.5034**
4	Drinking Water Supply	X>2Billion	A	11	**0.6757**
		1.2<X>2Billion	B	1	**0.0614**
		0.8<X>1.2Billion	C	14	**0.8599**
		0.3<X>0.8Billion	D	36	**2.2113**
		0.1<X>0.3Billion	E	1566	**96.1916**
5	DAMS	X>1.5Billion	A	5	**0.3369**
		1<X>1.5Billion	B	2	**0.1348**
		0.5<X>1.0Billion	C	1	**0.0674**
		0.2<X>0.5Billion	D	4	**0.2695**
		X <0.2Billion	E	1472	**99.1914**

Looking on the data base from RPPA, category A and B are those fewest company with large financial capacities and are mostly Chinese, European companies and few local companies which are registered with Rwanda Public Procurement Authority. There are a number of international companies especially private companies which are not registered in RPPA and having permanent office in Rwanda like Symbion Power dealing with Gas exploration and exploitations in Kivu Lake, Metito dealing with water supply project for Kigali bulk water supply project, Montil Engil for Bugesera International Airport Construction,and SMEC International Pty Ltd to mention few. This is due to the fact that it is not mandatory or by Law to register with RPPA.By Law all companies are registered by Rwanda Development Board (RDB) in order to operate in Rwanda market.

Based on this uneven distribution of the companies in each category, it shows a big discrepancy on equilibrium of opportunities within the company and also the percentage indicates the tendency of monopoly of the market as well as where large investment cost is channeled by Government.

As Rwandan economy and the rest of the African countries are fast growing and Governments have high ambition to achieve millennium goals and vision 2050 as fast as possible, the tendency of non-equilibrium of the number of the companies in each category leaves local companies with no wealth if awarding and policy are not changed properly against the vision and targets set by the Government.

From the table 2.1 above at an average of 95.24 percentage of all five sectors are category E which are mostly Local companies. The gap in categories are big and can only be narrowed with well-structured policy on tender awarding process. This causes high competitions on small amount of tender with less contract value. The existing big gap gives loophole for corruptions within procuring entity if control is not in place. Those companies from abroad and very few local with enough financial and big experiences monopolizing the market.

There are two concepts of monopoly that exist, which are economic and political monopoly of the market. The monopoly concept which is popular by most of economist is economic concept of monopoly which says a monopoly exists when there is only one supplier of a good, with no close substitutes, in a given geographic region (Shirivastas, 2008).

The concept that provides a sound understanding of monopoly is known as the political concept of monopoly. This concept says that monopolies arise from the government's initiation of physical force to reserve a market or a portion of a market to one or more sellers.

The economic concept of monopoly focuses on the number and size of firms in an industry. It says the smaller the number of firms in an industry, and the larger those firms are, the more monopoly power that exists in that industry. It says monopoly power can arise naturally out of the market simply by firms becoming the only firm in an industry. Based on this concept, the greater the market share a firm has the greater its monopoly power

The political concept focuses on the restriction of competition by the government and says monopoly power can be held by many small producers against just one or a

few large producers or can be held by one large producer against other, smaller producers. The political concept says as long as a firm is being protected from competition by the government—no matter what its size—then that firm has monopoly power. As examples, Microsoft, Wal-Mart, and the United States Postal Service (USPS) are considered monopolies based on the economic concept due to their large size and market share in their respective markets

As one can see, monopolies are not are created only by government interference into the free market; they are created when the government gives some firm(s) special privileges over others through the initiation of physical force. A free market economy is intensely competitive and is typically more so the larger the firms in an in

2.4 Theories Related to Company Failures and Collapses

The insight of the theories behind determinants of the closure of local construction companies are explored to get true perspective of the research in relation to local companies. The theoretical frame works consists of two terms 'Theory and Frameworks 'by defining each term we can build a very good understanding of the term theoretical frameworks.

2.5 Determinants of Success of a Construction Company

It is imperative to understand the other side of coin to have full understanding of the construction industry. Success is a critical issue for the companies' survival in a competitive business environment. Considering limited finance which is the attributes of a large number of construction companies, business competition is always high and risks against the survival of each company are also high. Different research has been implemented in analyzing the success of construction companies in various sectors around the world, some of which identified the factors for the success of construction companies. Qualified employees, quality workmanship and financial management were identified as the success factors of a construction company. It was also found that business management, financial conditions and owner/manager

characteristics were major factors contributing to the success of the company (Arslan & Kivrak, 2008).

According to Arslan and Kivrak, (2008) business success is the ultimate goal for each company, although it is associated with unpredictable challenges in everyday life of the company. This requires strong monitoring of many parameters and introducing new strategies which depend on business environment. Business environment is unpredictable despite all research conducted into the subject. In this paper business success is a degree to which goals and expectations are met while failure or business closure is inability of company to pay its obligations when they are due. Traditional approach focusses on ability to plan and execute projects and the success parameters are time, cost and quality.

Other researchers relate success to company's management systems and practices, implementation of accounting system and regular review of financial statements, control of job-site safety and ongoing training and education as major factors for company sustainability in the market (Arslan & Kivrak, 2008). These ideas point to the factors that should be considered alongside the other factors highlighted in the literature reviewed concerning Construction Company in the formulation of a framework to minimize closure of construction companies in Rwanda.

2.6 Research Gap

The literature review has revealed that the local content is scanty and weak especially with respect to the use of a well-defined framework in site management. For example, Kibe (2016) addressed the health and safety issue, Oloo (2015) discussed variation management, Mbugua (2014) gave insight on material management and Lamka (2015) looked into construction site labour productivity. None of this study synthesized a framework to the factors being investigated. This glaring gap created the need to look into determinants of closure of local construction companies in Rwanda.

The Project Management Institute (2016) has developed the PMBOK Guide and a construction extension to the PMBOK Guide that provides construction-specific

guidance for the project management practitioner. However, the consequences of the current site management practices have proofed that, the laid down principles are not being followed. Evidence by Kimondo *et al.,* (2015) and Gwaya (2015) indicated that over 50% of construction projects in Rwanda were failing by not meeting their cost projections, time schedules, quality demands or safety targets.

2.7 Theoretical Framework

A number of researchers have studied the causes of financial failure of construction companies. It has been observed that lack of a strong financial director, inadequate cash flow plan, poor budgetary control system, defective bidding system, and lack of engineering skills led to company closure (Kam, 2012). Also, lack of capital, under costing, lack of control, lack of advice, government regulation, trade fluctuation and fraud were listed as main causes of business failure. In particular, closure of Construction Company is the outcome of a complex process and is rarely dependent on a single factor (Rahman, 2013).

Moreover, there are many definitions of financial failure that leads to contractor's failure. For instance, financial failure was defined from an economic perspective as follows: a company is said to have failed if the realized rate of return on invested capital, with allowances for risk considerations, is significantly and continually lower than prevailing rates on similar investments (Akogbe, Feng & Zhou, 2013). Another criterion from financial failure is insufficient revenues to cover costs and situations where the average return on an investment is below the firm's cost of capital (Ondari & Gekara, 2013).

According to Atibu (2015) failure of company is the incapacity of a company to pay its debt as effect of a quick decline in sales, as a result of recession, the loss of an important client, shortage of new materials and deficiencies of management. Simply, it is a situation in which a company stops operations for the reason that it is unable to generate sufficient revenue to pay its expenses.

Thus, there is no exact definition of a contractor's failure. However, it could be defined as when a business: ceases operation following assignments due to the

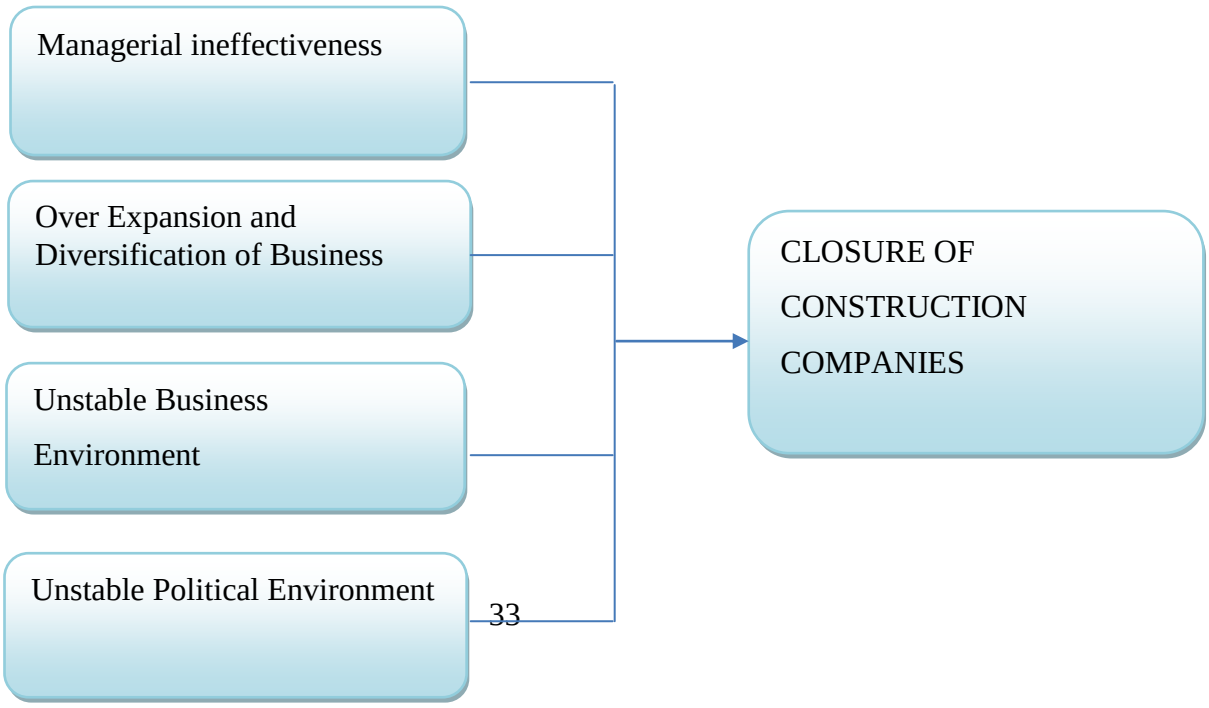
inability to continue construction, goes into bankruptcy due to failure of collecting money from customers, and voluntarily withdraws because of dissatisfaction with business or profit (Baloyi & Bekker, 2011). Therefore, to analyze the causes of contractors' failure in construction industry in Rwanda the above definitions proposed by Hasan *et al.*, (2014) were adopted.

From the previous researches on company closures and the theories related to the phenomenon, which have been presented in the foregoing sections, it can be deduced that closure of a construction company may be caused by managerial ineffectiveness, over-expansion of the business, over-diversification of the business, un-favorability of the business environment and un-favorability of the political environment. The higher the level of each of those factors in a market, the greater the probability for a company operating in the market to collapse. Those variables were considered in the formulation of the conceptual framework for this study.

2.8 Conceptual Framework

From the theoretical framework the conceptual framework for this study can be devised as shown in Figure 2.1 overleaf.

Independent variables **Dependent variable**



In reviewing the critical determinants, we need to classify the factors into five major thematic areas of similar traits such that each determinant is easily identified and analyzed. These thematic areas include managerial determinants, financial determinants, business environment factors, growth/expansion determinants and political determinants. These were arranged and identified as the broad areas that can cause a contractor's business to fail in the Rwanda local context and would form the basis of the questionnaire formulation (Assaf, et al., 2015). In that study, the authors classified companies into three groups: Owners, EPC Contractors and Subcontractors.

(a) Assessment of closure of construction company by owners, EPC Contractor and Sub consultancy

The results found in their findings were that failure perceived by owners are lack of contractor's experiences in Business, War, Poor project management, Poor cost estimations and neglect. This is in line to the case I met during project supervision of owner's company for which decision were takes by single person. The experiences matter in construction projects since any single decision affects the overall implementation plan and budget of the project. One-man decision in Construction Company misleads company vision and objectives and as a result leads to closure of the company. Based on the analytical results of the author, it was found that failures or closure were of the same nature in both group of the company (Assaf, *et al.*, 2015).

(b) Case Study on Insolvency of Exert Engineering Construction Company in Rwanda

Exert Engineering construction company has been an influential company which won several large contracts above 1billion to 5billion Rwanda francs among the project includes construction of Rwamagana aam with pressurized irrigation system of the Ministry of Agriculture which was worth 3.4 billion Rwanda Francs, Construction of Huye National Stadium which was worth 4 billion Rwanda Francs and Construction of Nyagatare University which worth 5 billion Rwanda francs.

Under the researcher's supervision as Head of Irrigation Engineering Department with Ministry of Agriculture and Animal Husbandry, my biggest role was contract management of more than15 large contracts funded by World Bank and among includes that which was executed by Exert Engineering Group which is a local Rwanda Construction Company (RCC). In the process of procurement, the company made a Joint venture with a South Korean Company Chong Kwang in order strengthen their technical and financial capacities as required in request for proposal. . Due diligence was not taken care of to identify properly the JV's financial capacity and their organization structure in additional to their physical addresses. Finally JV was awarded the contract which ultimately works completion were delayed and uncompleted and ended up in litigations. And in the final verdict, the company was declared insolvent by the court, since it was unable to pay its staff, labor on the site and was not able to inject their own money to cover for the delays. Apparently, the main cause of the closure of this were: changing of the project manager/site engineers, lack of owners' experience, fraudulent acts such as forging invoices with signature and stamp of the consultant, theft on banks money by presenting forged invoices as an advance to payments, single man decision-making, poor contract management knowledge, lack of cash flow and credit line, lack of enough owned equipment, weak technical team, over-expansion of company business with low financial capital, and diverting dedicated projects funds into another project or person interests. These are among few factors which led to the closure of this construction company and likewise freezing of all its assets in recovering several incurring debts. The company went into bankruptcy and was liquidated by the commercial court with the assistance of the Rwanda Development Board registrar.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter the methodology and general procedures used in this study are explained. This includes research design, and which basically covers schemes, outlines or plans that are used to generate answers to research problems. It includes a description of the research methodology adopted, description of survey area, population, sample and sampling procedures, questionnaire design and pre-testing of research instruments, and data collection and analysis techniques.

3.2 Research Design

According to Bryman (2012), a research design is a plan that provides a framework for the collection and analysis of data. The research adopted a survey research design approach, applying mixed methods in the data collection and analysis. Mixed methods incorporate both qualitative and quantitative elements in data collection, in such a way that the qualitative and quantitative information complements each other (Creswell, 2013). Using the quantitative approach, the researcher was able to ask questions whose responses were given using the Likert scale of “Strongly Agree”, “Agree”, “Undecided”, “Disagree”, and “Strongly Disagree”. The advantage of a mixed methods approach is that it balances efficient data collection and analysis with data that provides context (Maxwell, 2012).

Considering the objectives in the current study, a survey design was deemed suitable to answer the research questions and it consisted of eight phases; the first one is the proposal for identifying and defining the problems and establishment of the objectives of the study and development of research plan. The second phase of the research includes literature review. Literatures on determinants of closure of construction companies in Rwanda have been reviewed. Phase Three consisted of a questionnaire design, through distributing the questionnaire to a sample of respondents from construction companies in Rwanda.

A pilot study was conducted at this stage, the pilot study was to test and prove that the questionnaire questions are clear to be answered in a way that help to achieve the target of the study. The fourth phase of the research involved questionnaire distribution. The fifty phase of the research focused on data analysis and discussion. Statistical Package for the Social Sciences, (SPSS) was used to perform the required analysis. The sixty phase of the research included Analyzing documents from construction companies. The seventy phase involved interviews with selected managers from construction companies in Rwanda. The aim of the interviews was to have an in-depth discussion and capture the expert's views on the proposed model. The last phase of the research involved the conclusions and recommendations. The specific information relevant to the study collected in order to have proper recommendations and conclusions which address the problem on factors lead to company failures or collapse after its existence in the construction market.

3.3 Research Strategy

This research adopted both the qualitative and quantitative research strategies. Bryman (2012) advises that the two research strategies can be combined to complement each other in covering aspects of the investigation which would not be adequately covered by either of the strategies when used in isolation. Similar sentiments have been echoed by (Steup, 2014). In this study, one of the issues that has been brought out is the description of the factors that influence the choice of house financing option as described by the respondents in financial lending institutions. On the other hand, Relative Importance Index (RII) which is statistical in nature has been used to establish the magnitude of the mentioned factors. Therefore, this study utilizes both word and quantification hence reason for combined qualitative and quantitative strategies.

Further, this research study uses content analysis which is qualitative in nature to analyze various documents from financial lending institutions. This strategy relies on qualitatively examining the content of some qualitative material in order to build or support an argument as observed by Bryman (2008) who further explained that qualitative content analysis involves identifying important aspects of the content and

presenting them clearly and effectively in support of some argument that will contribute to the field of study. This enables this study to use literature in justifying the existence of a problem, worthy to be studied within the context of the experiences in the construction industry in Rwanda.

3.4 Area of the Study

The study was done in Kigali city located in latitude 1.9706 Degree South of Equator and at longitude 30.1044 Degrees Eastern of Greenwich line. The Capital city of Rwanda is where most of Construction and consultant company's offices are well established compared to the rest 4 other Provinces. Kigali city consists of three Districts namely Gasabo, Kicukiro and Nyarugenge with the surface area of 730square Kilometers. Rwanda has a surface area of 24,670Km2 with total population of 10,515,973. Kigali as Capital city of Rwanda with 730Km2has a population of 1,132,686 resulted from people migrating into the city where all main services infrastructure and jobs can be found. The percentage of existence of construction companies in Kigali stands at 60% Percentage compared to remaining 40% percent in other parts of Rwanda.

The Rwanda Public Procurement Authority through a study has set criteria for the categorization of the companies of building and civil engineering works, the categorization is based on the technical capacity of the Firm, financial capacity with good history of cash flow, and management capacities related to human resources. The Key personnel of the company, the number of owned equipment, the technical references on sector, the turnover and available credit line are main criteria that are used for categorization (Augustus, 2014).

The minimum requirements for the proposed criteria are detailed for different categories as

1. Category "A" should have executed a project above 2 billion, (Contract Value>2billion)
2. Category "B" should have executed a Project between 1.5-2 Billion (1.5<Contract Value>2 Billion.

3. Category “C” should have executed a project between .8-1.5 Billion (0.8<Contract Value>1.5Billion.
4. Category “D” should have executed a project in range of 300 -800million (300<Contract Value>800 million.
5. Category “E” should have executed a project in range of 100-300 million, (100<Contract Value>300 Million.
6. Category “F” should have executed projects value below 100million, (all contract Value<100million)

Limitation based on categorization

According to their categories, the companies are limited as follows:

- Companies qualified for the category A, are authorized to bid for the tenders of the categories A, B and C;
- Companies qualified for the category B are authorized to bid for the tenders of the categories B, C and D;
- Companies qualified for the category C are authorized to bid for the tenders of the categories C, D and E;
- Companies qualified for the category D are authorized to bid for the tenders of the categories D, E and F;
- Companies qualified for the category E are authorized to bid for the tenders of the categories E and F;
- Companies qualified for the category F are authorized to bid for the tenders of the category F;

3.5 Target Population

A population is the total of all the individuals who have certain characteristics and are of interest to a researcher (Mugenda & Mugenda, 2013). A target population includes all cases about which the researcher would like to make generalizations while the accessible population comprises all the cases that conform to the designated criteria and are accessible to the researcher as a pool of subjects for a study

The study population was all construction companies and consultant's firms having similar grades as per Rwanda Public Procurement Authority (RPPA) categories. Construction companies are currently divided into three categories Large, Medium and small depending on financial capacity which are mainly depends on the size of projects executed, acquired assets and size of credit line with the bank etc. These companies are all registered in Rwanda Development Board. Their construction performances can be found in either at the company Managing Directors or Clients they engage in contract executions. The researcher also dealt with well-known consultant's firms involve in supervisions of the construction companies. The main target in survey was involving Engineers, Managing Directors for the construction companies, Client Project Managers, consultants and Project Coordinators for single implementation units in different ministries. The above arrangement generated many companies randomly sampled during establishment of sample size which eventually represented the population. The target population of 200.

3.5.1 Sample Size Determination

The study then uses the formula for determining the sample size of unlimited population by Saunders *et al.*, (2009) Cited in Enshassi, *et al.*, 2006) in order to ensure that the chosen sample fully represents the target population.

$$SS = \frac{Z^2 \times P(1-P)}{C^2}$$

Where;

SS = Sample Size

Z = Z value (e.g. 1.96 for 95% confidence level)

P = Percentage picking a choice, expressed as decimal (0.5 used for sample size needed)

C = Confidence interval (0.5)

$$SS = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2} = 384$$

Therefore, going by Saunders *et al.*, (2009) formula cited in Enshassi, *et al.* (2006), correction for finite population was:

$$New\ SS = \frac{SS}{1+\frac{SS-1}{Pop}}$$

New SS=384/ (1+ (384-1)/200) =131.7≈ 132

Where;

New SS= New sample size

SS= sample size= 132

Pop = population size = 200

3.5.2 Sampling Technique

Stratified sampling technique was utilized due to the nature of the arrangements of the companies by Rwanda Public Procurement Authority (RPPA). Among those companies classified in same category, their selections were chosen randomly giving equal chance to all.

3.6 Data Gathering and Processing

According to Ngechu (2014), data collection refers to gathering specific information aimed at proving specific issues described in the statement of the problem. The researcher used both primary data (questionnaire and interviews) and secondary data comprising published documents, books, dissertation and government policy publication.

The questionnaires included structured (close ended) and unstructured (open ended) questions. The structured questionnaires were used to facilitate easier analysis as

they are in immediate usage form, while the unstructured questions were used so as to encourage the respondents to give an in-depth response without feeling held back in revealing of any information. With unstructured questions, a respondent's response may give an insight to his feelings, background, hidden motivation, interests and decisions and give as much information as possible without holding back.

The data was collected from Managing Directors for construction companies and consultancy firms dealing with supervisions, Experienced Project Managers for ongoing constructions projects, and Project Engineers, Potential clients executing large and small projects.

After collecting data, the researcher coded and defined each variable, entering data to a work sheet, and checking for accuracy and relevancy of the data, summarizing, analyzing and tabulating the collected data using SPSS Version 21. Furthermore, the descriptive statistics and interpretation have been made.

3.7 Pre-Testing

Once a questionnaire is finalized, it should be tried out in the field for pre-testing (Buys, 2004; Mugenda & Mugenda, 2008). Pre-testing is the surest means for a questionnaire to be comprehensible and error free (Buys, 2004). The questionnaire was physically distributed to those respondents and requesting their response in 2days.The response to the questionnaire was sent back to me either through email address or hand submission. The Questionnaire was discussed with construction practitioners for more improvement and consistence to the study aim and objectives and Pretesting was done within 5 companies selected randomly from different categories before full circulations of the questionnaire. The expert's comments and five Companies inputs increase accuracy on data collected and eventually enhance reliability and validity of the study.

3.7.1 Reliability and Validity of Data

This study conducted validity and reliability test on the data obtained in the questionnaire and on the questionnaire construct respectively.

a) Validity Test

This research satisfies both the content and construct validity test. The content validity test refers to the adequacy with which a measure or scale has sampled from the intended universe or domain of content. This research used purposive sampling technique to sample from the intended universe. The adequacy of the sampling emanates from the facts that the research is directed towards a defined group of respondents who are best able to respond to the research issues (Mugenda & Mugenda, 2013). The construct validity test is concerned with a variable measurement instrument measuring particularly that which it is intended to measure. This condition was also attained by this study questionnaire; the questionnaires was able to measure all it intended to measure.

b) Reliability test

This study used the internal consistency test to test its questionnaire reliability. According to Field (2006) Cronbach's alpha (α) is used to measure questionnaire reliability index. Technically, Cronbach's α is not a statistical test (Ibrahim, 2011); it is a coefficient of reliability (or consistency). It measures the consistency of a questionnaire's construct (items) and indicates how a scale is free from random error (Ibrahim, 2011). This study therefore used Cronbach's alpha (α) to tests its questionnaire construct consistency and level of random error. The use of Cronbach's α, allows negative construct to be detected and positive to be accepted ranging from a scale of 0 to 1.0 (Ogwueleka, 2011). The minimum acceptable value for Cronbach's alpha is from 0.5 to 0.6 (Olatunji, 2010). The cut-off value for this study therefore is 0.70; in essence, for items to be used together as a scale in this study, the items must be above the cut-off value. Table 3.2 shows the Cronbach's α values interpretation within a scale of 0-1.

Table 3.2: Cronbach's α Values Interpretation

Reliability Values	Reliability Status
<0.5	Poor
0.5 – 0.7	Sufficient
>0.7	Good

3.8 Data Analysis and Presentation Methods

Purposeful and structured individual interview were conducted with respondents with the assistance of two engineers. Respondent's beliefs, values, understandings, feelings, experiences, and perspectives on reasons for failure of Construction Company were recorded into the questionnaire. This allowed the study to ask more relevant complex issues, learning more about the contextual factors that govern individual experiences.

Analysis on submitted data was assessed on the following main points to remove the errors to the acceptable standard;

- Check on questionnaires: Review resent questions and answers in the questionnaire corresponds to the original submitted questionnaire to the respondents
- Making editing and requesting respondent to re-correct and rejection of irrelevant poorly responded questionnaire.
- Codifications on each response factors to failure usually by number and its related weights.
- Record: the study transfers the coded data from the questionnaires directly into the computers.
- Data cleaning: consistency checks -data that are out of range have extreme values identified and treatment of missing responses.
- Statically adjust the data: each case or respondent in the data base on assigned a weight to reflect its importance relative to the respondents.
- Select data analysis strategy

Both quantitative and qualitative approaches was used for data analysis. Quantitative data from the questionnaire was coded and entered the computer for computation of descriptive statistics. The Statistical Package for Social Sciences (SPSS version 21.0) was used to run descriptive statistics such as frequency and percentages to present the quantitative data in form of tables and graphs based on the major research questions. The qualitative data generated from open ended questions were categorized in themes in accordance with research objectives and reported in narrative form along with quantitative presentation. The qualitative data was used to reinforce the quantitative data.

3.8.1 Study Variables

A variable is a characteristic, or a quantity of a phenomenon that can be measured or classified (SW/RMS/Paper 5/Module 9/Quadrant 1 Neeta Goel). The variables identified in this research from literature review are two types made up of four independent variables and one dependent variable. These variables explain the relationships of independent and dependent sides of theories. The variables are as follows;

a) independent variables:

1. Management Effectiveness
2. Expansion and Diversifications of Business
3. Business Environment
4. Political Environment

b) dependent variable

1. Closure of Construction Company

These variables were tested for their validity" and reliability to ensure it addresses the study objectives. Validity" refers to the extent to which a **measurement process truly measures the variable** that it claims to measure and Reliability" refers to the extent to which repeated measurements under the same conditions produce the **same** or **similar** results. Reliability" refers to the extent to which repeated measurements under the same conditions produce the same or similar results. Reliability" refers to

the extent to which repeated measurements under the same conditions produce the same or similar results. These tests showed consistence in the variables under study.

3.9 Ethical Considerations

Firstly, the research proposal approval and introductory letters were obtained from the JKUAT Board of Postgraduate Studies (BPS) and the Department of Construction Management respectively. Two supervisors were appointed by BPS to facilitate the study.

During starting and finalizations of the research including reporting research findings, the following ethical standards was respected

1. Any doubt was discussed with supervisor to ensure better quality of results and ethics

2. Protect and ensure the dignity and welfare of all participants, as well as those who may be affected by the results of the research project.

As this research does not necessary require formal consent due to fact that the data are not affecting any person involved in research. The questions were straight forwards to the respondents with high expectation on receiving positive results which are not biased. The study ensured other ethics related to quality of findings are corrected without any misleading information.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents the data collected from the field analyzed and interpreted in relation to the research objectives on the determinants of closure for local construction companies in Rwanda. In this chapter the findings of the study are presented. The response rate is evaluated, as well as reliability and validity of the study constructs. The general background information of respondents is presented. This is followed by descriptive analysis of the study variables, as well as results of statistical analysis to test the research hypotheses. Discussion of the results as well as the implications arising from the findings is presented.

4.2 Response Rate

The number of questionnaires that were administered was 132. A total of 94 questionnaires were properly filled and returned. This represented an overall successful response rate of 71.2% as shown on Table 4.1 This agrees with Babbie (2004) who asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good. Based on this assertion 71.2% response rate is adequate for the study.

Table 4.1: Response Rate

Response	Frequency	Percent
Returned	94	**71.2**
Unreturned	38	**28.8**
Total	132	**100.0**

Source: Primary data, 2019

4.3 Pilot Study Results

Key indicators of the quality of a measuring instrument are the reliability and validity of the measures. The process of developing and validating an instrument is in large part focused on reducing error in the measurement process. Reliability estimates evaluate the stability of measures, internal consistency of measurement instruments, and interrater reliability of instrument scores. Validity is the extent to which the interpretations of the results of a test are warranted, which depends on the particular use the test is intended to serve (Kimberlin & Winterstein, 2012).

4.3.1 Reliability Results

The study tested for the internal consistency of the questionnaire using a Cronbach Alpha. According to Sekaran and Bougie (2010) Cronbach Alpha coefficient indicates how well items in a questionnaire are positively correlated. Table 4.2 shows the range of Cronbach Alpha and their respective strength of association.

Table 4.2: Cronbach alpha decision matrix

Cronbach alpha coefficient	Strength of association
< 0.6	Poor
0.6>0.7	Moderate
0.7>0.8	Good
0.8>0.9	Very Good
0.9>	Excellent

Source: Zikmund, Babin, Carr, & Griffin (2010)

Internal consistency is the most commonly used psychometric measure in assessing survey instruments and scales (Zhang, Waszink & Wijngaard, 2002). Cronbach alpha formula was applied to determine reliability based on internal consistency since this measure is viewed as an extension of the Kuder–Richardson Formula 20 (KR-20) used to measure dichotomous items (Kim & Cha, 2002). Cronbach Alpha values range between 0 and 1.0. A Cronbach Alpha value of 0.7 is most set as the threshold value for reliability. However, according to Hair, Anderson, Tatham and Black, (1998) a Cronbach Alpha of 0.6 is acceptable when the number of items is less.

Constructs used in this study were tested for internal consistency using Cronbach alpha test and the results are depicted in Table 4.3

Table 4.3: Reliability Statistics

Variable	Alpha (α)	No of items	Comments
Managerial effectiveness	0.752	15	Reliable
Overexpansion and diversification of business	0.898	12	Reliable
Unstable business environment	0.890	12	Reliable
Unstable political environment	0.860	7	Reliable

All variables depicted that the value of Cronbach's Alpha is above value of 0.7 thus the study was reliable (Castillio, 2009). This represented high level of reliability and on this basis, it was supposed that scales used in this study is reliable to capture the variables. Thus, values of 0.752, 0.898, 0.890 and 0.860 are sufficient confirmation that the data for the four independent variables are a homogeneous test.

4.3.2 Validity of Research Instruments

The study used Principal Component Analysis (PCA) and Factor Analysis to validate data collected. According to Mugenda and Mugenda (2012), PCA is a variable reduction procedure that aims at decomposing many correlated measurements into a small set of uncorrelated (orthogonal) artificial variables called Principal Components. Factor analysis, on the other hand, is a statistical data exploration technique which is used in reducing a set of correlated variables to a smaller number of unobserved, uncorrelated factors (Cooper and Schindler, 2011; Mugenda and Mugenda, 2012; White, 2010). Before proceeding for the field, the data collected from the pilot study was subjected to factor analysis; appropriateness of factor analysis needed to be assessed.

While it is generally agreed that loadings from factor analysis of 0.7 and above are preferable for analysis, Leech *et al.*, (2011) explained that studies use 0.4 as a realistic measure if they are consistent with the theoretical labels given that 0.7 can be high for real life data to meet this threshold. However, as indicated in the Principle Component matrices, all the components show a value of above 0.7 and

therefore none was dropped. The two tests were performed to ensure that the data is suitable for analyses.

KMO and Bartlett's Test were conducted to test sample adequacy for closure of construction companies before factor analysis was carried out. Hair *et al.,* (2010) highlighted that Factor Analysis was necessary in research to test for construct validity and highlight variability among observed variables and to also check for any correlated variables in order to reduce redundancy in data. The findings in Table 4.4 showed that the KMO statistic for closure of construction companies measures was 0.785 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 236.513 with 45 degrees of freedom, at $p < 0.05$). The results of the KMO and Bartlett's Test provided an excellent justification for factor analysis to be conducted.

Table 4.4: Factor analysis - KMO and Bart

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.785
Bartlett's Test of Sphericity	Approx. Chi-Square	236.513
	Df	45
	Sig.	.000

4.4 Demographic Characteristics

This section analyzes the demographic characteristics of the respondents. This section presents the descriptions of the respondents in terms of their Position in the Company, Type of Professional and Years of Professional Experience

4.4.1 Position in the Company

The researcher sought to find out the position of the respondents to determine if it had the influence of closure for local construction companies in Rwanda. It was important for the study to establish the position of the respondents. The responses were tabulated and presented on Table 4.5.

Table 4.5: Distribution of the respondents by position.

Position of the respondents	Frequency	Percent
Consultant/ Private	14	14.8
Country Manager	5	5.3
Technical Director	9	9.6
Managing director	12	12.8
ETI Contract Manager	6	6.3
Project manager	15	16.0
CEO	17	18.1
Procurement Coordinator	6	6.3
Civil Engineer	10	10.6
Total	94	100.0

Source: Primary data, 2019

Majority of respondents (17, 18.1%) were CEO as most activities on construction sites are dictated by CEOs in Rwanda. Respondents' positions in the companies ranged from consultants (14, 14.8%), country manager (5, 5.3%), technical director (9, 9.6%), managing director (12, 12.8%), ETI contract manager (6, 6.3%), project manager (15, 16.0%), procurement coordinator (6, 6.3%) and civil engineer (10, 10.6%).

4.4.2 Type of Professional

The researcher sought to find out the type of professional of the respondents to determine if it had the influence of closure for local construction companies in Rwanda. It was important for the study to establish the type of professional of the respondents. The responses were tabulated and presented on Table 4.7.

Table 4.7: Distribution of the respondents by profession.

Profession of the respondents	Frequency	Percent
Management	15	16.0
Engineer	44	46.8
Finance	9	9.6
Architecture	5	5.3
Contractor	6	6.3
Consultant	15	16.0
Total	94	100.0

Source: Primary data, 2019.

Majority of respondents (44, 46.8%) were engineers by profession as most activities on construction sites are dictated by different engineers in Rwanda. Respondents' professional experience in the companies ranged from consultants (15, 16.0%), management (15, 16.0%), Architecture (5, 5.3%), and contractor (6, 6.3%).

4.4.3 Years of Professional Experience

The study sought to determine the distribution of years of professional experience among the study respondents (Table 4.8).

Table 4.8: Years of Professional Experience

	Frequency	**Percent**
0 -5	34	**36.1**
6 -10	21	**22.3**
11-15	28	**29.8**
>15	11	**11.7**
Total	94	**100.0**

Source: Primary data, 2019

The study requested the respondent to indicate their years of professional experience category, from the findings, it was found that 36.1% of the respondents had 0-5 years of professional experience, 22.3% of the of the respondent had 6-10 years of professional experience, 29.8% had 11-15 years of professional experience and

finally 11.7% of the respondents indicated that they had over 15 years of professional experience. This is an indication that respondents were well distributed in terms of their age. One's experience depends on the number of years of service in the sector involved (Randoy et al, 2006). It is assumed that the longer one worked in an organization, the more they understand the organization and hence the higher the ability to articulate issues pertaining to the organization (Afande, 2013). During this study, length of working experience was tabulated, and respondents were asked to tick the relevant option provided.

4.5 Determinants of Company Closure

The first objective was to describe severity of the determinants of company closure.

4.5.1 Managerial Ineffectiveness

The study sought the view of the respondents in regard to managerial effectives in construction sites in Rwanda. Respondents' opinion to managerial effectives in construction sites in Rwanda was captured using 1. Strongly Disagree, 2. Disagree, 3. Agree, 4. Strongly agree and 5. Fully Agree. The statements, respondents' opinions and their percentages are as shown below:

Table 4.9 presents the most managerial effectiveness and their source on construction sites. The findings are similar to those found by HSE, (1998) and Murie, (2007). Falls from heights are the leading cause of occupational injuries on construction sites (Bentley et al., 2006). In China's construction industry, falls account for approximately 51% of injuries (Yung, 2009).

Table 4.9: Respondents Views on Managerial Ineffectiveness

	1	2	3	4	5	Mean	Std dev
Lack of experience in the line of work	10.6%	17.0%	20.2%	29.2%	22.3%	3.36	1.29
Lack of experience in contracts management	17.0%	17.0%	10.6%	27.7%	27.7%	3.32	1.47
Bad decisions in formulating company policy	22.3%	26.6%	22.3%	17.0%	11.7%	2.69	1.31
Neglect and Negligence by the company owner(s)	20.2%	33.0%	23.4%	13.8%	9.6%	2.60	1.23
Adopting unsuitable procurement practices	22.3%	23.4%	21.3%	19.1%	13.8%	2.79	1.36
Lack of control of the administrative approval system	19.1%	23.4%	24.5%	20.2%	12.8%	2.84	1.31
Lack of labour productivity and improvement	31.9%	19.1%	18.1%	13.8%	17.0%	2.64	1.47
Frequent replacement of the key successful personnel	17.0%	17.0%	10.6%	27.7%	27.7%	2.65	1.48
Centralized decision making	22.3%	23.4%	21.3%	19.1%	13.8%	3.04	1.48
Inflation rate in the economy of the country	23.4%	18.1%	17.0%	21.3%	20.2%	3.29	1.22
Bad company structure which delays decision	22.3%	22.3%	18.1%	19.1%	17.0%	3.49	5.46
Lack of using Project Management techniques	17.0%	17.0%	10.6%	27.7%	27.7%	2.86	1.41
Assigning unqualified site engineers	31.9%	19.1%	18.1%	13.8%	17.0%	2.61	1.25
Internal company problems due to bad organization	22.3%	23.4%	21.3%	19.1%	13.8%	2.64	1.47
Lack of using qualified consultants in the key project areas	14.9%	29.8%	16.0%	20.2%	19.1%	2.65	1.48
Lack of adjusting to changes	20.2%	33.0%	23.4%	13.8%	9.6%	2.90	1.42
Lack of using efficient documentation system	10.6%	17.0%	20.2%	29.2%	22.3%	3.57	3.29
Frauds	10.6%	7.0%	20.2%	29.2%	42.3%	3.14	5.54
Lack of proper communication system within the company	22.3%	23.4%	21.3%	19.1%	13.8%	3.04	1.48
Lack of using computers applications	22.3%	22.3%	18.1%	19.1%	17.0%	3.29	1.22
Unattended claims from the contractors by the client	31.9%	19.1%	18.1%	13.8%	17.0%	3.49	5.46
Owner absence from the company	20.2%	33.0%	23.4%	13.8%	9.6%	2.86	1.41
Lack of commitment due to the nature of the contract	22.3%	20.2%	12.8%	25.5%	19.2%	3.36	1.26

Results in Table 4.9 indicate that 57% of the respondents agreed that the lack of experience in the line of work was one of the managerial ineffectiveness in the company. Majority 29.2% of the respondents strongly agreed that lack of experience in the line of work, 22.3% fully agreed with the statement, 20.2% agreed, 10.6% strongly disagreed while 17.0% disagreed with the statement. The mean was very high at 3.36 and confirmed the strong evidence of the fact; the standard deviation at 1.29 to show the heterogeneity of responses. According to Memon (2014) managerial

ineffectiveness in the company is driven by a project leader who has the best expertise and sound decision-making skills. They ought to make the right decisions at the right time as poor choices will have extreme repercussions on the project's progress. The lack of supervision by managers will also deteriorate the efficiency of the project, resulting in budget and schedule overruns. This will give rise to conflicts among team members and affecting various interdependent tasks and overall productivity.

The results further indicate that 55.4% agreed that lack of experience in contracts management was one of the managerial effectiveness that led to closure of construction companies in Rwanda. A total of 51.1% of the contractors involved in the research agreed that bad decisions in formulating company policy led to closure of construction companies in Rwanda. Majority of the respondents (53.2%) disagreed that Neglect and Negligence by the company owner(s) led to closure of construction companies in Rwanda. Adopting unsuitable procurement practices was supported by 54.3% of the respondents as a factor that led to closure of construction companies in Rwanda. This was followed by lack of control of the administrative approval system where majority 23.4% disagreed with the statement.

Contractors involved in this survey strongly disagreed with the lack of labour productivity and improvement as it scored a mean of 2.67. Frequent replacement of the key successful personnel had a mean of 2.65 and standard deviation of 1.48. The mean was very high at 2.65 and confirmed the strong evidence of the fact; the standard deviation at 1.45 to show the heterogeneity of responses. 32.9% of the respondents agreed that Centralized decision making improved and saved many companies from closing. Regarding inflation rate in the economy of the country 23.4% of the respondents disagreed with the statement.

Bad company structure which delays decision was ranked the highest cause of failure of construction companies with 54.1% strongly agreeing with the statement. Lack of using Project Management techniques also was a major cause of failure of construction companies with majority 55.4% fully agreeing. Assigning unqualified site engineers was down proofed by majority 31.9% who strongly disagreed with the

statement. In addition, Internal company problems due to bad organization was supported by only a fraction of 23.8% who agreed with the statement. Minority of the respondents 14.9% strongly disagreed that Lack of using qualified consultants in the key project areas led to closure of companies. Lack of adjusting to changes was also supported by 33.0% of the respondents who disagreed with the statement.

Lack of using efficient documentation system was highlighted as a cause of closure of construction companies with 29.2% of the respondents strongly agreeing. This is because Frauds was ranked highest cause of failure with 42.3% strongly agreeing that fraud caused many companies to close in Rwanda. 22.3% of the respondents agreed that there was Lack of commitment due to the nature of the contract leading to closure of construction companies.

To mitigate the factors causing contract management ineffectiveness, a balance scorecard has been adopted in most organizations with variances in the frameworks. The initial framework explained by Ali (2011) consisted of four measurement perspectives that include financial, customer, internal business processes and perspectives of learning and growth. Nonetheless, any balanced scorecard should be adjusted to the strategy of a particular business unit, in the case of procurement balanced scorecards, by also emphasizing the importance of optimized supplier performance as one of the main strategic objectives (Katje & Bavenda, 2010). Depending on what top-management perceives as the main performance drivers of the procurement function, the performance drivers must be represented in the balanced scorecard through strategic Taylor objectives and subsequently, performance measures and indicators (Kimeme, 2012). (2010) on factors affecting contract management in public procurement, in Kenya noted that, ineffectiveness in procurement contract management is caused by lack of competent personnel armed with skills and experience to manage contracts. He therefore insisted that there is a need to have a contract manager with enough skills and experience in the field that they are supervising.

4.5.2 Financial Determinants for Closure of the Companies

The study sought the view of the respondents in regard to Financial Determinants for closure of the companies in Rwanda. Respondents' opinion to Financial Determinants for closure of the companies in construction sites in Rwanda was captured using 1. Strongly Disagree, 2. Disagree, 3. Agree, 4. Strongly agree and 5. Fully Agree. The statements, respondents' opinions and their percentages are as shown below (Table 4.10):

Table 4.10: Respondents views on Financial Determinants for Closure of the Companies

	1	2	3	4	5	Mean	Std dev
Dependence on Bank loans and Paying High Interest	14.9%	18.1%	17.0%	20.2%	29.8%	3.32	1.44
Cash flow Mis-management	22.3%	14.9%	21.3%	28.7%	12.8%	2.95	1.36
Lack of sufficient Capital	9.6%	13.8%	31.9%	23.4%	21.3%	3.32	1.23
Low margin of profit due to high competition in the market	10.6%	17.0%	20.2%	29.8%	22.3%	3.36	1.29
Poor estimating practices	20.2%	19.1%	11.7%	24.5%	24.5%	3.14	1.50
The increase in Capital Expenditures	20.2%	28.7%	21.3%	17.0%	12.8%	2.73	1.31
Poor billing and collecting of payment effectiveness	20.2%	33.0%	23.4%	13.8%	9.6%	2.60	1.23
The nature of contracted currency (RFW) against consultant's contract currency (USD)	18.1%	44.7%	13.8%	16.0%	7.4%	2.50	1.18
Poor evaluation of profit yearly	19.1%	20.2%	12.8%	23.4%	24.5%	3.13	1.48
Material wastages and control during construction	21.3%	23.4%	10.6%	20.2%	24.5%	3.03	1.51
Poor Controlling of equipment cost and usage	12.8%	29.8%	22.3%	17.0%	18.1%	2.98	1.31
Poor preparations and presentations of variation order	33.0%	19.1%	18.1%	13.8%	16.0%	2.61	1.47
High employee benefits and compensation	22.3%	22.3%	18.1%	20.2%	17.0%	2.87	1.42
Delays in transfer of funds to the contractor's accounts	28.7%	18.1%	21.3%	25.5%	6.4%	2.63	1.31

From the analysis of Table 4.11, 84% of the contractors taking part in this survey cited the dependence on Bank loans and Paying High Interest as the main cause of closure of construction companies in Rwanda. They felt that the Cash flow Mis-management contributed to 28.7% of failure or closure of construction companies in Rwanda. Lack of sufficient Capital brought about closure of construction companies in Rwanda as indicated by a high mean of 3.32 followed by Low margin of profit due to high competition in the market which had a mean of 3.36.

Majority 49% agreed that Poor estimating practices led to closure of construction companies in Rwanda since it brought about the increase in Capital Expenditures as depicted by only 12.8% of the respondents who agreed. Poor billing and collecting of payment effectiveness have brought about closure of construction companies in Rwanda. The nature of contracted currency (RFW) against consultant's contract currency (USD) was ranked so high with majority 44.7% who disagreed with the statement. Majority (24.5%) of the respondents felt that Material wastages and control during construction led about Poor Controlling of equipment cost and usage and Poor preparations and presentations of variation order. High employee benefits and compensation brought about 37.2% of closure of construction companies in Rwanda. Whereas 28.7% strongly disagreed that delays in transfer of funds to the contractor's accounts.

Debt and equity constitute the main external and internal capital sources in the construction sector. Equity consists of funds subscribed in a project by shareholders and of retained profits. Interest-bearing debt on the other hand is mainly provided by commercial banks through instruments such as short, medium and long term loans, leasing and lines of credit (Elazouni & Abido 2013). Several authors argue that resort to external financial sources in the construction sector is limited compared to other sectors in the economy (Chiang & Cheng 2010). In contrast, Tserng *et al.,* (2012) argue that construction has a higher average leverage than many other sectors in the economy. Evidently, there are differences of opinion regarding the capital structure behavior or the preferred financing sources used by contracting firms in construction related literature.

4.5.3 Business Over-expansion and Diversifications

The study sought the view of the respondents in regard to Business Over Expansion and Diversifications of the companies in Rwanda. Respondents' opinion to Business Over Expansion and Diversifications of the companies in construction sites in Rwanda was captured using 1. Strongly Disagree, 2. Disagree, 3. Agree, 4. Strongly agree and 5. Fully Agree. The statements, respondents' opinions and their percentages are as shown below (Table 4.11).

Table 4.11: Respondents views on Business over Expansion and Diversifications

	1	2	3	4	5	Mean	Std dev
Lack of Managerial skills as the company grows bigger	9.6%	13.8 %	30.9 %	21.3 %	24.5 %	3.37	1.26
Increase size of Projects	9.6%	17.0 %	20.2 %	29.8 %	23.4 %	3.40	1.28
Change of work from Private to Public or vice versa	18.1 %	17.0 %	12.8 %	24.5 %	27.7 %	3.27	1.48
Opening a regional office in many places in the country	16.0 %	14.9 %	12.8 %	28.7 %	27.7 %	3.37	1.44
Increase the number of the projects under implementations	23.4 %	23.4 %	17.0 %	14.9 %	21.3 %	2.87	1.48
Change in the type of work	18.1 %	21.3 %	19.1 %	22.3 %	19.1 %	3.03	1.39

From Table 4.11 Lack of Managerial skills as the company grows bigger leads to closure of construction companies in Rwanda as depicted by 24.5% of the respondents. By companies increasing the size of projects chances are so high to fail of a constriction companies as depicted by 29.8% of the respondents. 27.7% of the respondents indicated that change of work from Private to Public or vice versa can lead to closure of construction companies. Opening a regional office in many places in the country can lead to closure of construction companies as shown by 27.7% of respondents. Increase the number of the projects under implementations cannot lead to failure of company as shown by majority 46.8% of the respondents. Lastly, change in the type of work can automatically lead to closure of construction companies as shown by 41.4% of the respondents who took part in the survey.

One of the critical factors in the efficiency of the construction sector is the successful management of construction contracting firms that largely depends on the extent to which a firm can adopt prudent practices in the management of financial resources. An important dimension of the problem for contractors stems from the availability of sufficient funds in appropriate terms and conditions. Experience to date has shown that poor financial management and lack of finance are the main causes of contractor failures (Alavipour & Arditi 2018). The situation is exacerbated in particular for small-medium enterprises which have limited access to capital markets (Chiang & Cheng 2010). In addition, financing difficulties faced by construction contractors are recognized as the most significant obstacles to the improvement of innovation in construction industry (Fox & Skitmore 2007).

4.5.4 Unstable Business Environment

The study sought the view of the respondents in regard to Unstable Business Environment of the companies in Rwanda. Respondents' opinion to Unstable Business Environment of the companies in construction sites in Rwanda was captured using 1. Strongly Disagree, 2. Disagree, 3. Agree, 4. Strongly agree and 5. Fully Agree. The statements, respondents' opinions and their percentages are as shown below (table 4.12):

Table 4.12: Respondents views on Unstable Business Environment

	1	2	3	4	5	Mean	Std dev
Absence of construction regulations	20.2 %	33.0 %	23.4 %	13.8 %	9.6%	2.60	1.23
Absence of specialized courts	33.0 %	19.1 %	17.0 %	13.8 %	17.0 %	2.63	1.49
Owner involvement in construction phase	22.3 %	21.3 %	18.1 %	20.2 %	18.1 %	2.90	1.43
Accounting and tax practices	28.7 %	18.1 %	21.3 %	25.5 %	6.4%	2.63	1.31
Insufficient award of contracts	9.6%	13.8 %	30.9 %	23.4 %	22.3 %	3.35	1.24
Awarding Contract to the Lowest Bidder without proper analyses of his experience	8.5%	17.0 %	21.3 %	29.8 %	23.4 %	3.43	1.26
National slump in Economy	34.0 %	19.1 %	16.0 %	14.9 %	16.0 %	2.60	1.48

According to Table 4.12, among the contacted respondents, 53.2% of respondents strongly disagreed that Absence of construction regulations could have led to closure of construction companies in Rwanda. 33% strongly disagreed that Absence of specialized courts have led to closure of construction companies. Owner involvement in construction phase is explained by the mean was very high at 2.90 and confirmed the strong evidence of the fact; the standard deviation at 1.43 to show the heterogeneity of responses. In addition, accounting and tax practices led to closure of construction companies as shown by 25.5% of the respondents. Majority 76.6% of respondents agreed that Insufficient award of contracts have led to closure of construction companies in Rwanda. Awarding Contract to the Lowest Bidder without proper analyses of his experience is also valued to have caused the closure of construction companies as shown by 29.8% of the respondents. Lastly, majority 34.0% strongly disagreed that National slump in Economy could have led to closure of construction companies in Rwanda. To overcome this problem the contractor must

store the requested material and instruments if it possible when he received the site to continue and complete the project. This finding is supported by El Karriri et al. (2011), Abu Mousa, (2005) and Al-Hallaq, (2003).

4.5.5 Unstable Political Environment

The study sought the view of the respondents in regard to unstable political Environment of the companies in Rwanda. Respondents' opinion to unstable political Environment of the companies in construction sites in Rwanda was captured using 1. Strongly Disagree, 2. Disagree, 3. Agree, 4. Strongly agree and 5. Fully Agree. The statements, respondents' opinions and their percentages are as shown below Table 4.13):

Table 4.13: Respondents views on Unstable Political Environment

	1	2	3	4	5	Mean	Std dev
Delay in collecting debt from funders	22.3%	22.3%	18.1%	20.2%	17.0%	2.87	1.41
Border closure which affects transportation of imported equipment and Materials	29.8%	17.0%	21.3%	25.5%	6.4%	2.62	1.32
Complex sectorial Policies for Land Locked countries	9.6%	14.9%	33.0%	23.4%	19.1%	3.28	1.21
High Cost of Materials	10.6%	17.0%	20.2%	29.8%	22.3%	3.36	1.29
Lack of local Resources in the country	22.3%	19.1%	14.9%	25.5%	18.1%	2.98	1.44
Limitation on Material Import	23.4%	28.7%	22.3%	17.0%	8.5%	2.58	1.25
Individuals companies monopolizing the market	20.2%	33.0%	23.4%	13.8%	9.6%	2.60	1.23
Poor Banks Policy	12.8%	19.1%	20.2%	25.5%	22.3%	3.25	1.34
Difficulties in dealing with Suppliers and Traders in the region	11.7%	20.2%	19.1%	17.0%	31.9%	3.37	1.41

Enforcement is a matter of deploying a strategy or mixture of targeted strategies for securing desired results on the ground (Macrory, 2014). Regulatory officials seek to gain compliance using a host of informal techniques including education, advice, persuasion, and negotiation (Robert *et al.,* 2007). Macroy has drawn a distinction between two approaches to enforcement: the compliance approach, which emphasizes the use of measures falling short of prosecution in order to seek compliance with laws, and the deterrence approach, which is adversarial, litigious, and penal and uses prosecutions in order to deter future infractions.

4.6 Failure Trends of the Construction Company Leading to Closure in Rwanda

The respondents were asked to identify causes of closure of construction companies. A total of 94 respondents answered this question. The results were tabulated in the table as shown below with the corresponding category and rank of the cause.

Kometa *et al.* (1994) and Sambasvian and Soon (2007) used the RII method to determine the relative importance of the various causes of delays. The same method was adopted in this study. RIIs are calculated for each factor as in the following equation:

$$RII = \frac{\Sigma w}{AN} = \frac{5_{n5} + 4_{n4} + 3_{n3} + 2_{n2} + 1_{n1}}{5N}$$

Where RII is the relative importance index; W the weighing given to each factor by respondents (ranging from 1 to 5); A the highest weight (i.e. 5 in this case); and N the total number of respondents. The RII value had a range of 0 to 1 (0 not inclusive); the higher the RII, the more important was the cause of delays. The causes were ranked based on RII values. From the ranking assigned to each cause of delays, we were able to identify the most important factors or causes of closure in Rwanda construction industry (table 4.14).

Table 4.3: Expert Views on Failure Trends

#	Client	RII	Consultant	RII	Contractor	RII
1	Contractors cash flow problems	0.77	Poor site supervision and management by contractor	0.82	Inadequate and unclear details in drawings	0.79
2	Manpower shortage (skilled and unskilled labour)	0.76	Contractors difficulties in financing the project	0.80	Contractors difficulties in financing the project	0.78
3	Contractors difficulties in financing the project	0.75	Contractors Cash flow problems	0.79	Mistakes, inconsistencies and ambiguities in specifications and drawings	0.78
4	Delay in progress payments by the client	0.74	Inefficient quality control by the contractor during construction leading to rework due to errors	0.79	Change in scope of the project	0.77
5	Poor site supervision and management by contractor	0.73	Tendering system of choosing the lowest bidder	0.77	Poor site supervision and management by contractor	0.77
6	Labour strikes by the contractor workforce	0.73	Ineffective scheduling and planning of project by contractor	0.76	Poor qualification of engineer's staff assigned to the project	0.76
7	Changes in scope of the project	0.73	Difficulties among the contractor and subcontractors with regards to payments	0.74	Delays in progress payments by the client	0.75
8	Inefficient quality control by the contractor during construction leading to rework due to errors	0.71	Delays in progress payments by the client	0.74	Delay furnishing and deliver the site to the contractor by the owner	0.74

From Table 4.14 above the top five causes of delay with respect to client's opinion are: Contractors cash flow problems, manpower shortage, contractors' difficulties in financing the project, poor site supervision and management by contractor and delay in progress payments by the client. This shows that the top five cause of closure are related to: Contractor, labour and client problem.

From the consultant's viewpoint the top five causes of closure are: Poor site supervision and management by contractor, contractor's difficulties in financing the project, contractors cash flow problems, inefficient quality control by the contractor during construction, leading to rework due to errors and Tendering system of

choosing lowest bidder. This indicates that the top five causes of closure of construction companies are related to contractor and external causes of delay. According to the contractor's perspective the first five causes of closure of construction companies are: Inadequate and unclear details in drawing, Contractor's difficulties in financing the project, mistakes, inconsistencies and ambiguities in specification and drawing, poor qualification of engineer's staff assigned to the project and change in scope of the project. These causes are related to design, contractor and client.

From the eight issues raised by the experts as highlighted on Table 4.15 and the preceding analysis of the rankings of the severity of factors the major sources of contractors collapses in Rwanda can be summarized as managerial, inefficiency, cash flow challenges of the contractors, coupled with the highly competitive business environment in which they operate. One solution to this problem is integrative management approach.

According to Neurol (2007) the first thing to know about integrative management is that it is neither nor includes just one thing. Instead, integrative management is a continually evolving, closed-loop management system. As such, it links strategic and operational plans in such a way that the long-term vision, as well as strategic, daily operational, financial and customer service goals and objectives work with and depend on each other. It is essentially a single cohesive management system that both defines where your business is going and determines how you will get there. This approach addresses both management of the project, the complete management of the company and get involved in. Contractors in Rwanda should therefore endeavor to enhance their managerial capacity by continuous technical training of their staff and/ or recruitment of the more qualified staff for their corporate and project construction project management functions. Additionally, change of the project procurement methods from the traditional approach to the more project integrative methods should create on more effective managerial system in which a given project may operate, and minimize the risk associated with prolonged negative cash flows. Figure 4.2 shows an example of project organizational structure which

would be contractor friendly in terms of management without compromise to his obligations to the client.

In construction contracts, proving who and what causes closure of construction companies is a critical aspect of resolving and mitigating on future delays. But waiting until after the losses have been incurred before addressing recovery by submitting a claim is reactive strategy and often leads to higher potential for loss among project stakeholders. The following strategies can help the project stakeholders remain aware of the potential for delay and disruption throughout the project planning and execution phases. The three significant factors thus; Materials availability, labor availability and clients' related factors would need strategically be addresses by the parties in the following ways: -

To mitigate closure of construction companies, there is need to have adequate research done on the availability of materials before the commencement of the works. The same applies for labor requirements and keeping of trained personnel in the process of execution of construction works is paramount. Independent and experienced project managers should be employed to deal with the client retarded problems. This will assist in mitigating the problems that have emerged as the most significant in the analysis of closure of construction companies thus; slow decision making by clients, insufficient labor force, changes by clients and consultants at the site; this is not limited to managerial ineffectiveness, financial determinants, business over expansion and diversification unstable business and political environment. With regard to finance, to avoid closure of construction companies, the clients should have adequate finance resource before the commencement of construction works so that contactors are paid promptly. As for technology, contractors should ensure that they have the latest machinery and train their staff on how to use them efficiently therefore saving time in the execution of the projects hence avoiding closure of construction companies. It is also important that the following points are taken into account in mitigating closure of construction companies: the contractor should know the scope of the works, analyze the critical path of the project, establish risk triggers as an early warning system and develop contemporaneous documents to quantify delay and productivity loss.

4.7 Framework to Salvage the Local Contractors' Businesses Which Tend to Fail

Finally, a government policy on construction industry can be formulated to enhance growth and development of local construction company without necessarily introducing the risk or other problems that may come from monopoly. Figures 4.1 depicts a probable model of how such policy framework might work.

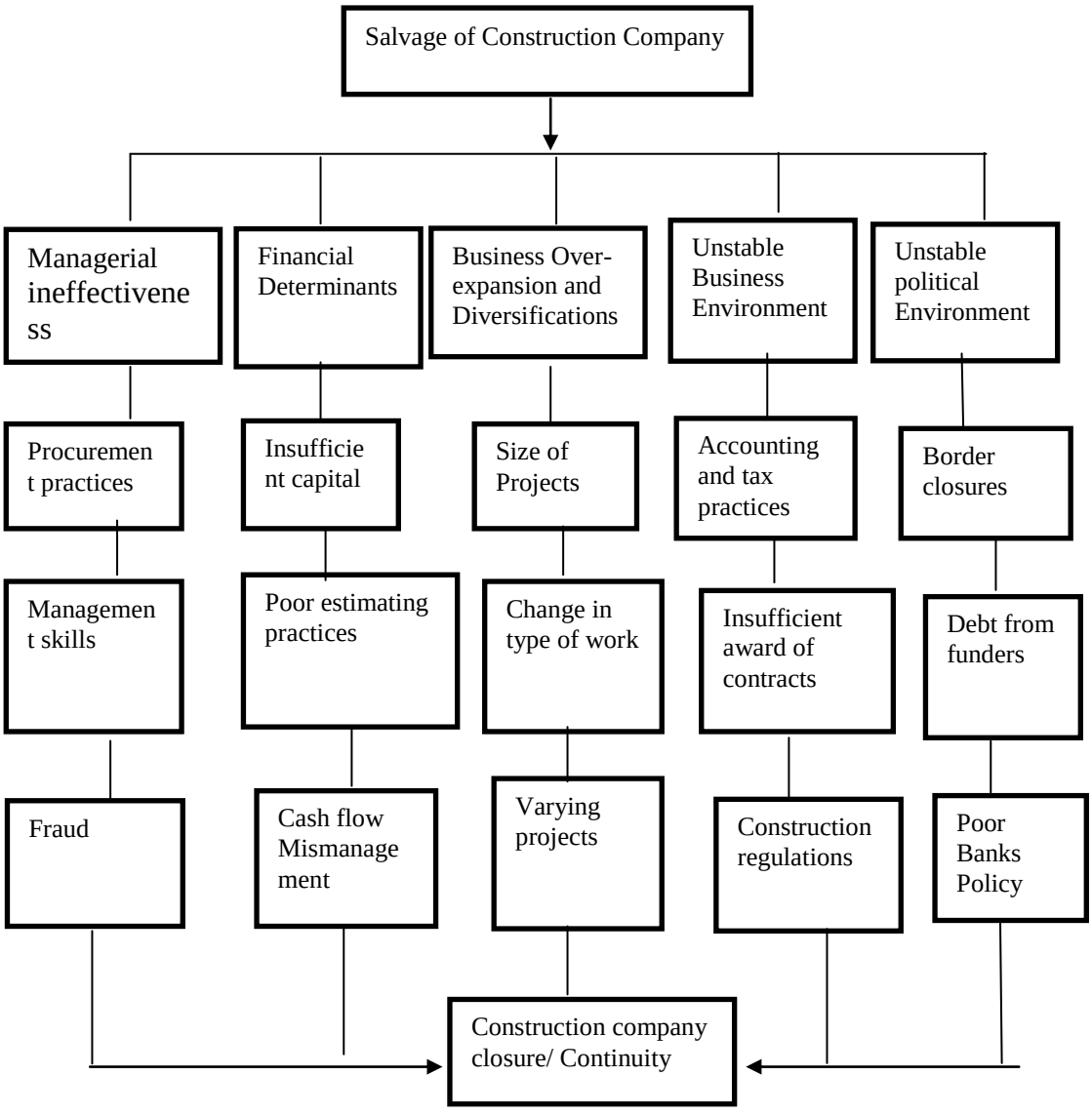


Figure 4.1: Framework to Salvage the Local Contractors' Businesses

This framework gives the checklist of factors that consultants and clients should prioritize in assessing the suitability of interested or pre-qualified contractor for a project assignment in three ways. Firstly, the contractor showing/ demonstrating in built capacity to pay careful attention to every one of these priority factors in this strategy is the one with the highest probability for success in the project execution and in the contracting business. Secondly, some of the critical factors in Figure 4.2, such as payments which mainly are the domain of the clients, should be streamlined upfront so that delays in payments, design approvals or the like do not disrupt the regular progress of the contractor's works on site and cause project delays or contractual claims.

Such policy would be possible if the lead contractors and professionals in Rwanda would join hands and talk with one voice advocating a more well-structured development and regulation of the contractors for the sake of the country's social development agenda, as illustrated in Figure 4.2 overleaf. However, the data collection and analysis work done in this study was not sufficient to concretize and validate this framework. This is suggested to be an area for further study.

Finally, at the individual contractor level and the overall industry level, policies addressing construction project management, construction site management and construction financing (sources and security) would be great leverage points towards the salvaging of contractor business in Rwanda.

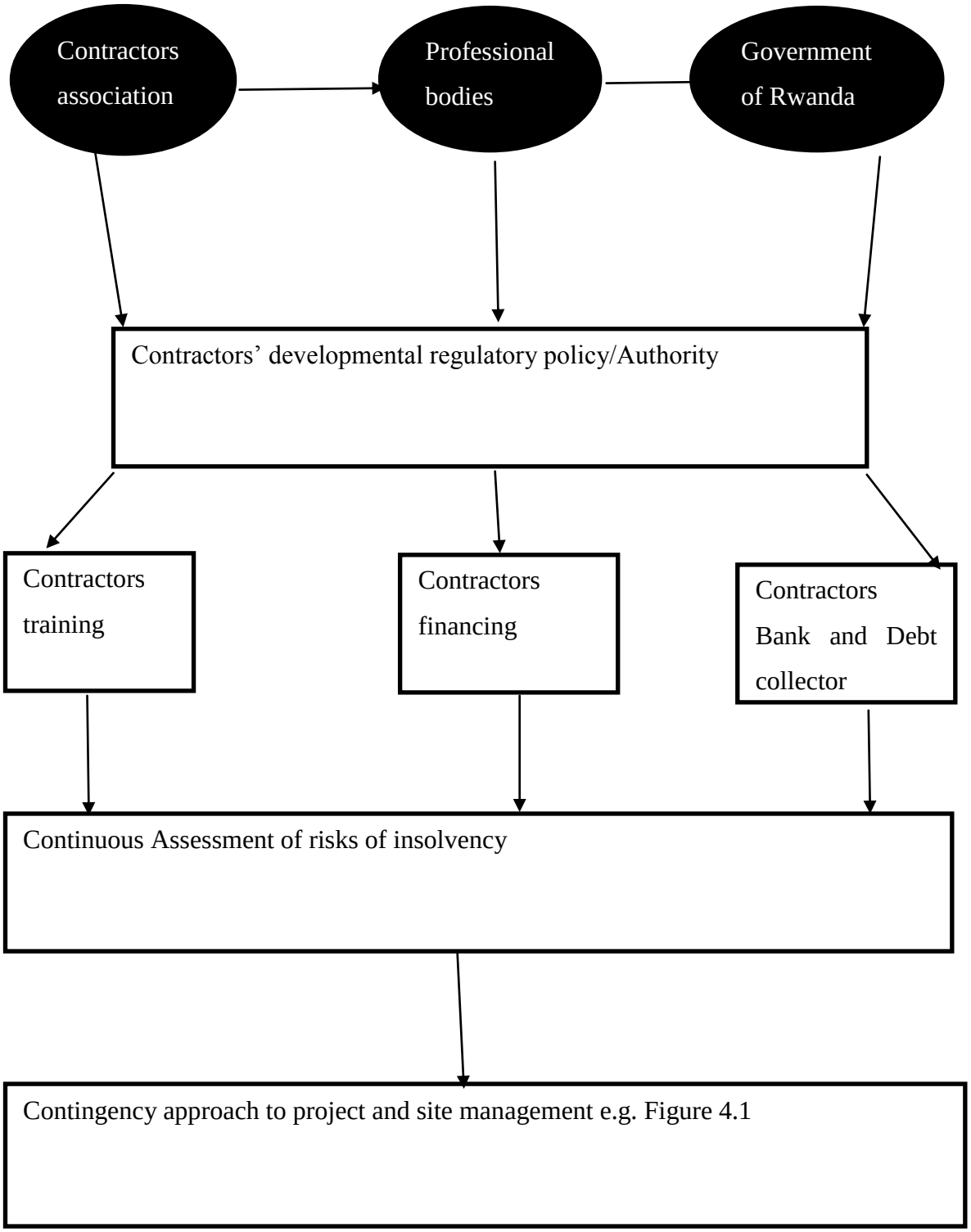


Figure 4.2: Proposed framework for a structured contractor development and regulation to minimize contractor collapses

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the study in relation to the objectives, literature review and key variables in our study. It later makes substantive conclusions based on explored determinants of closure of construction companies in Rwanda and thereafter major recommendations are made. Later, suggestions are made for further areas of study.

5.2 Summary of the Study Findings

The study sought to investigate the determinants of closure for local construction companies in Rwanda. The variables of interest include, managerial effectiveness, financial determinants, business overexpansion and diversification, unstable business environment and unstable political environment. Regarding closure for local construction companies in Rwanda, organizational structure, management, contract administration, finances, technology and design variation which was further dichotomized into client related causes, contractor related causes and consultant related causes. The study findings showed that management ineffectiveness, management and design variation insignificantly determine closure for local construction companies in Rwanda. On the other hand, contract administration, finances and technology were found to be significant determinants of closure for local construction companies in Rwanda.

Closure of construction companies are a common problem not only with an immeasurable cost to society, but also with debilitating effects to the contracting parties (Ondari & Gakera, 2013). Closure of construction companies is a reoccurring problem and have negative impacts on project success in terms of time, cost, quality and safety (Knight, Hurst & Farahani, 2009). Many scholars and practitioners have presented contradictory views on the closure of construction companies. There is also lack of consensus as to the principal causes of closure of construction

companies. For instance, Aibinu et al (2002) argue that the main cause being poor planning. According to Frimpong (2003), poor risk management is to blame while Jonathan et al (2001) argues that lack of experience and intellectual ability among contractors is the main reason.

Other causes that have been highlighted include; poor organizational culture (Kagiri & Wainaina, 2008), poor government policy guidance (Karimi, 1998). Although causes of closure of construction projects have been explored widely in other regions of the world, little has been done with regards to Rwanda. Closure of Rwandan construction projects is said to be a common and re-occurring phenomenon.

The government of Rwanda and its developing partners continue to allocate huge financial resources aimed at improving country's infrastructure. Therefore, an investigation into the causes of closure of construction companies was of great importance. It will help to put in place measures to control closure of construction companies. This study therefore examined players in the construction industry based in Kigali. The survey involved a sample of 132 respondents comprised of 36 project owners, 48 consulting firms and 48 contracting firms in the study area.

5.3 Conclusions

From the severity of the determinants of construction company closure in Rwanda. Factors that cause construction companies to fail appropriately and eventually collapse are similar to the factors that cause the contractors to perform poorly in their construction work and cause delays, cost overruns or poor-quality work. This suggest that poor project performance might be a signal of corporate collapse. Additionally, the factors are matters of delay in the execution of responsibilities that are contractually or managerially assigned to the contractors themselves or the client or the consultants. Therefore, the problem of contracting company collapses is not only just a problem of contractors alone; it is a shared problem. This implies among other things that the solution to the problem will be realized if the three parties work together as a team, and strategize to address the issue from the policy level to the site level simultaneously. Moreover construction and consultants in Rwanda being the most well educated and experienced (in construction operations and economy) in the

group, is the most well situated to initiate this team work towards the salving of construction companies in Rwanda.

Basing on the failure trends of the construction company leading to closure in Rwanda the results displayed in among all identified trends, here are top five causes as ranked by consultants: (1) lack of capital, (2) lack of using project management techniques, (3) adopting unsuitable procurement practices, (4) frauds, and (5) award contracts to lower price. The top five causes as ranked by clients: (1) lack of using project management techniques, (1) lack of capital, (3) adopting unsuitable procurement practices, (4) frauds, (4) award contracts to lower price. Also (1) adopting unsuitable procurement practices, (1) lack of capital, (3) inefficient deployment of resources, (5) award contracts to lower price were ranked as top five causes.

In developing a framework to salvage the local contractors' businesses from failure and/or collapse. Construction industry is an important component of Rwanda's economic growth and development. Success of construction projects on time is therefore critical for country's economic growth. The aim of the study was to investigate the cause's closure of construction projects in Rwanda and hence finding mitigating factors to the problem of failure. From the analyzed field data, some factors have been established as being influential to closure of construction companies in Rwanda. This study therefore contributes to the existing literature on closure of Construction Company in Rwanda by highlighting the frequent and significant causes of closure of Construction Company in Rwanda. The findings showed that shortage of materials, manpower and client related factors (bureaucracy in client's organization which cause delay in payments,), are significant in determining closure of construction companies in Rwanda. The findings are in line with a study by Msafiri (2015) who found the same variables to be significant determinants of company failure while investigating the factors causing delays in road construction projects.

5.4 Recommendations

In view of the stated findings and conclusions the study makes the following recommendations:

1. Development of human resources in the construction industry through proper and continuous training programs about construction projects performance. These programs can update participants' knowledge and can assist them to be more familiar with project management techniques and processes. Owners are encouraged to facilitate payment to contractors in order to overcome delay, disputes, and claims. All managerial levels should participate in sensitive and important decision-making. Continuous coordination and relationship between project participants are required through project life cycle for solving problems and developing project performance.
2. Consultants should be more interested in design cost by using multi-criteria analysis and choosing the most economical criteria in order to improve their performance and to increase owners' satisfaction. In addition, consultants are urged to facilitate and expedite orders delivered to contractors to obtain better time performance and to minimize disputes and claims. Contractors should not increase the number of projects that cannot be performed successfully. In addition, contractors should consider political and business environment risks in their cost estimation for overcoming delay because of closures leading to materials shortages. There should be adequate contingency allowances in order to cover increases in material cost. Proper motivation and safety systems should be established for improving the productivity performance of construction projects in the Rwanda hence avoidance of closure of construction companies. Greater application of health and safety factors are necessary to overcome problems of safety performance.
3. Contractors are counseled to minimize waste rates through project implementation for improving cost. They should be more interested in conformance to project specification to overcome disputes, time, and cost performance problems. Quality materials should be of a greater interest for contractors in order to improve cost, time, and quality performance. This can

be done by applying quality training and meetings that are necessary for performing an improvement. Contractors are urged to be more interested in sequencing of work according to schedule. In addition, contractors should have a cost engineer in their projects to successfully control cost

4. With regard to managerial effectiveness, the study suggests clients' contribution from the start of the project. Management meetings are mandatory, and their representation is also of great importance so that they are also informed of the progress of the project. Such arrangement will be of essence. This is because if there are changes in design all parties are advised accordingly and thus buy in the idea. With regard to finances, construction firms should ensure adequate and timely provision of financial resources in building construction project. Adequate finance is the hub around which everything else revolves. The project is not closed but the morale of workers plummets because of non-payment or irregular payment of wages. Subcontractors and suppliers of materials and components and their employees are likewise affected. The challenge to construction managers and of course, company, is to identify ways to eliminate or at least reduce the occurrence of financial crisis during the construction process. In that regard, construction contractors must ensure that funds are available or adequate arrangements for funds are made before projects are started and contract provisions which allow contractors to claim interest on delayed payments must be strictly enforced to serve as deterrent to clients. With regards to technology, construction firms need to embrace new technology in their operations. For reducing delay in project contractors must have knowledge about their resources strength and obtain up-to-date Machinery and try to obtain new equipment for construction.
5. Adoption of an integrative management approach to corporate and construction project management, for enhancement of project performance and business performance.

5.5 Areas for Further Research

Further research needs to be undertaken on construction sites accident investigations, reporting and records so as to advice the government on policy improvement and implementation to avoid closure of construction companies in Rwanda. This study confined itself to the construction sites in Kigali, other areas should be considered for the same study. Finally, study should be made on a well-structured development and regulation of contractors in Rwanda, in order to eliminate their collapses and closures.

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APPENDICES

Appendix I: Questionnaire

QUESTIONAIRE FOR CONTRACTORS AND TOP MANAGERS IN A CONSTRUCTION COMPANY

PART A:Background Information		
	Position in the Company:	
	Type of Professional:	
	Years of Professional Experience:	
	The questions below seek your opinion on the severity of various factors which lead to closure of construction companies in Rwanda, using a scale of 1 to 5, as follows:	
	1.Strongly Disagree 2.Disagree 3.Agree 4.Strongly agree 5.Fully Agree	

PART B: Managerial Ineffectiveness		RANKING				
	FACTORS	1	2	3	4	5
1	Lack of experience in the line of work					
2	Lack of experience in contracts management					
3	Bad decisions in formulating company policy					
4	Neglect and Negligency by the company owner(s)					
5	Adopting unsuitable procurement practices					
6	Lack of control of the administrative approval system					
7	Lack of labour productivity and improvement					
8	Frequent replacement of the key successful personnel					
9	Centralized decision making					
10	Inflation rate in the economy of the country					
11	Bad company structure which delays decision					
12	Lack of using Project Management techniques					
13	Assigning unqualified site engineers					
14	Internal company problems due to bad organization					

15	Lack of using qualified consultants in the key project areas					
16	Lack of adjusting to changes					
17	Lack of using efficient documentation system					
18	Frauds					
19	Lack of proper communication system within the company					
20	Lack of using computers applications					
21	Unattended claims from the contractors by the client					
22	Owner absence from the company					
23	Lack of commitment due to the nature of the contract					
PART C: Financial Determinants for closure of the companies		RANKING				
		1	2	3	4	5
1	Dependence on Bank loans and Paying High Interest					
2	Cash flow Mis-management					
3	Lack of sufficient Capital					
4	Low margin of profit due to high competition in the market					
5	Poor estimating practices					
6	The increase in Capital Expenditures					
7	Poor billing and collecting of payment effectiveness					
8	The nature of contracted currency(RFW) against consultants contract currency(USD)					
9	Poor evaluation of profit yearly					
10	Material wastages and control during construction					
11	Poor Controlling of equipment cost and usage					
12	Poor prepartions and presentations of variation order					
13	High employee benefits and compensation					
14	Delays in transfer of funds to the contractor's accounts					
PART D:Business Over Expansion and Diversifications		RANKING				
		1	2	3	4	5
1	Lack of Managerial skills as the company grows bigger					
2	Increase size of Projects					
3	Change of work from Private to Public or vice versa					
4	Opening a regional offices in many places in the country					
5	Increase the number of the projects under implementations					
6	Change in the type of work					
PART E:Unstable Business Environment		RANKING				
		1	2	3	4	5
1	Absence of construction regulations					
2	Absence of specialized courts					
3	Owner involvement in construction phase					
4	Accounting and tax practices					
5	Insufficient award of contracts					
6	Awarding Contract to the Lowest Bidder without proper analyses of his expereince					
7	National slump in Economy					

PART F: Unstable Political Environment		RANKING				
		1	2	3	4	5
1	Delay in collecting debt from funders					
2	Border closure which affects transportation of imported equipment and Materials					
3	Complex sectorial Policies for Land Locked countries					
4	High Cost of Materials					
5	Lack of local Resources in the country					
6	Limitation on Material Import					
7	Individuals companies monopolizing the market					
8	Poor Banks Policy					
9	Difficulties in dealing with Suppliers and Traders in the region					

PART G: Suggest ways in which the rate of closure of construction companies in Rwanda can be eliminated or reduced

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Appendix II: Research permit