

**ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE
GRADUATE STUDIES
DEPARTMENT OF PROJECT MANAGEMENT**



**Determinants of Cost and Schedule Overrun on Private
Projects Financed by Commercial Bank of Ethiopia
By: Sisay Zeleke**

**A Project Paper Submitted to the School of Graduate Studies of
Addis Ababa University in Partial Fulfillment of the
Requirements for the Award of Master of Arts Degree in Project
Management**

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By: Sisay Zeleke

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DECLARATION

I, the undersigned, declare that the project paper entitled “**Determinants of Cost and Schedule Overrun on Private Projects Financed by CBE**” is my original work and has not been presented or submitted for a degree, diploma or fellowship in any university, and that all sources of material used for the paper have been duly acknowledged.

Sisay Zeleke

CERTIFICATION

This is to certify that this project paper entitled “**Determinants of Cost and Schedule Overrun on Private Projects Financed by CBE**” submitted to the **School of Graduate Studies of Addis Ababa University, College of commerce** in partial fulfillment of the requirements for the award of **Master of Arts Degree in Project Management**, done by Mr. **Sisay Zeleke**, ID No. **GSE/0666/07** is an authentic work carried out by him under our guidance. The matter embodied in this thesis has not been submitted earlier for the award of any degree or diploma to the best of our knowledge and belief.

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Signature

Date

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Acronyms

SPSS: Statistical package for Social Science

CBE: Commercial Bank of Ethiopia

CRM: Customer Relationship Manager

MIS: Management of Information System

TT: Telegraphic Transfer

NBE: National Bank of Ethiopia

ERCA: Ethiopian Revenue and Customs Authority

EPC: Engineering procurement Contract

O&M: Operations and Maintenance

PMO: Project Management office

Abstract

This study was conducted to assess determinant factors of cost and schedule overrun on private projects financed by CBE. In view of this, mixed research strategy with a descriptive research method was employed using a census type approach for collection of data. A total of 65 questionnaires were distributed to the whole populations of the study, credit performers of the bank, based on census inquiry. Out of which 56 responses were returned complete and hence were used as a source of primary data. Furthermore, In order to obtain more insight on the cases, the study used review of document on some of the loan files of the customers and also conducts an in-depth interview with credit approving members of the bank. The results of the study indicates shortage of foreign currency supply, Inconvenient terms and pre-condition for phase loan disbursement, Poor due diligence assessment to know the customer, under-financing, fund diversion for unintended purpose, lack of commitment by the project promoter, Improper planning on time estimation, management capacity problem to run the project, financial problems, un-planned and ambitious business expansion, lack of utilities, Inflation/exchange rate fluctuation, unavailability of necessary information to appraise the project feasibility, Political Factors, major disputes and negotiations with external organ, design/scope change due to external factors, contractual disputes with external organ, delay on land/site handover, regulatory changes and unforeseen ground condition during construction are the most determinants of project schedule overrun. As far as determinants of project cost overrun is concerned, the result shows that Incomplete and not well prepared feasibility study presented by the project promoter, unplanned expansion/Change order, lack of resource planning, delay from borrower side, underestimating the project complexity, Poor selection of consultant, lack of backup Plan, Incremental financial cost (volatility of foreign exchange and borrowing cost), difficulties to get prompt service from government office, Inadequate availability of skilled resource, unstable and unpredictable market situation in the country /Inflation and delay due to external factors are the most causes of project cost overrun. Therefore, on the basis of the findings, recommendations to concerned parties were provided to improve the performance of project cost and schedule.

Key Words: Cost Overrun, Schedule Overrun, effects, control

CHAPTER ONE: INTRODUCTION

This chapter deals with background of the study, statement of the problem, research questions, objectives of the research, significances of the research, scope and limitations of the research, and thesis organization.

1.1 Background of the Study

Project finance is an innovative financial technique that aims to fund the investment project based on the basis of economic and financial characteristics of the project itself, rather than on indebtedness capacity of the project promoter (Neila, 2012).

It allows project assets to be separated from the sponsor and to be financed on the basis of the cash flow from the project assets. It allows a sponsor to undertake a project with more risk than the sponsor is willing to underwrite independently (J. Paul Forrester 1995).

There is no singular definition of project finance. In an article in the Harvard Business Review, Wynant (1980) defined project finance as “a financing of a major independent capital investment that the sponsoring company has segregated from its assets and general purpose obligations.” A major player in sponsoring infrastructure projects and providing financing in developing countries, the World Bank, defines project finance as the “use of nonrecourse or limited-recourse financing.” Further defining these two terms, “the financing of project is said to be nonrecourse when lenders are repaid only from the cash flow generated by the project or, in the event of complete failure, from the value of the project’s assets (Bruce Comer 1996).

Another means of understanding project finance is to relate it to corporate finance. Kensinger and Martin (1993) draw a comparison. I.e., generally when a corporation chooses to undertake an investment project, cash flows from existing activities fund the newcomer; and management has the option to roll over the project’s capital into newer ventures within the company. With project financing, by contrast, the assets and cash flows associated with each project are accounted for separately. Funding for the new project is negotiated from outside sources, and creditors have recourse only to the assets and cash flows of a specific project. As the project runs its course, furthermore, the capital is returned to the investors, and they decide how to reinvest it. Most actual projects probably fall somewhere between the two theoretical definitions (Bruce Comer, 1996).

In undertaking project work, there is a probability of cost and schedule overrun. Cost and schedule overruns can occur for a wide variety of reasons on

various types of projects which has led to the debate on how to minimize these projects cost and schedule overruns. However, Memon *et, al.* (2010) states that in order to find measures of minimizing these overruns, the very first and most important step is to identify and understand the factors responsible for the overruns..

1.1.1 Projects Cost Overruns

Al-Najjar (2002) defines cost overruns as the change in contract amount divided by the original contract award amount. However, Zhu and Lin (2004) states that cost overrun can be defined as excess of actual cost over budget. Cost overrun is also sometimes called cost escalation, cost increase or budget overrun.

1.1.2 Projects Schedule Overruns

Projects or construction works that are not delivered on time to the client are referred to as projects that have undergone schedule overruns. Hence, Mohamad (2010) Defines schedule overruns as an act or event that extends the time to complete or perform an act under the contract. Also, Assaf and Al-Hejji (2006) defined schedule overruns as the time overrun either beyond completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project.

Commercial banks can provide project financing because they are able to evaluate complex project financing transactions and to assess and assume the construction and performance risks usually involved in such financings. However, largely because of the short-term nature of a commercial bank's liabilities (its deposits), commercial bank participation is usually limited in amount, although banks closely monitor and control their project finance assets much as they do their other long-term assets(J. Paul Forrester, April 2001).

In Ethiopia, as in many developing countries, the growing demand of investment in agriculture, industry, construction, hotel and tourism, energy and transportation requires huge amount of funds to be invested. Reports indicate a growing demand of project loans at an increasing rate (CBE Annual report, 2015). For such increasing demand of project loan, Commercial Bank of Ethiopia (CBE) as the largest state bank in the country should be able to finance such projects in order to be benefited from such opportunities and contribute to the country's growth and transformation plan.

Aiming to support the national planning in general and maximizing its profit in particular, CBE has taken the lion share in financing various government and private sector projects as long as they are financially and technically viable and environmentally friendly, so that they will contribute a lot to the development goal of the country.

Thus, having this in mind, the researcher finds it important to assess the determinants of project cost and schedule overrun on private projects financed by CBE. Further, it tries to find out determinants in connection with factors related to bank/the financing institution, borrower/the promoter and external environment.

1.2. Statement of the problem

Cost is one of the primary measures of a project's success. This is true, especially for public projects in developing countries like Ethiopia, because public construction projects in these countries are executed with scarce financial resources (Fetena Nega, 2008). Research into construction projects in most developing countries indicates that by the time a project is completed the actual cost exceeds the original contract price by 30% while change order results in 83% cost overrun (Al Momani, 1996). According to Weyessa E, 2014, Addis Ababa light rail transit construction project had experienced cost overrun.

Managing cost, schedule (time) and qualities are the triple constraints which inter-depend on each other (Abebe, 2003). When large projects deviate from their objectives (either in cost, completion time, performance, safety or environmental effects), the damage caused obviously transcends out of the contracting parties and affects the project stakeholders and the public at large.

Emphasizing the completion time deviation factors as they are very common in our country's construction industry, lack of justified methodologies in quantifying and analyzing delays happens to be the greater challenge. Also the task of justifying and quantifying the effects of each delay event required for the proof of causation and quantum is well recognized as an extremely difficult undertaking (Robel Asefa, 2015).

Although research studies related to cost and schedule overrun have been undertaken by various researchers in Ethiopia, almost all of the studies were conducted on public projects like condominium housing, AA city light rail transport project and road constructions.

Endale Mamuye (2016) in his research has concluded the existence of schedule overrun on 40/60 Saving Houses Project in Addis Ababa. Furthermore, Weyessa Ewnety (2014) has assessed cost overrun on Addis Ababa's Light Rail Transit Construction Project. Having this in mind, the researcher compiled data in regards to planned projects' cost and schedule vis-a-vis with the actual. Accordingly, reports compiled by CRM's of CBE on 50 private project cases financed from year 2011/12 to 2015/16 indicates that almost all of them fall either on schedule overrun and or on cost overrun.

As a result, the researcher seeks to assess the determinants of cost and schedule overrun on non-public or private projects financed by CBE through the use of both primary and unpublished secondary data as well.

1.3. Research Questions

In line with the problem statement, this study attempted to address the following basic research questions.

- How do you define the susceptibility of private projects to cost and schedule overrun so far? If so,
- What are the bank specific determinants of private projects' cost and schedule overrun?
- What are the major causes of private projects' cost and schedule overrun due to borrower specific factors?
- What are the external factors that significantly contribute to the occurrence of cost and schedule overrun on private projects?

1.4. Objective of the study

1.4.1 General Objective

The general objective of this study is to assess the determinants of cost and schedule overrun on non-public or private sector projects financed by CBE.

1.4.2 Specific Objectives

In light of the general objective, the study has the following specific objectives:

- To review the status of private projects performance in line with cost. I.e., whether cost overrun exist or not and evaluate to what extent cost escalation exists.
- To review the status of private projects performance in line with schedule. I.e., whether time overrun exist or not and evaluate to what extent time overrun exists.
- To asses Bank specific factors that significantly contribute to the occurrence of Cost overrun on private projects.
- To asses Bank specific factors that significantly contribute to the occurrence of schedule overrun on private projects
- To investigate the major causes of private projects' Cost overrun due to borrower specific factors.
- To investigate the major causes of private projects' schedule overrun due to borrower specific factors
- To identify the major determinants of private projects' Cost overrun in connection with external factors.
- To identify the major determinants of private projects' schedule overrun in connection with external factors.

1.5. Significance of the Study

Understanding the contribution of private sector projects to the economy, would help the country fully exploit the benefits of the projects that is essential for sustainable economic growth. In this regard, a clear picture of the factors for cost and schedule overrun becomes very important in order to remove impediments that deter the performance the projects. The outcomes of this study may, therefore, shade light on factors that hinder the performance of private sector projects in connection with cost and schedule. Understanding these would help private investors and related bodies take appropriate measures to remove the impediments and be able to fully utilize the benefits of the projects.

In addition, the Bank will use the findings of the study as an input to mitigate the risks of project loans from falling under budget and schedule overrun, and become in a better position to appraise financially viable projects that contribute to the national economy in general and to the profitability of the Bank in particular. Besides, knowing the factors of the problem, it will help the bank to mitigate repeated requests of rescheduling and additional loan injection for the projects.

1.6. Scope and limitation of the Study

It would be more significant if more other measures of project cost and schedule performance have been included in the study, though the study is also be caught up in between time and cost limitations. Therefore, the findings from the assessment is limited to the study area and the conclusions to be found may not possibly represent other projects owned by public and projects financed by other commercial banks which are not bounded by this study.

Furthermore only credit performers who have direct day to day relationship to the projects are included as respondents of the questioners. The policy makers and government investment offices and authorities who affect the performance of projects are not included. Moreover, only very few empirical studies are found on this specific research.

1.7. Thesis Organization

The research work consists of five chapters. The first chapter introduces the background of the study, followed by statement of the problem, research questions, objectives of the study, significance of the study, scope and limitation of the study and organization of the thesis.

The second chapter deals with literature review. In this regard, the theoretical and empirical Literatures are reviewed.

Chapter three states about methodology and describes the study area, research strategy, the research design, research type, data type and source, the population and sample size, data collection instrument, method of data presentation, analysis and interpretation, ethical consideration and the measurement of reliability and validity.

Chapter four is devoted to the analysis and presentation of the findings, interpretation of data, and the related information.

The fifth chapter winds up the assessment by giving conclusions in the light of the findings. And at last recommendations are made based on the concluded findings.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Theoretical Review

2.1.1. Project Finance

Project Finance can be characterized in a variety of ways and there is no universally adopted definition but as a financing technique, the author's definition is: "the raising of finance on a Limited Recourse basis, for the purposes of developing a large capital- intensive infrastructure project, where the borrower is a special purpose vehicle and repayment of the financing by the borrower will be dependent on the internally generated cash flows of the project"

Project financing is largely an exercise in the equitable allocation of a project's risks between the various stakeholders of the project.

Typical stakeholders of a Project Finance transaction

Stockholders	Summary of role in a project financing
Sponsors	The equity investor(s) and owner(s) of the Project Company – can be a single party, or more frequently, a consortium of Sponsors
Government	The government may contractually provide a number of undertakings to the project company, sponsors, or lenders which may include credit support in respect of the procurer's payment obligations (real or contingent) under a concession agreement
Contractors	The substantive performance obligations of the Project Company to construct and operate the project will usually be done through engineering procurement and construction (EPC) and operations and maintenance (O&M) contracts respectively
Feedstock provider(s) and/or Off taker	More typically found in utility, industrial, oil & gas and petrochemical projects: <ul style="list-style-type: none"> ✓ One or more parties will be contractually obligated to provide feedstock (raw materials or fuel) to the project in return for payment ✓ One or more parties will be contractually obligated to 'off take' (purchase) some or all of the product or service produced by the project.

	Feedstock/Off take contracts are typically a key area of lender due diligence given their criticality to the overall economics of the project (i.e. the input and output prices of the goods or services being provided)
Lenders	Typically including one or more commercial banks and/or multilateral agencies and/or export credit agencies and/or bond holders.

(Gardner, D. and WrightJ.2010).

2.1.2. Overview of Project Cost and Schedule Overrun

Project success can be defined as meeting goals and objectives as prescribed in the project plan. A successful project means that the project has accomplished its technical performance, maintained its schedule, and remained within budgetary costs. Project management tools and techniques play an important role in the effective management of a project. Therefore, a good project management lies in the management tools and techniques used to manage the project. Project management involves managing the resources—workers, machines, money, materials and methods used. Some projects are effectively and efficiently managed while others are mismanaged, incurring much delay and cost overruns (Frimpong, Y.2003).

The inability to complete projects on time and within budget continues to be a chronic problem worldwide and is worsening. According to Ahmed et al. (2002), overruns on construction projects are a universal phenomenon. Azhar (2008) states that the trend of cost overruns is common worldwide and that it is more severe in developing countries.

Cost and schedule overruns can occur for a wide variety of reasons on various types of projects. If project costs or schedules exceed their planned targets, client satisfaction could be compromised. The funding profile may no longer match the budget limit and further slippage in the schedule could result. The resulting effects are detrimental, especially in the case of developing countries, the measure of whose wealth is greatly dependent on their performance in providing infrastructure through the construction industry. Delays and cost overruns have a debilitating effect on clients, contractors and consultants in terms of growth in adversarial relationships, mistrust, litigation, arbitration, cash flow problems and a general feeling of trepidation towards each other (Ahmed et al., 2002). Because of construction delays and cost overruns, less and less work is performed, despite the increases in construction budgets.

2.1.2.1 Definition of an Overrun

The common definition of an overrun in most studies is a change in cost or schedule relative to the final estimate provided when the approval or “go decision” was made until construction is completed and the facility is operational. This definition means that a project is not necessarily considered on time and on budget just because it was built within the contracted price and schedule. Rather a project is considered on time and on budget only if it is built to the final estimate at the time when the project was approved, which is typically before a construction contract is signed. (Matti Siemiatycki, 2015)

In construction, delay could be defined as the time over run either beyond completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project. It is a project slipping over its planned schedule and is considered as common problem in construction projects. To the owner, delay means loss of revenue through lack of production facilities and rent-able space or a dependence on present facilities. In some cases, to the contractor, delay means higher overhead costs because of longer work period, higher material costs through inflation, and due to labor cost increases.

Cost overrun is the amount by which actual costs exceed the baseline or approved costs. It is defined as the positive difference between the final or actual cost of a construction project at completion and the contract amount agreed by the client and the contractor during signing of the contract (Abubeker Jemal Mustefa, 2015)

2.1.3 Causes, Effects and Control of Project Time Overrun

➤ Causes for Project Time Overrun

Stages	External issues	Internal issues
Pre-planning	<ul style="list-style-type: none"> • Delay in regulatory approvals • Unavailability/delayed availability of funds • Land/site handover 	<ul style="list-style-type: none"> • Lack of project managers/commercial managers with adequate planning skills • Lack of Planning officer • Lack of safety officers/environmental practitioners • Lack of cost manager
Planning and design	<ul style="list-style-type: none"> • Ineffective procurement planning • Design/scope change • Delay in regulatory approvals • Delay in decision making 	<ul style="list-style-type: none"> • Lack of planning engineer/commercial managers • Lack of liaison officer or planning engineer

Execution and monitoring	<ul style="list-style-type: none"> • Weak/ineffective project planning & monitoring • Contractual disputes • Unavailability/delayed availability of funds • Delay land/site handover 	<ul style="list-style-type: none"> • Lack of project managers/site managers/planning engineers/quantity supervisors • Lack of awareness modern equipment & technology • Lack of liaison officer and commercial officers
Closure and handover	<ul style="list-style-type: none"> • Pre-commissioning teething troubles • Contractual disputes 	<ul style="list-style-type: none"> • Lack of commissioning, project and site managers, audit and total quality management professionals

Source: KPMG in India – PMI Survey on cost and schedule overrun 2012.

Schedule Overrun occurs when a project’s time restriction is violated. In other words project doesn’t meet its expected deadline as some of tasks from its Critical Path have been delayed by the project team. Schedule Overrun makes the Project Customer not satisfied by performance of the team, as the project has run out of its predefined timeframes, but the desired products haven’t been delivered to the Customer yet. Schedule overrun may mean not only non-meeting of the final due date of a project, but also missing to match predefined project milestones while this project is still in process, which may underlie further delay if not rectified as appropriate.

The main reasons for Schedule Overrun can be the following:

- Poorly performed time estimation of the project tasks and activities (in other words the project schedule was not fully accurate and feasible);
- Risks were underestimated on the project planning phase (some of project risks occurred much more threatening than thought before);
- Unforeseen circumstances and factors hampered the progress (something really unpredictable has broken the project plans, let’s say a tornado);

- Poor quality control caused frequent and costly reworks (the quality management system wasn't properly implemented and it wasn't able to fulfill its functions on every step);
- Poor work organization and planning;
- Internal conflicts within the project team

Source: Task Management Guide [accessed 2017] <http://www.taskmanagementguide.com>

2.1.3.1 Effects of Time Overrun

Effects of schedule overruns are the consequences that will occur when the causes of these schedule overruns are not identified and worked on effectively. The study of Pourrostan and Ismail (2011) identifies and ranks the effects of construction delays as follows: time overrun, cost overrun, dispute, arbitration, litigation, and total abandonment of projects. These findings are in general agreement with other studies as carried out by Aibinu and Jagboro (2012) and Motaleb and Kishk (2010).

According to Wickwire (2003) and Bramble (1990), types of schedule impacts are classified into five major groups. Namely:

- ✓ **Delays**
- ✓ **Disruptions**

A disruption can be defined as an impact that alters the contractor's planned work sequence or flow of work expected at the time of bidding, which results in increased difficulty, cost, and/or time (Bramble, 1990 and Wickwire, 2003). When this occurs, the contractor cannot perform work in the manner anticipated during bid preparation, thus resulting in a schedule impact. Damages associated with disruption are likely to be increased labor costs due to inefficiency, the activation/deactivation of increased manpower, and additional equipment costs (Wickwire et al., 2003).

- ✓ **Changes**

Another major type of potential schedule impact involves changes. When a contractor takes on any type of work that deviates from the original contract, or from the scope of work or plan of action reasonably anticipated under the contract, that results in an increase in performance time, the contractor may seek an adjustment (Bramble et al., 1990). Before determining the impact of the change on the schedule, the change must be identified as truly being a change from the original contract or merely a situation that should have been anticipated by the terms of the original agreement (Bramble et al., 1990).

- ✓ **Suspensions**

A suspension of work is a written directive by the owner to stop all work on the project, either because the contractor has failed to perform in accordance with contract documents, or at the owner's convenience (Wickwire et al., 2003).

Work will not continue until the owner has raised the suspension of work. A cost and time adjustment shall be made for any suspension of work ordered by the owner, as long as the contractor was not responsible for the suspension of Work. As opposed to a pure delay, when an owner issues a suspension of work, the contractor is also entitled to equitable adjustment for profit (Wickwire et al., 2003).

✓ **Termination**

Termination is a permanent stoppage of work of all or a portion of the contract and the contract is terminated. For a party to possess the right for termination, a termination clause must be specifically included in the contract. Most contracts allow the owner the right to terminate the contract, while some contracts grant the contractor this right.

There are two categories of termination, the first type being default termination, which gives the owner the right to terminate the contract when the contractor's performance is either:

1. Far behind a reasonable time schedule or
2. Results in work that fails to meet contract quality requirements or
3. When the contractor becomes financially insolvent. (Bartholomew, 2002)

The second type of termination, convenience termination, allows the owner to terminate the contract for its convenience, based on specific needs of the owner. For example, if the owner is unable to fund the remainder of the project and there is a termination for convenience clause in the contract, the owner is allowed to terminate the contract.

2.1.3.2 Measures to Control Project time Overrun

The successful delivery of projects is affected by a wide variety of internal and external factors. Although, both internal as well as external factors impact the delivery of project, internal factors remain an area of concern by virtue of them being controllable. To deliver projects on time and within budget and scope, global infrastructure companies use formalized project management practices and take supportive steps for the developing the competency in this area. Additionally, with increasing project size and complexity, many companies have Institutionalized the use of standard methods for project and risk management. Also, various nations have showed an increased willingness to invest in training and development for project and program management staff

2.1.4 Causes, Effects and Control for Project Cost Overrun **Causes for Cost Overrun**

In recent times, it is extremely rare that a project is completed within its set budget. Proper planning is the key to a successful project, but there are few problems that are usually beyond the realm of planning. One of them is the

budget overrun. It's true that we can avoid certain problems through planning and proper execution but you can never predict exactly what would happen once you start a project.

Here are few of the some very common reasons that lead to budget overrun and how they could be avoided.

A. Under financing

One of the main reasons that cause budget overrun is under financing. Not allocating an adequate amount of budget to a project at the start will obviously lead to either budget overrun or failure. Assuming that a project will be a success, not allotting enough budgets is downright wishful thinking.

B. Unfeasible Cost Estimates

Cost estimation is an important process in a project and one common reason for budget overrun. If the cost is calculated on the basis of a hunch, or by inexperienced or unqualified personnel, then the project is unexpectedly going to face budget overruns. This might look fine at the earlier stages of a project, but often look unrealistic at latter stages.

C. Underestimating the Project Complexity

Large projects are usually at risk of overrunning its budget because the larger the project, the bigger the complications that may arise during its execution.

D. Prolonged Project Schedule

If the project is on schedule that does not necessarily mean that the project budget is also being met. On the other hand, if project schedule is extended, that automatically translates into more time and money that needs to be put into the project. Project extension means staff and resources would be required for more time.

E. Lack of Backup Plan

If you do not have a backup plan for any problem that might arise, then even the smallest delay in the schedule will cause an overrun.

D. Lack of Resource Planning

If you fail to effectively plan the resources that are available to you, then this would obviously lead to a budget overrun. One of the most common mistakes that cause overrun is the failure to estimate the resources that would be utilized during the project. They could be underestimated, seeing that

contracting conditions change accordingly and may have increased from the time when the project was planned. On the other hand, they could be overestimated and would lead to blockage of resources that could have been effectively utilized elsewhere.

Source: 6-evident-reasons-for-budget-overruns [accessed 2017] <https://www.project-management.com>

2.1.4.1 Reasons for cost overruns in different stage of the project

In execution phase:

- Escalation in labor cost/in effective utilization of labor
- Material price escalation beyond projection
- Inadequate availability of skilled resource
- Location and connectivity of project site
- Incremental financial cost(volatility of foreign exchange and borrowing cost)
- Design change/iterations
- Weak procurement planning
- Weak contract administration and claim management
- Wrong/poor selection of technology/equipment

In pre execution phase:

- Scope creep
- Ineffective detailed project report, original estimate, and budgeting of project
- Acquisition of land at market price
- High cost of environmental safeguard
- Poor selection of consultant
- Wrong/poor selection of technology/equipment

Angelo and Reina, (2002), stated that cost overrun is a major problem in both developed and developing countries. Several studies of major projects show that cost overruns are common. The causes of cost overrun in construction projects are varied, some are not only hard to predict but also difficult to manage [Morris and Hough, 1991].

2.1.4.2 Effects of Cost Overrun

Literature also revealed that extension of project, additional cost, budget short fall, adversarial relationship between participants of the project, delayed payments to contractors, poor quality workmanship and dissatisfaction by project owners and consequently by end users as the major effects of cost overruns.

2.1.4.3 Measures to Control Project Cost Overrun

- **Establishment of Project Management office**

Project Management office is an effective way for monitoring projects setting up a PMO, consisting of experienced managers and subject matter specialist of the company, help in timely identification of issues related to cost and schedule overrun and allow companies to take corrective actions in time. The PMO also serves as an independent body directly reporting to the Board of Directors about the progress of project and supports oversight on the projects. It drives successful implementation of projects, through implementation of leading project management processes, protecting project against risks and ensuring adequate guidance and information for timely decision-making. Implementing a PMO could help in achieving the following project objectives:

- **Reduced cycle time and delivery costs:** The PMO establishes and deploys standard set of project management processes and templates, which enables project managers with an established and tested module for better management and monitoring of projects. These reusable project management components help projects to engage all the functions in a more organized and efficient manner with much less effort. The standard approach reduces the learning time for the project team while adapting to the limitations and uniqueness of a project.
- **Improved quality of project deliverables:** The PMO, by virtue of standard global approach, deploys international best practices used at similar projects, thus, improving the quality of project deliverables. Also, the standardization of deliverable in line with globally established standards improves the acceptability of the deliverables worldwide.
- **Early identification of issues and risk:** The PMO regularly and independently tracks the status of the projects and identifies bottlenecks and risks that may impact project delivery. The use of established methodologies at regular intervals enables identification of issues and risks associated with the projects, enabling timely decision making by the relevant authorities.
- **Improved accuracy of project estimates:** The PMO takes a holistic view of the potential risks and benchmarks the existing project cost with similar projects, thus improving the accuracy of the project estimate. Also, the availability of the trained professionals reduces the chances of errors in different estimations.
- **Improved people and resource management:** The PMO provides training (internal or through vendors) and mentors managers to build core project management competencies. In certain set ups, the PMO also manages shared resources between various projects forming part of a common program providing better efficiency and utilization of these resources.
- **Re-use of knowledge and the ability to leverage that knowledge on current / future projects:** The PMO maintains the repository of key learning's from a project – pertaining to best practices as well as improvement areas. These learning are disseminated to all concerned

people in the organization and applied to current/future projects thus avoiding the risk of similar issues at different projects.

Managing construction costs includes planning, estimating, scheduling, forecasting and analyzing cost data, and finally implementing measures to correct construction cost problems. Throughout a project's planning, design, and construction phases, cost management is employed as a means of balancing a project's scope, expectation of quality and budget. The approach can be summarized as requiring the following three steps (Fetene, 2008):

I. Define the scope, the level of quality desired, time for completion and the budget,

ii. Ensure that the scope, quality, time and budget are aligned, and

III. Monitor and manage the balance of these components throughout the life of the construction project. Project cost management begins with the identification of the owner's objectives and ends when these objectives have been met. The purpose of project control is to ensure that the project's design, budget, and schedule are met by the project team. If any objective begins to slip, the project manager and/or the project team will identify this deviation early so that appropriate correction can be made timely. Project cost control provides management with cost related information for making decisions with a view to complete the project with specified quality, on time and within budgeted costs (Avots, 1983).

2.2. Review of Empirical Study

2.2.1 Causes, effects and Measures for Time overrun

➤ Causes for Project Time Overrun

Fugar *et al* (2010) studied delays in building construction projects in Ghana. Literature and semi-structured interviews were used to identify 32 causes of delay. These delay causes were evaluated using a questionnaire survey in order to identify the most important causes of delay. The questionnaire survey involved 130 respondents, composed of 39 contractors, 37 clients, and 54 consultants. The most important delay causes and groups of delay factors were ranked by their relative importance index. The delay factors were classified into nine major groups such as material, manpower, equipment, financing, environmental, changes, government action, contractual relations, and scheduling and controlling techniques. The financing group of delay factors was the most important factor, followed by material factors and thirdly followed by scheduling and controlling factors. The study result showed that the top ten influencing delay factors were: delay in honoring certificates, underestimation of the costs of projects, underestimation of the complexity of projects, difficulty in accessing bank credit, poor supervision, underestimation of time for completion of projects by contractors, shortage of materials, poor professional management, fluctuation of prices/rising cost of materials, and poor site management.

Abdo (2006) conducted a research on delays in public building construction projects and their consequences in Ethiopia through surveying 52 public building projects constructed by local contractors in the years between 1995 and 2005. A questionnaire survey was used to collect data on delays, and 62 responses from contractors, consultants, public owners and construction professionals were analyzed using mean score method. He grouped 80 hypothesized causes of delay into six categories which included design related, management related, construction related, finance related, code related, and force majeure related causes of delay. Of these groups of delay causes, design related causes of delay were the most frequent followed by management related delay causes. He finally identified 10 critical causes of delay in public building construction projects in Ethiopia which included scarcity of material in the market, late material supply, delayed payments to contractors, unrealistic performance schedule, change in subsurface conditions, client's finance shortage, adverse weather condition, less emphasis to planning, material and labor price escalation, and variations.

Endale Mamuye(2016) identifies causes of delay in 40/60 saving house project in Addis. According to him, late material supply, financial difficulties faced by the contractor, electric supply, problem of water supply, equipment unavailability, Delayed payments to contractors, Poor site management, Ineffective planning and scheduling of the project, late design review and approval, slowness in decision making process are identifies as the causes of project time overrun

According to Robel Assefa(2015), financial problems, managerial problems and contractor's ability are the main causes for the delay of Addis Ababa light rail transit construction project. He also stated that delayed delivery of materials on site, delayed site handover, delayed decision making and external work due to public agencies, right of way problems, incomplete designs, city master plan integration and demolishing or relocating public utility crossing problems were the major causes stated by the participants.

➤ **Effects of Time Overrun**

Aibinu and Jagboro (2002) studied the effects of construction delays on project delivery in Nigerian construction industry. The five effects of delay identified were:

1. Cost overrun;
2. Dispute;
3. Arbitration;
4. Total abandonment; and
5. Litigation.

In the study of Manavazhia and Adhikarib (2002), delays in the delivery of materials and equipment to construction sites are often a contributory cause to cost overruns in construction projects in developing countries. The actual impact of these delays on project costs was found to be on average, only about 0.5 per cent of the total budgeted cost of the projects (Abubeker Jemal Mustefa, 2015).

As identified by Endale Mamuy (2015) the impacts of the major causes of delay were time overrun and cost overrun to the client and the contractor in 40/60 housing project. Time overrun, cost overrun, loss of political and economic value towards the project, several arbitrations between the contracting parties are the effects of the delay encountered in Addis Ababa light rail transit construction project (Robel Assefa, 2015)

Aibinu and Jagboro (2002) studied the effects of construction delays on project delivery in Nigerian construction industry. The six effects of delay that were identified includes: time overrun, cost overrun, dispute, arbitration, total abandonment and litigation.

Koushki and Kartam (2004) concluded that time and cost overruns were the impact of the material selection time, their availability in the local market and the presence of the supervising engineer. It is important to improve the estimated activity duration according to the actual skills levels, unexpected events, efficiency of work time, mistakes and misunderstanding (Lock, 1996).

Delays influence negatively on the contractors performance and contribute to adverse impacts in construction projects such as contract disputes, low productivity and increase in construction costs that will also influence on the pre-determined of construction project objectives.

2.2.2 Causes and effects of cost overrun

➤ Causes For Cost Overrun

According to a study made in Turkey by Arditi, et al, (1985), the important sources for cost overruns were found to be inflationary pressures, increases in material prices and workmen's wages, difficulties in obtaining construction materials, construction delays, deficiencies in cost estimates prepared by public agencies and unexpected sub soil conditions were the most important sources for cost overruns.

Kaming, et al, (1997), studied the factors influencing construction time and cost overruns for high-rise projects in Indonesia, and pointed out that the major factors influencing cost overrun were material cost increase due to inflation, inaccurate material estimating and the degree of project complexity.

Mansfield, Ugwu, and Doran, (1994), found that cost overrun is attributed to problems in finance and payment arrangements, poor contract management,

material shortages, changes in site conditions, design changes, mistakes and discrepancies in contract documents, mistakes during constructions, price fluctuations, inaccurate estimating, delays, additional work, shortening of contract periods, and fraudulent practices and kickbacks.

Stewart, (1982), attributes cost overruns to several factors that are either not controllable or that to a varying degree are unmanageable. They include the accuracy of original cost estimate, degree of government regulation and control, construction completion delays, number of design changes, and labor related matters such as their availability, skills, and increases in fringe benefits.

Chan and Park, (2005), stated that the cost of a construction project is affected by a large number of factors because of the fact that construction is a multidisciplinary industry and its work involve many parties such as the project owner and various professionals, contractors and suppliers. Thus, construction project cost not only depends on a single factor but a cluster of variables that are related to the characteristics of the project and to the construction team as well as the market conditions.

According to Fetene Nega(2008),the most common causes of cost overrun in public projects of Ethiopia are inflation or increase in the cost of construction materials, change in foreign exchange rate (for imported materials), change orders and/or lack of control on excessive change orders, failure to identify problems and institute the necessary and timely actions..

Weywssa Ewnetu (2014) states that the main causes for cost overrun in Addis Ababa light rail transit construction project are:

- Delay and scope change of the contract date and items of work
- Variation caused due to underground and elevated structures at construction Stage
- Inadequate preconstruction study prior to the construction period which led to change in the control system and conceptual design of works
- Inadequate site investigation and unexpected ground conditions

➤ **Effects of Cost Overrun**

Effects of cost overruns are the consequences that will be encountered when cost overruns occur on a construction project. Nega (2008:63) states that cost overruns have obvious effects for the key stakeholders in particular, and on the construction industry in general. To the client, cost overrun implies added costs over and above those initially agreed upon at the onset, resulting in less returns on investment. To the end user, the added costs are passed on as higher rental or lease costs or prices. To the professionals, cost overrun implies inability to deliver value for money and could well tarnish their reputations and Result in loss of confidence reposed in them by clients. To the contractor, it implies loss of profit for non-completion, and defamation that could jeopardize

his or her chances of winning further jobs, if at fault. To the industry as a whole, cost overruns could bring about project abandonment and a drop in building activities, bad reputation, and inability to secure project finance or securing it at higher costs due to added risks (Nega, 2008:63).

The study of Nega (2008:103) further identified the following as the major effects of cost overruns: delays during construction; supplementary agreement; additional cost, budget short fall; adversarial relationship between participants of the project; loss of reputation to the consultant, the consultant will be viewed as incompetent by project owners; high cost of supervision and contract administration for consultants; delayed payments to contractors; the contractor will suffer from budget short fall of the client and poor quality workmanship. However, Eshofonie (2008:20) identifies four effects of cost overruns as follows: company or firm liability to insolvency and liability of the companies or firms to bad debt; underutilization of man-power resources, plants and equipment; increased project cost due to extension of time: Longer project duration means that more resources will need to be allocated to the project, which then increases the project costs and project abandonment.

There are many effects of cost overrun to stakeholders in the construction industry. The most common effects of cost overrun in the construction industry are; delay, supplementary agreement, budget short fall of project owners, adversarial relationship among stakeholders, and loss of reputation for professionals on the construction industry especially to consultants. (Fetene Nega, 2008)

2.2.3. Project Time and Cost Overrun in Ethiopia

Ethiopian construction industry is also incorporated these problems significantly such as poor quality, cost and time overrun. In Ethiopia, a study conducted by Nega, (2008) on predominant factors for cost overrun in construction projects are identified the following major cost overrun factors. These are inflation or increase in the cost of construction materials, poor planning and coordination, change orders due to enhancement required by clients, and excess quantity during construction.

There are enormous Public and private Projects in Ethiopia that incorporate these problems, for example, construction of buildings, roads and bridges. Research has pointed to the necessity of new methodology and approaches for the construction sector worldwide in order to overcome a well-known problem related to the performance of projects such as accomplishment rates, time, quality related issues and cost overruns.

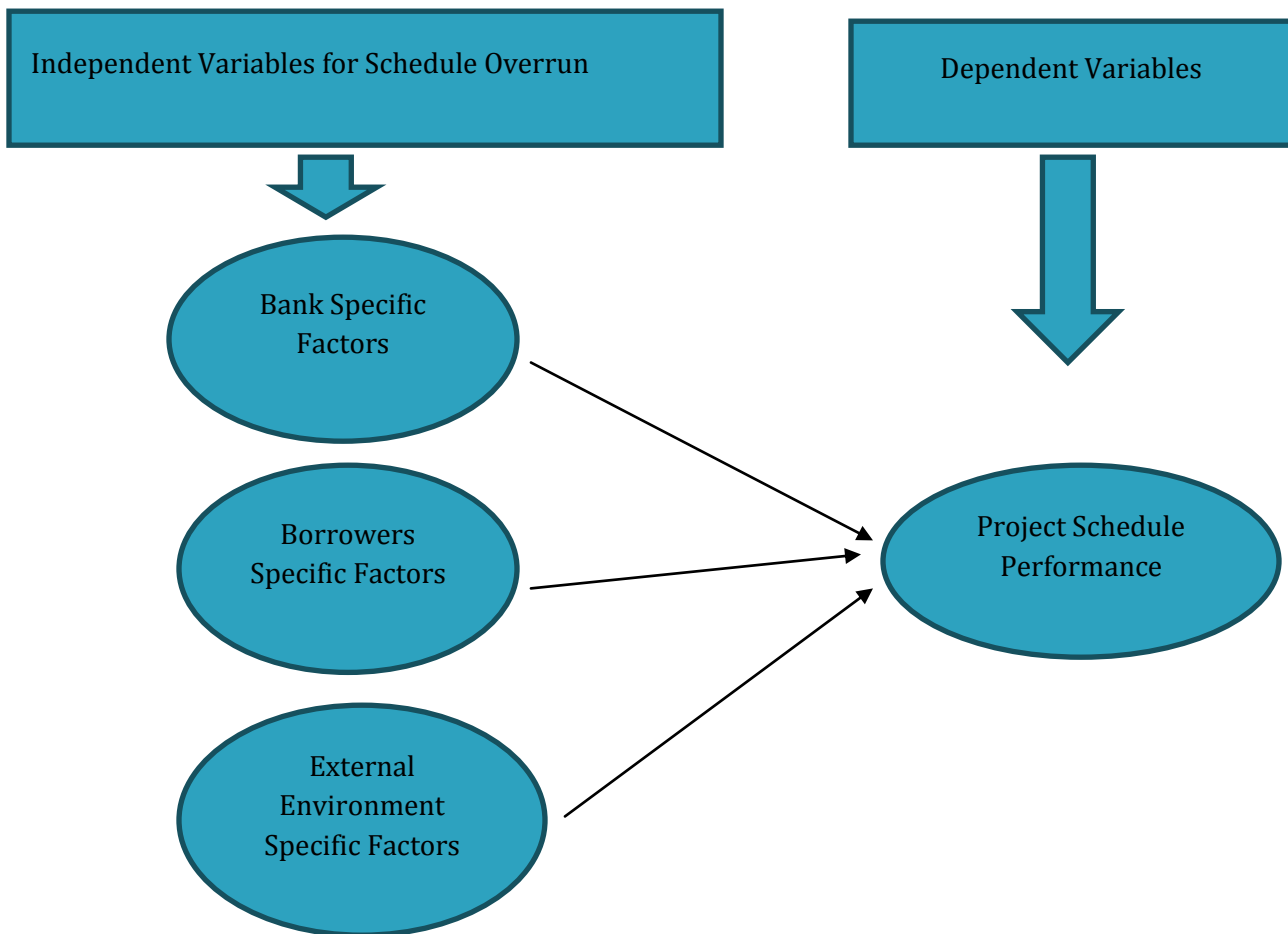
In Ethiopia, it is very rare case that private and public construction project is completed on the time agreed upon, the specified cost and quality level. There are a lot of construction projects in Ethiopia, which are characterized by low performance. Research has also pointed to a significantly high level of wasted

resources in the construction industry of developing country- both human and material; up to 30% of construction costs are due to poor performance

Further , study conducted by Zinabu Tebeje and Getachew Teka (2015), found out that the construction projects in Ethiopia have had problem with construction cost overruns that has mainly caused by schedule delay, delayed payments, poor supervision, construction mistakes, poor coordination and communication, design and specification problems, reworks, material and equipment shortage, labor supply and inflation .

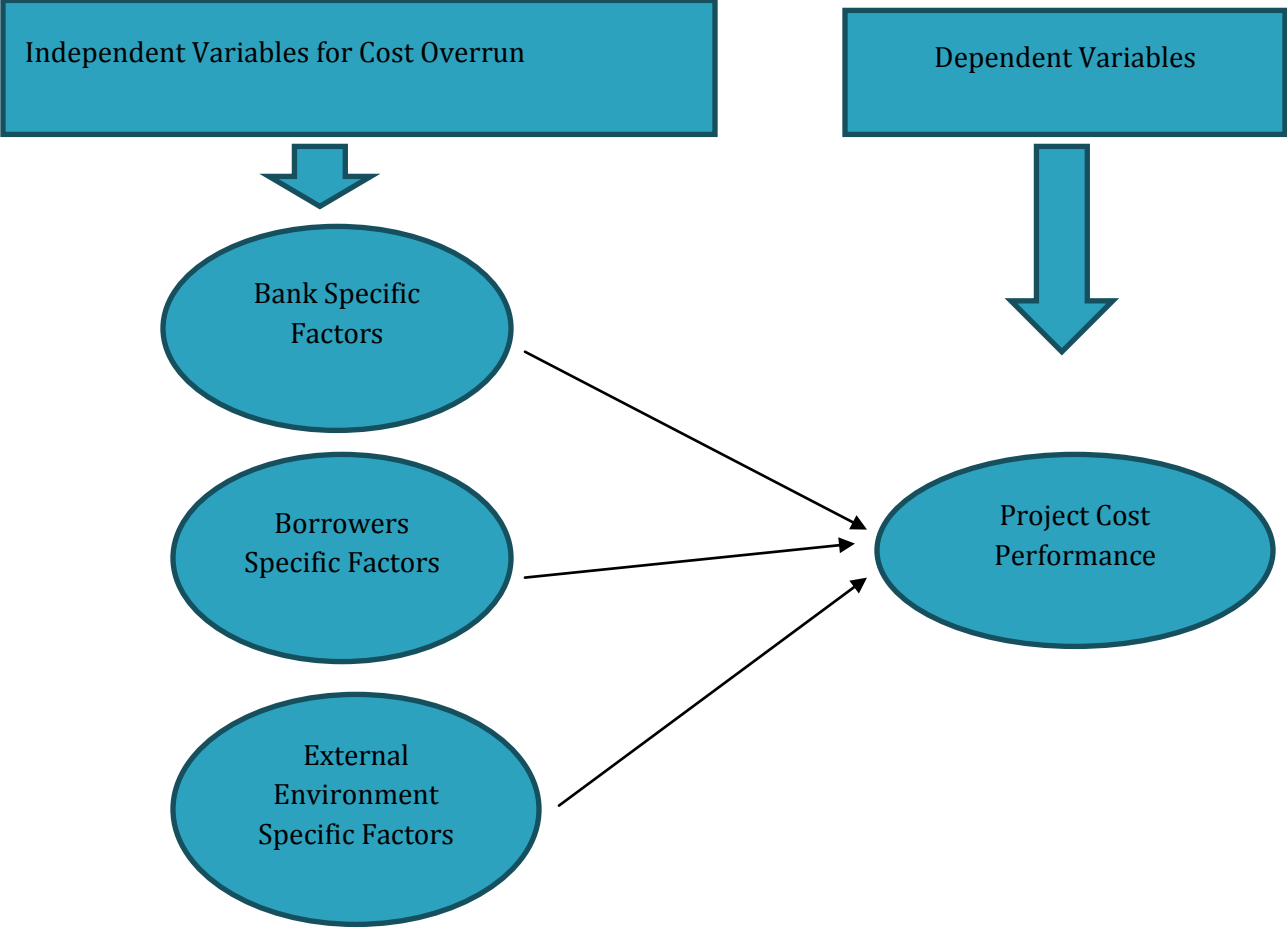
2.3 Conceptual Framework

Figure 1-Conceptual model of determinants of Project’s Schedule Overrun.



Source: Self-extracted

Figure 2-Conceptual model of determinants of Project's Cost Overrun.



Source: Self-extracted

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology of the thesis. The main topics included in this chapter are research strategy, research design, research type, data type and sources, population and sample size, data collection instrument, method of data presentation, analysis and interpretation, ethical consideration and measurement of reliability and validity test. The objective of this thesis is to identify factors affecting cost and time overruns on private projects financed by CBE and makes conclusions and recommendations based on the findings. The research strategy and design to be followed towards this end are discussed as follows.

3.2. Research Strategy

Recognizing that all methods have limitations, researchers felt that biases inherent in any single method could neutralize or cancel the biases of other methods (Creswell, 2003) thus suggests that a mixed methods design is useful to capture the best of both quantitative and qualitative approaches. Hence, mixed research strategy was used to conduct this research.

➤ Quantitative Research Approach

This approach was used to answer questions about the most determinants of cost and schedule overrun among the important variables. Its inquiry strategy was census design which provides a quantitative or numeric description of trends, attitude or opinion of a population by studying the whole population.

In order to understand the effects of one variable on the other, i.e. project Cost & Schedule overrun as a dependent variable and various bank specific, borrower specific and external specific determinants as an independent variable, a census design was used via structured questionnaire containing closed and open ended type of question. This quantitative research method minimizes subjectivity and arrives at more objective conclusion. However, quantitative approach is limited to the outcomes outlined only in the questionnaire. Hence, it is weak in understanding the context.

➤ Qualitative Research Approach

In order to minimize the limitation mentioned above in the quantitative approach and to obtain additional insight more than outlined in the questionnaire, in a less structured and more flexible approach a qualitative approach was also used. Using this approach an in-depth interview was

conducted on selected few respondents who have better experience in the bank as well as in project financing. These are members of project loan approving committee of three levels where each level has three members. Furthermore, document review on some project loan file was undertaken. However, qualitative method has a limitation because of the difficulty in generalizing findings to a large group as limited number of participants was involved in this approach.

3.3. Research Design

"Research design" refers to the plan or organization of scientific investigation, designing of a research study involves the development of a plan or strategy that will guide the collection and analyses of data (Poilt and Hungler, 1985).

This research consists of five phases; the first one is the proposal for identifying and defining the problems and establishment of the objectives of the study. The second phase of the research includes literature and empirical review. Literatures on project finance and mainly on time and cost overruns on projects. The third phase of the research is a methodology of the thesis. The fourth phase of the research includes result and discussion. In this phase the result of desk study and questionnaires is discussed. The last phase of the research includes the conclusions and recommendations.

3.4 The Research Type

This research can be categorized as exploratory and descriptive type. It is exploratory because the research finds whether time and cost overrun exists or not. It is also descriptive because it tries to describe the actual rate of time and cost overrun and the variables of time and cost overrun.

3.5. Data Type and Source of Data

Both primary and secondary sources of information were gathered. The primary source of information was obtained by census inquiry through self-administered structured questionnaires and an in-depth interview to credit performers of the bank. In this regard, however, either questioner or interview for the project promoter was not conducted due to time constraint to get the promoter. However, while the promoters lodge their credit application to CBE for rescheduling or additional project loan injection, they often justify the reason for overruns. Thus, reason for cost and schedule overrun in respect of the borrower can be answered by the credit performers and same was done. The secondary source of data was also obtained from the records of credit portfolio department of CBE, MIS report of CBE and few credit files of individual credit customers.

3.6. The Population

The target population is all 65 credit performers (the sum of credit appraisal experts and customer relationship managers) who are directly involved in the project financing process from beginning to end. Attempting to include the opinion of all the target population, 65 questionnaires were distributed physically; however, due to unavailability of some credit performers in their duty and other reasons, only 56 of them have filled and returned the questionnaire successfully. Hence, the respondent rate is 86%. In addition, since the population is homogeneous, the researcher assumed the responses obtained from the 86% represent the opinion of the population.

3.7. Sample Size

Determining sample size is very important issue because samples that are too large may waste a lot of time, resource and many, while samples that are too small may lead to inaccurate results.

A sample means some members of a society who represent the society and are homogenous with other members. Involving the whole population is unmanageable and costly for the researcher with limited time, resources and money. So sample of population have to be selected and relevant results to the population studied have to be generalized.

However, since the respondents of the questionnaire are small and manageable, the researcher used census type of survey design and simply took all respondents in project finance department. A complete enumeration of all items in the 'population' is known as a census inquiry. It can be presumed that in such an inquiry, when all items are covered, no element of chance is left and highest accuracy is obtained. However, it needs to be emphasized that when the universe is a small one, it is no use resorting to a sample survey. Jaipur. (1990). Research Methodology, Methods & Technique. 2nd. New-Delhi: New Age International Limited, p55. So the sample size is equal to the population, i.e., 65.

3.8. Data Collection Instruments

3.8.1. Questionnaire Development

In order to gather firsthand information, questionnaires were prepared and administered based on the review of literatures important to the subject of the study. The questioners used the same approach used by previous researcher who investigated the determinant of default in project finance, a case study on Commercial Bank of Ethiopia (Fikirte, G. 2015); however, some modification was made to reveal the determinants of cost and schedule overrun on private projects financed by CBE and to validate the variables employed. The questionnaire contained close and open ended items. Such kinds of

questionnaires are used because of their appropriateness to obtain relevant information, opinions, and attitudes from the population within a short period of time.

The questionnaires are designed in Likert scale and have four sections. The 1st section is all about the characteristics and attributes of the employee who filled the questionnaire including their current position in the bank, their educational qualification, their experience in the bank and in the credit process. The 2nd section incorporates the dependent variables of the research. The third and fourth sections incorporated all possible bank specific, borrower specific and external specific factors that contribute to project schedule and cost overrun respectively. In order to avoid biases by the respondents, the purpose of the study, i.e. only for the academic purpose, and the confidentiality of the response was explained in the beginning of the questionnaire.

3.8.2. In-Depth Interview

In order to strength the findings obtained through census inquiry, an in-depth interview was also conducted on the Bank's nine credit approving members, This has been done by considering their long years of experience in the bank as well as in the project financing.

3.8.3 Review of Document

So as to cross-check the results of the questioner and interview, further document review on 50 private project loan file has been undertaken and the result of same is included in the study.

3.9. Method of Data Presentation, Analysis and Interpretation of the Results

Following data collection, the details of the results were entered into an industry recognized computer assisted analyzing program (SPSS) to process the findings. Computer aided analysis programs save time and provide the accuracy and wide variety of analysis (Fisher, 2007). Saunders, et al. (2007) also support this argument and emphasis the advantages (time, inexpensiveness and accuracy) of computer aided analysis.

The method of analysis was mainly a descriptive one. To do this, SPSS program was employed to process the data. The variables of determinant of schedule and cost overrun detail were entered into a computer (SPSS program). Moreover, data obtained by review of the documents was analyzed quantitatively using statistical tools such as percentages, frequency, and mean to describe the data and to see the trend.

Finally, information obtained through interview was also summarized as additional information to reinforce what was obtained from the census and document review results.

3.10. Ethical Considerations

Ethics is one of the major considerations in research. The researcher of this study is also subject to the following ethical considerations.

- The research work was started after getting the willingness of the stated organization.
- Respondents were clearly communicated about the objective of the research before they are asked to give their answer. This issue also presented at the front page of the questioners.
- The confidentiality of responses and information obtained from the credit performers was kept properly.
- There was no any physical or psychological damage to them because of the research.
- Respondents were not asked about their name, race, religion, etc.
- The findings of the research were presented without any deviation from the outcome of the research. In addition, the researcher gave full acknowledgements to all the reference materials used in the study.

3.11. Measurement of Reliability and Validity

In a research, validity and reliability of findings must be confirmed. Validity of a research is the accuracy or correctness of the results or findings. Reliability is assessment of the extent to which a question, instrument or measure gives correct results. One way to increase validity and reliability is data triangulation. Data triangulation is using multiple data sources and collection techniques. Merging and converging of research data collected from different sources and techniques can eliminate any biases in the study and increases reliability of the findings. Hence the researcher has used data triangulation as a one way of confirming validity and reliability. Accordingly, structured questioner, interview and review of document has been used and the research topic and questions were discussed with different credit performers and reviewed and some basic modifications were conducted to avoid ambiguity of items and maintain the precision to be clear for the participants to answer correctly. The researcher also believes that this study is reliable since the respondents were selected based on their past experience on credit management and their answers were expected to be credible. Furthermore, ambiguous terms were not used in questioner and interviews to avoid confusion.

Corn Bach's alpha is a coefficient of reliability used to measure the internal consistency of a scale; represented as a number between 0 and 1. According to

Zikmund et al. (2010) scales with coefficient alpha between 0.6 and 0.7 indicate fair reliability. To validate the results empirically, appropriate reliability and validity tests of the measurement were taken.

In this connection, the reliability coefficient (Cronbach's alpha) values for eleven areas of bank specific factors, 26 areas of borrower's specific factors and twenty two areas of external environment factors were assessed. The Cronbach alpha coefficient for the items mentioned range from 0.672 to 0.942 (Source: Questionnaire and SPSS output) which are greater than the cutoff value of 0.6.

Hence one can reasonably infer that the questionnaire can assess determinants of cost and schedule overrun in terms of the factors identified in a useful way.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This chapter presents the results of descriptive analysis of the study using data gathered from a total of 65 questionnaires distributed, out of which 56 were returned complete and met the screening requirements, representing a net response rate of 86% for further analysis. Statistical data also has been entered into a program SPSS (Statistical Packages for Social Science) and analyzed using frequency and descriptive statistical techniques. Moreover, Data collected through interview from officials of Commercial Bank of Ethiopia who are in charge of approving project loan request is included. Furthermore, reviews of documents are assessed to strengthen the findings. Thus, this chapter is organized into three sections; in the first section, the data obtained from the questionnaires are presented and analyzed. The second part is a document review part, which indicates the results obtained from the actual recorded data. The third part shows the results obtained by an in-depth interview.

4.1. Census Result

This section is further organized into three sections; the first section is the respondent's profile, including their current position in the Bank, their experience in the overall banking and credit area, and their educational qualifications. The second part describes the responses of the respondents regarding dependent variables. The third part of the chapter describes all respondents' opinion about independent variables such as determinant factors of cost and schedule overrun on projects financed by CBE in respect of bank specific, borrower's specific and external environment specific factors.

4.1.1. Analysis and Interpretation of Respondent's profile

This section shows the respondent's profile regarding their current position in the Bank, their experience in the overall banking business as well as in the credit area and their educational qualifications.

Table 4.1 Respondents' Current Position in the Bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Customer Relationship Manager	32	57.1	57.1	57.1
	Credit Appraisal Expert	24	42.9	42.9	100.0
	Total	56	100.0	100.0	

Source: Census result, 2017

As exhibited above, a large portion of the respondents are customer relationship manager who represents 57.1% of the responses. The remaining 42.9% of the respondents are covered by credit appraisal expert. (Table 4.1).

Customer Relationship Managers, who have large proportion of the respondents, have relatively more exposure in the project financing as they are in touch with the customers from customer recruitment to final loan disbursement. Further, follow-up of the project status up until completion of the project is the responsibility of the CRM. Whereas, Credit Appraisal Experts are those who are in charge of independently appraise the initial feasibility study submitted by the promoter in connection with project cost and schedule, viability of the project and recommend on the amount of project expenditure and implementation time frame.

Hence, the researcher assumed that the respondents are very familiar with project finance and causes of project cost and schedule overrun.

Table 4.2 Respondents' Experience in Banking Industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1) 0-5 years	5	8.9	8.9	8.9
	2) >5 but <10 years	21	37.5	37.5	46.4
	3) >10 but <15 years	12	21.4	21.4	67.9
	4) Above 15 years	18	32.1	32.1	100.0
	Total	56	100.0	100.0	

Source: Census result, 2017

The above table shows that 8.9%, 37.5%, 21.4% and 32.1% of the respondents have 0-5 years, greater than 5years but less than10 years, greater than 10years but less than 15 years and above 15 years of experience in the banking industry respectively. (See table 4.2). Thus, one can deduct that majority of the respondents have enough experience in the banking business.

Table 4.3 Respondent's experience in the Bank's project finance Process

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 years	7	12.5	12.5	12.5
	>5 but <10 years	46	82.1	82.1	94.6
	>10 but <15 years	3	5.4	5.4	100.0
	Total	56	100.0	100.0	

Source: Census result, 2017

As indicated in table 4.3 above, the majority of respondents (82.1%) have project finance experience from 5 to 10 years. On the other hand the same table reveals that 12.5% of the respondents have project finance experience of less or equal to 5 years, whereas 5.4% of them falls from 10 to 15 years of experience. According to Jaipur (1990) experience survey means the survey of people who have had practical experience with the problem to be studied. The object of such a survey is to obtain insight into the relationships between variables and new ideas relating to the research problem. For such a survey people who are competent that can contribute new ideas may be carefully selected as respondents to ensure a representation of different types of experience. In this respect, majority of responses of the questioners are characterized by respondents of 5 to 10 years of experience in project finance. Accordingly, their opinion and view on the determinants of project cost and schedule overrun is based on their experience in the credit process.

Table 4.4 Respondent’s Educational Background

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Master’s Degree	34	60.7	60.7	60.7
	Bachelor Degree	22	39.3	39.3	100.0
	Total	56	100.0	100.0	

Source: Census result, 2017

As far as educational qualification of the respondents is concerned, 60.7% and 39.3% of them have Master’s and Bachelor Degree respectively (table 4.4.). Thus, one can see that the respondents are well qualified.

In general the respondents’ profile indicates that most have adequate educational qualification and their opinion regarding the determinants of cost and schedule overrun is also based on sufficient academic knowledge.

4.1.2 Analysis and Interpretation of Dependent Variables

Table 4.5 Respondent’s opinion regarding susceptibility of project’s schedule overrun

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	40	71.4	71.4	71.4
	NO	3	5.4	5.4	76.8
	I DO NOT KNOW	13	23.2	23.2	100.0

	Total	56	100.0	100.0
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Source: Census result, 2017

Table 4.6 Respondent's opinion regarding susceptibility of project's cost overrun

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	49	87.5	87.5	87.5
	NO	5	8.9	8.9	96.4
	I DO NOT KNOW	2	3.6	3.6	100.0
	Total	56	100.0	100.0	

Source: Census result, 2017

Table 4.7 Respondent's opinion concerning the extent of overall project time overrun on average

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I don't Know	13	23.2	23.2	23.2
	No Time Overrun	3	5.4	5.4	28.6
	1-5%	6	10.7	10.7	39.3
	6-10%	3	5.4	5.4	44.7
	More than 10%	31	55.3	55.3	100
	Total	56	100	100	

Source: Census result, 2017

Table 4.8 Respondent's opinion concerning the extent of overall project cost overrun on average

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I don't Know	2	3.6	3.6	3.6
	No Time Cost	5	8.9	8.9	12.5
	1-5%	6	10.7	10.7	23.2
	6-10%	8	14.3	14.3	37.5
	More than 10%	35	62.5	62.5	100
	Total	56	100	100	

Source: Census result, 2017

In order to find out the availability and extent of cost and schedule overrun on private projects financed by CBE, respondents were asked to give their

agreement/disagreement and level of same. It can be noted from the tables depicted above that the majority of the respondents articulated their agreement. Accordingly, 87.5% and 71.4% of the respondents have agreed the susceptibility of projects on cost and schedule overrun respectively (Table 4.5 and 4.6). Further, 55.3% and 62.5% of the respondents have rated the extent of time and cost overrun being more than 10% (Table 4.7 &4.8).

From this one can infer that private projects financed by CBE often susceptible for cost and schedule overrun significantly, that are consistent with the literature. Ahmed et al. (2002) and Azhar (2008) state that the inability to complete projects on time and within budget continues to be a chronic problem worldwide and is worsening. Overruns on construction projects are a universal phenomenon and the trend of cost overruns is common worldwide and that it is more severe in developing countries.

4.1.3 Analysis and Interpretation of Bank Specific Factors for Project Schedule and Cost Overrun

Table 4.9- Respondent’s Average degree of agreement on Bank Specific Factors for Time Overrun

	N	Mean	Rank	Std. Deviation
1.Shortage of Foreign currency supply	56	4.1429	1 st	1.10254
2.Inconvenience terms and pre-condition for phase loan disbursement	56	3.7321	2 nd	1.11992
3.Poor due diligence assessment to know the customer : Commitment, financial capacity etc.	56	3.6786	3 rd	1.30881
4.Under-financing	56	3.6429	4 th	1.25667
5.Inadequate skill of the credit performers to appraise project loan and feasibility there on	56	3.5714	5 th	1.09307
6.Poor monitoring and follow-up	56	3.5536	6 th	1.18965
7.Long loan delivery time	56	3.3393	7 th	1.16427
8.Management intervention in loan processing and approval	56	3.0714	8 th	1.07631
Valid N (list wise)				
Overall Mean		3.5915		

Source: Own Census result, 2017.

NB: The Mean column is measured by degree of agreement by interval in 5-Likert scale to the Census items 1= non-determinant, 2 = to some extent determinant, 3 = neutral, 4= determinant, 5 =highly determinant.

Table 4.10 Respondent’s Average Degree of Agreement on Bank Specific Factors for Cost Overrun

	N	Mean	Rank	Std. Deviation
1.Underfinancing	56	3.5357	1 st	1.19033
2.Delay from bank’s side	56	3.1786	2 nd	1.25201
3.High Interest rate charged by the Bank	56	2.2500	3 rd	1.33825
Valid N (list wise)				
Overall Mean		2.9881		

Source: Own Census result, 2017.

NB: The Mean column is measured by degree of agreement by interval in 5-Likert scale to the Census items 1= non-determinant, 2 = to some extent determinant, 3 = neutral, 4= determinant, 5 =highly determinant.

In order to find out the effect of bank specific factors towards project’s cost and schedule overrun, respondents were asked their agreement and rate the determinant level of each factors.

Accordingly, the researcher compared respondent’s average degree of agreement (mean) of each bank specific factors for project schedule overrun against the overall mean of the variables which are stated in descending order.

In this regard, factors that have value more than the overall mean (stated from serial number 1 to 4) are articulated by the respondents as more determinant of project schedule overrun than the other and the ones below the overall mean value (from serial number 5 to 8) have less determinant as compared to the others (Table 4.9).

As far as bank specific factors for project cost overrun is concerned, on two of the factors i.e., under financing and delay from bank’s side, respondents are agreed as determinants of project cost overrun while High Interest rate charged by the Bank, is not that much determinant(Table 4.10)

4.1.4 Borrower Specific Factors on Project Schedule and Cost Overrun

Table 4.11- Respondent's Average Degree of Agreement on Borrower Specific Factors for Time Overrun

	N	Mean	Rank	Std. Deviation
Fund diversion for unintended purpose	56	4.0536	1 st	1.11876
Lack of commitment by the project promoter	56	4.0357	2 nd	.87312
Improper planning on time estimation	56	4.0357		.85204
Management capacity problem to run the project	56	4.0000	3 th	1.02691
Financial problems	55	3.9818	4 th	.97165
Un-planned and ambitious business expansion	56	3.9643	5 th	1.02628
Delay in implementation period/suspension of work by owner	56	3.7679	6 th	1.00889
Lack of understanding of the project by the project promoter	56	3.7500	7 th	1.01354
Slow decision-making by owners.	56	3.7321	8 th	.96278
Lack of awareness modern equipment & technology	56	3.7143	9 th	1.00389
Internal conflict	56	3.6071	10 th	1.03886
Death or disability of the borrower and lack of good successor	56	3.4643	11 th	1.20551
Valid N (list wise)				
Overall Mean		3.8422		

Source: Own Census result, 2017.

Table 4.12- Respondent’s Average Degree of Agreement on Borrower Specific Factors for Cost Overrun

	N	Mean	Rank	Std. Deviation
Incomplete and not well prepared feasibility study presented by the project promoter/unfeasible cost estimation	56	4.2500	1 st	.87905
Unplanned expansion/Change order	56	3.9286	2 nd	1.10958
Lack of Resource Planning	56	3.9286	3 rd	.78293
Delay from borrower side	56	3.9286	4 th	1.09307
Underestimating the Project Complexity	56	3.9107	5 th	1.03180
Poor selection of consultant	56	3.8393	6 th	.98676
Lack of Backup Plan	56	3.8036	7 th	.77271
Weak procurement planning	56	3.7321	8 th	.86321
Prolonged Project Schedule	56	3.6964	9 th	1.14288
Poor communication and coordination	56	3.6607	10 th	.93957
Wrong/poor selection of technology/equipment	56	3.6429	11 th	1.05190
Mistakes during construction.	56	3.5357	12 th	1.20551
Discrepancies between contract documents	56	3.2857	13 th	.94800
Acquisition of land at market price	56	3.2321	14 th	1.14401
Valid N (list wise)	56			
Overall Mean		3.74101		

Source: Own Census result, 2017.

NB: The Mean column is measured by degree of agreement by interval in 5-Likert scale to the Census items 1= non-determinant, 2 = to some extent determinant, 3 = neutral, 4= determinant, 5 =highly determinant.

Respondents were asked to rate their level of agreement regarding the effect of borrower specific factors on project cost and schedule overrun. As can be learned from table 4.11 portrayed above, the comparison of respondents average degree of agreement of each borrowers specific factors of time overrun against the overall mean, indicates that factors such as:

- Fund diversion for unintended purpose
- Lack of commitment by the project promoter
- Improper planning on time estimation
- Management capacity problem to run the project
- Financial problems and
- Un-planned and ambitious business expansion are the most determinants of project time overrun in their descending order, while those factors rated below the overall mean (ranked from 7th-12th) are less determinants than the other.

As regards to borrowers specific factors for project cost overrun, similar way of comparison shows that borrowers related variables listed from serial number 1 to 7 are the most determinant ones. On the other hand, factors listed from serial number 8 to 14 are less determinant as compared to the rest (Table 4.12).

Consistently, KPMG in India – PMI Survey on cost and schedule overrun, 2012 shows that Lack of project managers/commercial managers with adequate planning skills, Lack of Planning officer, Lack of awareness on modern equipment & technology are some of the internal factors that can cause project time overrun. Further, poorly performed time estimation of the project tasks and activities, underestimation of project risk on planning phase, Poor work organization and planning and internal conflicts within the project team are factors for project time overrun. <http://www.taskmanagementguide.com> (Accessed 8 April.2017).

In addition underestimating the project complexity, prolonged project schedule, unfeasible cost estimate, lack of backup planning, lack of resource planning are factors for project cost overrun. <https://project-management.com/6-evident-reasons-for-budget-overruns> (Accessed 8 April 2017).

4.1.5 External Environment Specific Factors on Project Schedule and Cost Overrun

Table 4.13 Respondent’s Response on External Environment Specific Factors for Time Overrun

	N	Mean	Rank	Std. Deviation
Lack of utilities: power, water, communication	56	4.1429	1 st	.96160

Inflation	56	4.1250	2 nd	.95465
In availability of necessary information to appraise the loan at national level such as; National Bank of Ethiopia, Central Statistics Authority, Ministry of Industry, Investment office, etc.	56	4.0893	3 rd	1.11644
Political Factors	56	3.9107	4 th	1.21021
Major disputes and negotiations with external organ.	56	3.7857	5 th	.96699
Design/scope change due to external factors	56	3.7321	6 th	.98148
Contractual disputes with external organ	56	3.5893	7 th	1.00502
Delay on Land/site handover	56	3.5893		1.10826
Regulatory changes	56	3.4643	8 th	1.00841
Unforeseen ground condition during construction	56	3.4286	9 th	1.10958
Delay in regulatory approvals	56	3.3750	10 th	1.18418
Weather condition	56	3.2321	11 th	1.14401
Valid N (list wise)				
Overall Mean		3.4063		

Source: Own Census result, 2017.

NB: The Mean column is measured by degree of agreement by interval in 5-Likert scale to the Census items 1= non-determinant, 2 = to some extent determinant, 3 = neutral, 4= determinant, 5 =highly determinant.

Table 4.14 Respondent's Response on External Environment Specific Factors for Cost Overrun

	N	Mean	Ran k	Std. Deviation
Incremental financial cost(volatility of foreign exchange and borrowing cost)	56	3.9464	1 st	.74881
Difficulties to get prompt service from government office	56	3.9286	2 nd	.89152
Inadequate availability of skilled resource	56	3.6964	3 rd	.93263
Unstable and unpredictable market situation in the country /Inflation	56	3.6429	4 th	1.11890
Delay due to external factors	56	3.6250	5 th	1.13718

Escalation in labor cost	56	3.3036	6 th	1.04307
High cost of environmental safeguard	56	3.2500	7 th	1.16385
Unpredictable weather conditions	56	3.1071	8 th	1.27463
Valid N (list wise)				
Overall Mean		3.5625		

Source: Own Census result, 2017.

NB: The Mean column is measured by degree of agreement by interval in 5-Likert scale to the Census items 1= non-determinant, 2 = to some extent determinant, 3 = neutral, 4= determinant, 5 =highly determinant.

External Environment factors are causes of project cost and schedule overrun which are beyond the control of the Bank and the borrower as well. Under this specific factor twelve points for schedule overrun and eight issues for cost overrun have been considered and respondents have given their opinion.

Relating each mean of the factors to the overall mean of respondent's degree of agreement, the researcher has ranked the level of determinants of the factors on project schedule. Accordingly, all are the most determinants of project schedule overrun even-if variables such as delay in regulatory approvals and weather condition have had mean value of less than the overall mean which fall under less determinant relative to the others (table 4.13).

Likewise, respondents were asked to rate their level of agreement on each of the external factors as to how each one can affect project cost. The SPSS result in this regard generated the out-put and the average level of agreement of all respondent on each factors. To simplify the analysis work, the researcher has compared each individual mean against the whole. In view of this, the respondents agreed that factors such as: Incremental financial cost (volatility of foreign exchange and borrowing cost), difficulties to get prompt service from government office, Inadequate availability of skilled resource, unstable and unpredictable market situation in the country /Inflation and Delay due to external factors are rated as the most determinants of project cost overrun as compared to the other three. On the other hand, respondents were agreed on the factors: Escalation in labor cost, high cost of environmental safeguard and unpredictable weather conditions being less determinant than the other on the problem under discussion (Table 4.14)

KPMG in India – PMI Survey on cost and schedule overrun, 2012 tabulated external issues for the causes of project time overrun as follows:

Stage	External issues
Pre-Planning	Delay in regulatory approvals, unavailability/delayed availability of funds and land/site handover
Planning & Design	Ineffective procurement planning, design/scope change, delay in regulatory approvals and delay in decision making
Execution and Monitoring	Weak/ineffective project planning & monitoring, contractual disputes, unavailability/delayed availability of funds and delay land/site handover
Closure and hand over	Pre-commissioning teething troubles and contractual disputes

Further, the main reasons for Schedule Overrun can be escalation of labor and material cost, unforeseen circumstances and factors hampered the progress (something really unpredictable has broken the project plans, let's say a tornado)<http://www.taskmanagementguide.com>(Accessed 8 April.2017).

Same reference, KPM- in India- PMI survey on cost and schedule overruns 2012 states reasons of external environment on cost overruns as follows:

- Escalation in labor cost/in effective utilization of labor
- Material price escalation beyond projection
- Incremental financial cost(volatility of foreign exchange and borrowing cost)
- Acquisition of land at market price

Angelo and Reina, (2002), stated that cost overrun is a major problem in both developed and developing countries. Several studies of major projects show that cost overruns are common. The causes of cost overrun in construction projects are varied, some are not only hard to predict but also difficult to manage (Morris and Hough, 1991). Therefore, one can conclude that the output of the research is in line with the literature.

4.2. Review of Documents

In order to obtain more insight on the findings of the census, a document and raw data review was made in the bank's credit and MIS department and thus, the researcher analyzed the data and information obtained from different project loan files of the borrower and raw data from MIS as depicted in sub title 4.2.1 and 4.2.2 below.

4.2.1. Review of Trends of Project Loan

Considering the last five years data of private project loan approval i.e. from 2011/12-2015/16, project loans and advances approved and granted for private investors has an increasing trend. In view of this, project term loan

advanced for private investors increased from birr 1.025 billion in the year 2011/12 to birr 6.63 billion in the year 2015/16 (Table 4.15).

Table 4.15 Project Loan granted within five consecutive years in ‘000,000

Year	Agriculture	BC	DTS	Industry	International Trade	Other	Total
2011/12	47	4	139	796	37	0.775	1,025
2012/13	9	75	1,015	462	68	24	1,655
2013/14	44	147	626	3,979	1	24	4,824
2014/15	520	436	1,315	2,605	118	50	5,046
2015/16	109	400	2,868	3,231	0	20	6,630
Total No. Of Loan Files in each Sectors	20	60	241	140	16	12	489
No. of Reviewed Loan Files in each Sector	2	6	24	14	2	2	50

Source: Raw data from CBE-MIS & Credit Department and analyzed by the researcher, 2017

4.2.2 Review of Project Loan File

As can be seen from table 4.15 above, the number of project loan files from year 2011/12 to 2015/16 (for five years) is 489, for which the researcher has trapped in time constraint to review all or most of them. Besides, most of the old files where full information of costs and schedule can be found are in old archive and thus difficult to get them easily. Thus, the researcher tried to conduct review of project loan file on 50(fifty) of them, which are in proportion to the total number of files in each sector.

Table 4.16: Major Causes of project schedule overrun on the 50 project in the credit department.

	I. Bank Specific Factors for time overrun	Number of occurrence in cases
1	Long loan delivery time.	11=14.1%
2	Under-financing; so that it takes long time to the borrower to fill the gap.	16=20.5%
3	Poor monitoring and follow-up.	3=3.8%
4	Shortage of Foreign currency supply.	45=57.7%
5	Inconvenience terms and pre-condition for phase loan disbursement.	3=3.8%
	Sub Total	78=100%
II. Borrower related Factors for time overrun		
1	Un-planned and ambitious business expansion.	22=38.6%
2	Death or disability of the borrower and lack of good successor.	2=3.5%
3	Financial problems (In connection to promoter's equity contribution)	33=57.9%
	Sub Total	57=100%
III. External Factors for time overrun		
1	Un availability of necessary information to appraise the loan at national level such as; National Bank of Ethiopia, Central Statistics Authority, Ministry of Industry, Investment office, etc.	3=5.66%
2	Inflation	41=77.4%
3	Lack of utilities: power, water, communication.	9=17%
	Sub Total	53=100%
	Grand Sum of the three specific factor	188
	I. Bank Specific Factors for time overrun=78/188=41.5%	
	II. Borrower Specific Factors=57/188=30.3%	
	III. External Specific Factors=53/188=28.2%	

Table 4.17: Major Cause of project cost overrun on the 50 project loan in the credit department.

I. Bank Specific Factors for cost overrun		Number of occurrence in cases
1	Under financing. As a result, for example, the promoter may search for additional fund at high cost of capital, may elongate project implementation period which directly related to cost escalation, etc.	10=100%
Sub Total		10=100%
II. Borrower related Factors for cost overrun		
1	Unplanned expansion/Change order.	21=60%
2	Incomplete and not well prepared feasibility study presented by the project promoter/unfeasible cost estimation.	12=34.3%
3	Mistakes during construction.	2=5.7%
Sub Total		35=100%
III. External Factors for cost overrun		
1	Unstable and unpredictable market situation in the country/Inflation, escalation in labor cost	43=91.5%
2	Inadequate availability of skilled resource. As a result skilled often imported from abroad.	4=8.5%
Sub Total		47
Grand Total		92
I. Bank Specific Factors=10/92=10.9%		
II. Borrower Specific Factors=35/92=38%		
III. External Specific Factors=47/92=51%		

➤ **Bank Specific Factors for project time and cost overrun**

One can infer from tables above that shortage of foreign currency supply is the most determinant factor for project time overrun followed by under financing. Shortage of foreign currency supply frequently occurred on 45 cases or 57.7% from the total cases; whereas the second determinant factor, under financing, occurred on 16 cases or 20.6% of the cause for the problem. (Table 4.16).

As far as determinant factors for project cost overrun from banks perspective is concerned, under financing by the bank is the only determinants of project cost overrun which is stated on 10 of project term loan file and thus, the promoter search for additional fund at high cost of capital. As a result leads to elongation of project implementation period which directly related to cost escalation (Table 4.17).

➤ **Borrowers Specific Factors for project time and cost overrun**

Same table above depicts that under this factor, financial problems in connection to promoter's equity contribution covering 57.9% of the factors is the most determinant one for project schedule overrun followed by un-planned and ambitious business expansion having 38.6% of the factors (Table 4.16).

On the other hand, among the borrower specific factors, unplanned expansion/change order and incomplete/ unfeasible cost estimation / not well prepared feasibility study presented by the project promoter are found to be the first and second most cause of project cost overrun. These factors cover 60% and 34.3% of the total factors under its group (Table 4.17).

➤ **External Specific Factors for project time and cost overrun**

External environment factors are determinants that are out of the control of the borrower and the bank as well. Under this specific factor, Inflation /exchange rate fluctuation which composed of 77.4% of the causes followed by Lack of utilities: power, water, communication which is 17% of same are registered as the utmost causes for project time overrun (Table 4.16).

With reference to project cost escalation, inflation and inadequate availability of skilled resource stood first and second holding 91.5% and 8.5% of the reason for the issue.

In sum, as computed above in table 4.16, bank specific factors (41.5%) followed by borrower specific factors (30.3%) and external environment factors (28.2%) are determinant factors of project schedule overrun chronologically. Same method of computation also reveals that external environment factors, borrowers' related factors and bank related factors are determinants of project cost escalation with 51%, 38% and 10.9% coverage respectively. Thus, the result obtained from document review support the census result.

4.3. In-Depth Interviews

Data collected through interview from committee members of credit approving team who are in charge of deciding on the project term loan are incorporated.

Table 4.18 Interviewee’s Current Position in the Bank

Position	Frequency
Vice Presidents (One interviewee from Credit Portfolio and one from Credit Relationship Department)	2
Directors (One interviewee from Credit appraisal and Two from Credit Relationship Department)	3
Credit Portfolio Manager	1
Credit Approving Chair Persons(One interviewee from each level)	3
Total	9

Source: Census result, 2017

Table 4.19 Interviewee’s Experience in Banking Industry and Project Finance

Years	Frequency of experience in Banking industry	Frequency of experience in Project finance
0-5 years	0	0
>5 but <10 years	0	3
>10 but <15 years	2	6
Above 15 Years	7	0
Total	9	9

Source: Census result, 2017

Table 4.20 Interviewee’s Educational Background

Educational Levels	Frequency
Master’s Degree	9
Bachelor Degree	0
Total	9

Source: Census result, 2017

In view of the tables above, one can learn that all interviewees have master's degree and serving in banking industry beyond 10 years. Even except three of them, all interviewees have serving the bank in project finance more than ten years. Thus, the researcher concludes that their response in this regard is nearest to the fact (Table 4.18 to 4.20).

In connection to this, the responses obtained during an interview reveals that it is a common phenomenon for the projects to experience schedule and cost escalation.

One of the interview questions was about the causes of cost and schedule overruns in respect of the financier, the promoter and external environments. Accordingly, the researcher pointed out the response of the interviewees as follow:

4.3.1. Bank Specific Causes of project cost and schedule overrun

Factors for project time escalation

- ✓ Shortage of Foreign currency supply-After completion of the factory building, erection and installation of machineries, projects took long time as a result of foreign currency shortage to import the machineries.
- ✓ Lack of Monitoring and follow up-The CRMs, who are in charge of following the status of the project, often tied up with routine office work and unable to see early signal of the project's schedule.
- ✓ Lack of expertise-In financing a project, all marketing, technical, financial and other parts of the feasibility of the project often done by a person with limited discipline. As a result, cost and time estimation of the appraiser is not full. Consequently, additional time will be utilized to entertain appeal of the promoter.
- ✓ Minimum Risk appetite of the bank-It is common in the bank's project finance to disburse project loan in different phases so as to control the fund to be used for intended purpose only. In this regard, to release the first phase disbursement, the bank expects the promoter to execute at least 30% of the project cost. This takes time for the customer to mobilize fund.
- ✓ Disbursement terms and conditions-Sequence of disbursement phase set by the bank during approval of the project loan usually not work on the ground.

- ✓ Common International Mode of payment used by the bank-LC mode of payment is an international payment modality where importing and exporting country banks involve on the issue to minimize risk. Whereas TT mode of payment is an advance payment made by the importing investor without the involvements of both banks so that the exporter send the goods after receiving the payment and hence, riskier than LC. Furthermore, TT's commission charge and processing time is costly and longer than TT. In view of this, bank prefers LC while promoters prefer TT to save time and cost.

Factors for project cost escalation

- ✓ Cost escalation due to delay as a result of waiting for foreign currency
- ✓ Under financing-Consequently, the promoter forced to search for additional fund at high cost of capital.
- ✓ Follow up and Monitoring
- ✓ Common International Mode of payment used by the bank

4.3.2. Promoter's Specific Causes of project cost and schedule overrun

Factors for project time escalation

- ✓ Documentation Problem-Project loan processing document expected from the promoters usually is not complete and not delivered to the bank on time. Besides, some documents delivered to the bank with its discrepancy. For instance land usage permit in the title deed differs from the projects deliverables. And hence, take time to correct same.
- ✓ The feasibility study delivered by the promoter often not to the standard and the promoter take time to adjust accordingly.
- ✓ In adequate Equity Contribution of the promoter- After approval of the project loan, the promoter takes time to mobilize its part contribution for which the promoter not well prepared in advance.
- ✓ Lack of commitment- Most local investors fund their new project from existing side business. In connection to this, they usually give time for the operational business than the project.
- ✓ Un-planned expansion- On the course of project implementation, the owner often implements new ideas regardless of the initial plan. Especially on the parts of the building and machineries.
- ✓ In Ethiopia, most projects are owned by family members and hence everyone, regardless of their knowledge decides on the issue.
- ✓ Errors during construction-Some factory buildings constructed in advance of the importation of the machineries were found less in size and hence couldn't accommodate the machineries. As a result another more time was demanded to readjust same.

Factors for project cost escalation

- ✓ Delay by the project owner to implement the project on time.
- ✓ Un-planned expansion of the project scope.
- ✓ Lack of project cost management skill- As most of private project run by family members, they fail to hire professional and try to manage project cost by themselves.
- ✓ Over-invoicing- Some foreign investors import project goods like machineries and others at unreality cost so as to minimize their part contribution on the project.
- ✓ Some foreign investors come up with second-hand dismantled machineries and equipment in the country for project implementation. Thus, cost of rehabilitation subject to escalate.
- ✓ Errors during construction

4.3.3. External Environment Specific Causes of project cost and schedule overrun.

Factors for project time escalation

- ✓ Foreign currency problem- can be grouped as external factors as it depends on international market situation.
- ✓ Lack of Infrastructure and utility- Even after the completion of the factory building and importation of the intended machineries, as a result of lack of power, the machineries may not be installed on time.
- ✓ Lack of Prompt service from government offices- Municipality and other government offices fails to give timely service to the project.
- ✓ Change of Government Policy -Especially tannery projects were affected by the policy when it forced them to produce finished leather instead of semi-finished.
- ✓ Infrastructure construction by the Government-national rail way that passes through Oromia Region, Gelan town affects some projects.

Factors for project cost escalation

- ✓ Time wasted to wait for foreign currency permission.
- ✓ Time wasted to wait for utilities
- ✓ Change in government policy
- ✓ Infrastructure construction by the Government
- ✓ Inflation, labor and material cost escalation

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

The first objective of this study was to identify whether time and cost overrun exist or not on private projects finance by CBE and to what extent. The second objective was to asses Bank specific factors that significantly contribute to the occurrence of Cost and schedule overrun. Investigating the major causes of project Cost and schedule overrun due to borrower specific factors was the third objective. The forth objective of the study was to identify the major determinants of Cost and schedule overrun in connection with external factors.

In order to do this, mixed research strategy with a descriptive research method was employed using a census type approach for collection of data. In addition, semi structured interview was conducted with credit approving members of the bank for collection of primary data. Secondary sources of data mainly obtained from CBE's MIS and credit department pertaining to the major causes of the overrun and the amount of project term loan advanced to private investors within five years. These sources are investigated to supplement and to serve as the bases for the instruments and findings of the study. A total of 65 questionnaires were distributed to all population based on census method out of which 56 responses were returned complete and hence were used as a source of primary data.

The method of analysis was mainly descriptive using frequency, percentage, and mean when deemed appropriate. Statistical data also had been entered into a program SPSS (Statistical Packages for Social Science) and analyzed using descriptive statistical techniques. Data collected through interview from members of credit approving team was incorporated in sub topics that match to the response obtained. Besides, document review on fifty project loan file was undertaken.

Thus, on the basis of the previous chapters, this chapter offers conclusion and recommendations to shade light on factors that causes cost and schedule overrun on private projects financed by CBE. This would help private project owners, the financer and related bodies to take appropriate measures to remove the impediments and be able to finalize the projects on its due time with reasonable cost. At the end of this chapter further research is mentioned.

5.1. Conclusions

Based on the results of the analysis of the census, review of document and interview, the following conclusions are drawn.

5.1.1 Result of the analysis Based on Questioners Response

- The first specific objective of the thesis was to identify whether time and cost overrun exist or not and evaluate the extent of time and cost overrun on private projects financed by CBE. Accordingly, 87.5% and

71.4% of the respondents have agreed the susceptibility of projects on cost and schedule overrun respectively. Further, 55.3% and 62.5% of the respondents have rated the extent of time and cost overrun being more than 10%.

- The second objective was to assess Bank specific factors that significantly contribute to the occurrence of project cost and schedule overrun. In this regard, out of the eight factors, four of them such as shortage of foreign currency supply, Inconvenience terms and pre-condition for phase loan disbursement, Poor due diligence assessment to know the customer (i.e., customer's commitment, financial capacity etc.) and under-financing are articulated by the respondents as the most determinant of project schedule overrun. As far as project cost overrun in this specific factor is concerned, on two of the factors i.e., under financing and delay from bank's side, respondents are agreed as determinants of project cost overrun while High Interest rate charged by the Bank, is not that much determinant.
- Investigating the major causes of project Cost and schedule overrun due to borrower specific factors was the third objective. Result indicates that factors such as:
 - Fund diversion for unintended purpose
 - Lack of commitment by the project promoter
 - Improper planning on time estimation
 - Management capacity problem to run the project
 - Financial problems and
 - Un-planned and ambitious business expansions are the most determinants of project time overrun in their descending order.As regards to borrowers specific factors for project cost overrun, census result shows that incomplete and not well prepared feasibility study presented by the project promoter/unfeasible cost estimation, unplanned expansion/change order, lack of resource planning, delay from borrower side, underestimating the project complexity, poor selection of consultant and lack of backup plan are the most determinant one.
- The fourth objective of the study was to identify the major determinants of Cost and schedule overrun in connection with external factors. Under this specific factor, twelve points for schedule overrun and eight issues for cost overrun have been considered and respondents have given their opinion. In this connection:

- Lack of utilities: power, water, communication
- Inflation /exchange rate fluctuation
- In availability of necessary information to appraise the loan at national level such as; National Bank of Ethiopia, Central Statistics Authority, Ministry of Industry, Investment office, etc.
- Political Factors
- Major disputes and negotiations with external organ
- Design/scope change due to external factors
- Contractual disputes with external organ
- Delay on land/site handover
- Regulatory changes and unforeseen ground condition during construction are the most determinants of project schedule overrun.

On the other hand, respondents agreed that factors such as: Incremental financial cost (volatility of foreign exchange and borrowing cost), difficulties to get prompt service from government office, Inadequate availability of skilled resource, unstable and unpredictable market situation in the country /Inflation and delay due to external factors are rated as the most determinants of project cost overrun

5.1.2 Conclusion Based on Review of Document

Bank Specific Factors for project time and cost overrun

- Lag on the permission of foreign currency is the most determinant factor for project time overrun followed by under financing. However, questioner census result indicates that under financing is the least determinant factor for time overrun out of the most four factors. As far as determinant factors for project cost overrun from banks perspective is concerned, under financing by the bank is the only determinants of project cost overrun.

Borrowers Specific Factors for project time and cost overrun

- under this factor, financial problems in connection with promoter's equity contribution is the most determinant one for project schedule overrun followed by un-planned and ambitious business expansion. On the other hand, among the borrower specific factors, unplanned expansion and unfeasible cost estimation presented by the project promoter are found to be the first and second most cause of project cost overrun. These also supported by the census result.

External Specific Factors for project time and cost overrun

Under this specific factor, Inflation /exchange rate fluctuation followed by Lack of utilities: power, water, communication are registered as the utmost causes

for project time overrun. But, even if outcome of the census supports this result, lack of utility stood first in the census whereas inflation stood second. With reference to project cost escalation, inflation and inadequate availability of skilled resource stood first and second. However, the census result ranks these two factors reversely.

In sum, the document review reveals that bank specific factors (41.5%) followed by borrower specific factors (30.3%) and external environment factors (28.2%) are determinant factors of project schedule overrun chronologically. Same method of computation also reveals that external environment factors, borrowers' related factors and bank related factors are determinants of project cost escalation with 51%, 38% and 10.9% coverage respectively.

5.1.3. Interview Result

Bank Specific Causes of project cost and schedule overrun

➤ Factors for project time escalation

Shortage of foreign currency supply, lack of monitoring and follow up, lack of expertise, minimum risk appetite of the bank, disbursement terms and conditions, and Common International Mode of payment used by the bank are factors for time overrun according to the interview. But, factors such as lack of expertise, minimum risk appetite of the bank, and common International mode of payment used by the bank are not supported as the cause of the problem per the review of the documents.

➤ Factors for project cost escalation

Cost escalation due to delay as a result of waiting for foreign currency, under financing, follow up and monitoring, common International mode of payment used by the bank are determinants of cost escalation. However, on the review of the documents, only under financing was raised as a factor for the problem.

Promoter's Specific Causes of project cost and schedule overrun

➤ Factors for projects time escalation

In view of the interview result, documentation problem, poor feasibility study, In-adequate equity contribution of the promoter, lack of commitment, un-planned expansion, and errors during construction is determinant factors for time overrun. Nevertheless, of the stated factors above, documentation problem, poor feasibility study, lack of commitment and

errors during construction are not factors for time escalation according to the document review.

➤ **Factors for project cost escalation**

Delay by the project owner, un-planned expansion, lack of project cost management skill, over-invoicing, secondhand machineries employed by customers and errors during construction are factors for cost overrun. In this regard, result from review of document support the result.

External Environment Specific Causes of project cost and schedule overrun.

➤ **Factors for project time escalation**

Determinants such as foreign currency problem, lack of Infrastructure and utility, lack of prompt service from government offices, change of government policy and infrastructure construction by the government which affects premises of the project are contributors for time overrun according to the interview. In this regard, however, except lack of utility, the rest are not supported by the document review as a determinant for time escalation.

➤ **Factors for project cost escalation**

Time wasted to wait for foreign currency permission, time wasted to wait for utilities, change in government policy, infrastructure construction by the government that affect premises of the project, inflation, labor and material cost escalation are contributors for cost overrun according to the interview result. Among the above factors, Inflation, labor and material cost escalation are supported by the results of review of the document.

According to the forgoing analysis, the researcher concluded that most of the results derived from the census, interview and review of documents are consistent even if there exists some mismatch among them.

5.2. Recommendation

In order to minimize and control schedule and cost overruns on private projects financed by CBE, the researcher suggests the following recommendations to all parties concerned.

- In order to avail foreign currency for project promoters on time, the bank has to work on the performance of export/international business. To do this incentive for exporter has to be provided. In doing so, cost and

schedule escalation as a result of foreign currency shortage will be improved.

- Pre-conditions set by the bank for phase disbursement of the project loan should be convenient for the promoter/project. Before setting same, the bank has to discuss with the borrower as to the pre-condition and sequences of phase loan disbursement.
- Before setting the financial structure of the project in view of banks and promoter contribution, strong due diligence assessment has to be done by the bank first to know the customer commitment and financial capacity. Further, the bank shall increase its risk appetite in regards to its contribution proportion to the project. In doing so time and cost escalation as a result of financial capacity of the borrower would be minimized.
- To minimize the level of under financing, the bank should attentively advise the promoter to include all necessary project items on the feasibility study. The study should be done by a professional and experienced person. Further, a case shall be assigned for a team with diverse educational and experience qualification on technical, financial, and marketing parts rather than assigning the whole case to a single person with limited discipline.
- To control fund diversion by the promoter, the bank should work on customer's attitude change first. Workable phase disbursement of the loan to maintain check and balance of the disbursement amount and work executed should be implemented followed by monitoring and control. In this connection, the CRM's who are in charge of following and controlling of the project status and allocation of funds, should be detached from routine office work so that it would be possible to focus on core duty.
- The customer should be advised to set realistic plan in regards to time, cost, resources and activities to be done with appropriate contingency margin. Moreover, the promoter should have a backup plan whenever plan "A" would not appropriate.
- It is recommended that professional consultant and project manager should be hired by the customer so that the level of complexity of the project would be known at initial or planning stage to cope up with it.
- Availability of utility, mainly electric power should be critically confirmed by appropriate government office before the approval of the project loan.
- The bank should work with NBE, ERCA, Ethiopian Statistic Authority and other as to the establishment of data depository system so that information exchange among parties will improve quality of project appraisal and hence cost and time performance.
- To control or at least to minimize the external environment factors, the promoters as well as the bank are advised to do uncertainty analysis first, and then activities planning while preparing project work plan and feasibility study. Beyond this, additional resource injection on critical

path is recommended so that cost and schedule overrun that would have been occurred otherwise will at least be minimized.

- As much as possible, the bank is advised to strictly adhere with the existing loan delivery time.
- To control and minimize the risk of project time and cost schedule as a result of death of the promoter, the bank should advice its customers to establish a succession plan.
- To import machineries and related items from abroad, TT mode of payment should be allowed to foreign customer at least up to its equity contribution. In view of this, time consumed following LC mode of payment will be minimized. On the other hand, to control over-invoicing related to the importation of the items, the bank shall assess different sources beyond the proforma invoice to arrive at realistic cost of the items. Moreover, to control the importation of dismantled machineries, the bank should set pre-condition during the approval of the project loan and this should be part of the loan contract. For instance, it would be appropriate to set as “the sequential loan disbursement shall be realized after confirming that the already imported machineries are brand new”.

5.3. Suggestion for Further Research

The limitations indicate the following suggestions for the future research in the area of determinants of cost and schedule overrun on private projects financed by CBE.

This study limited to private projects financed by CBE. In this regard, only credit performers who have direct day to day relationship to the projects are included as respondents of the questioners and interview. The policy makers, oversees sellers, project owners and government investment offices who can affect the performances of projects' cost and schedule are not included.

Although the study provides insight into some of the independent variables affecting project cost and schedule performance, future researches needed to replicate and extend by including more other variables or measures of project cost and schedule overrun determinants.

Furthermore, study for public projects and projects financed by other commercial banks can be tried in future researches.

APPENDIX-A

QUESTIONNAIRE FOR RESEARCH THESIS

Introduction

This questionnaire is prepared to obtain information from key informants with structured questions. The information is required for the academic research entitled “Determinants of Time and Cost Overrun on private projects financed by CBE”, which is being conducted as partial fulfillment of the requirements for the award of masters of arts degree in project management.

The main objective of the research is to identify the main factors that lead to time and cost overruns, and make recommendations based on the findings. The questionnaire consists of four sections. **Section A**-consists of basic attributes of the credit performers/respondents, **Section B**-is about the dependent variables (i.e., Cost and schedule overrun), **Section C** contains factors of time overrun (independent variables), and **Section D**-- contains factors of cost overrun (independent variables). At the end there is a space that left for general comments regarding the research topic.

Your response, in this regard, is highly valuable and contributory to the outcome of the research. All feedback will be kept strictly confidential, and will be utilized for this academic research only.

Thank you,

Sisay Zeleke

Post graduate student, Project Management

A.A University, College of commerce department of Project Management

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SECTION-A

Basic attribute of the Credit Performer

Please indicate your responses by circling your choice

1. Your current position in the Bank

- 1) Customer Relationship Manager
- 2) Credit Appraisal Expert

2. Your experience in the Banking Industry

- 1) 0-5 years
- 2) >5 but ≤10 years
- 3) >10 but ≤15 years
- 4) Above 15 years

3. Your experience in the Bank project finance Process

- 1) 0-5 years
- 2) >5 but ≤10 years
- 3) >10 but ≤15 years
- 4) Above 15 years

4. Your Educational Background

- 1) Masters Degree
- 2) Bachelor Degree
- 3) Diploma
- 4) Others, please specify _____

SECTION-B

General Questions about Dependent Variables

1. Do you think that projects financed by CBE are often susceptible to schedule overrun

1. Yes 2. No 3. I don't know

2. Do you think that projects financed by CBE are often susceptible to cost overrun?

1. Yes 2. No 3. I don't know

3. How do you rate (in percentage) the extent of overall project time overrun on average?

1. No Time Overrun 2. I don't know 3. 1-5% 4. 6-10% 4. More than 10%

4. How do you rate (in percentage) the extent of overall project cost overrun on average?

1. No cost Overrun 2. I don't know 3. 1-5% 4. 6-10% 4. More than 10%

SECTION-C

Factors Related to Time Overruns

Please indicate the significance of each factor by circling the appropriate number in the boxes.

NB; 1= non-determinant, 2 = to some extent determinant, 3 = neutral, 4= determinant, 5 =highly determinant

I. Bank Specific Factors for time overrun						
1	Poor due diligence assessment to know the customer: Commitment, financial capacity etc.	1	2	3	4	5
2	Long loan delivery time.	1	2	3	4	5
3	Inadequate skill of the credit performers to appraise project loan and feasibility there on.	1	2	3	4	5
4	Management intervention in loan processing and approval	1	2	3	4	5
5	Under-financing: so that it takes long time to the borrower to fill the gap.	1	2	3	4	5
6	Poor monitoring and follow-up.	1	2	3	4	5
7	Shortage of Foreign currency supply.	1	2	3	4	5
8	Inconvenience terms and pre-condition for phase loan disbursement.	1	2	3	4	5
II. Borrower related Factors for time overrun						
1	Fund diversion for unintended purpose.	1	2	3	4	5
2	Un-planned and ambitious business expansion.	1	2	3	4	5
3	Lack of commitment by the project promoter.	1	2	3	4	5
4	Lack of understanding of the project by the project promoter.	1	2	3	4	5
5	Management capacity problem to run the project.	1	2	3	4	5
6	Death or disability of the borrower and lack of good successor.	1	2	3	4	5
7	Delay in implementation period/suspension of work by owner.	1	2	3	4	5
8	Slow decision-making by owners.	1	2	3	4	5
9	Financial problems (In connection to promoter's equity contribution)	1	2	3	4	5
10	Improper planning on time estimation.	1	2	3	4	5
11	Lack of awareness on modern equipment & technology.	1	2	3	4	5
12	Internal conflict.	1	2	3	4	5

III. External Factors for time overrun						
1	Un availability of necessary information to appraise the loan at national level such as; National Bank of Ethiopia, Central Statistics Authority, Ministry of Industry, Investment office, etc.	1	2	3	4	5
2	Inflation	1	2	3	4	5
3	Political Factors.	1	2	3	4	5
4	Lack of utilities: power, water, communication.	1	2	3	4	5
5	Major disputes and negotiations with external organ. Like municipality, customs authority etc.	1	2	3	4	5
6	Weather condition.	1	2	3	4	5
7	Regulatory changes.	1	2	3	4	5
8	Unforeseen ground condition during construction.	1	2	3	4	5
9	Delay in regulatory approval	1	2	3	4	5
10	Delay on land/Site hand over	1	2	3	4	5
11	Design/scope change due to external factors	1	2	3	4	5
12	Contractual disputes with external organ					

If you have additional comments regarding time overrun, kindly requested to write here

SECTION- D

Factors Influencing Cost Overruns

I. Bank Specific Factors for cost overrun						
1	Delay from bank's side. As a result, for example, costs like project management cost, cost escalation etc. will raise	1	2	3	4	5
2	High Interest rate charged by the Bank.	1	2	3	4	5
3	Under financing. As a result, for example, the promoter may search for additional fund at high cost of capital, may elongate project implementation period which directly related to cost escalation, etc.	1	2	3	4	5
II. Borrower related Factors for cost overrun						
1	Delay from borrower side.	1	2	3	4	5

2	Unplanned expansion/Change order.	1	2	3	4	5
3	Underestimating the Project Complexity.	1	2	3	4	5
4	Un feasible short Project Schedule.	1	2	3	4	5
5	Incomplete and not well prepared feasibility study presented by the project promoter/unfeasible cost estimation.	1	2	3	4	5
6	Lack of Backup Plan when things get out of plan.	1	2	3	4	5
7	Lack of Resource Planning.	1	2	3	4	5
8	Acquisition of land at market price					
9	Discrepancies between contract documents.	1	2	3	4	5
10	Poor selection of consultant.	1	2	3	4	5
11	Wrong/poor selection of technology/equipment.	1	2	3	4	5
12	Poor communication and coordination.	1	2	3	4	5
13	Weak procurement planning.	1	2	3	4	5
14	Mistakes during construction.	1	2	3	4	5
III. External Factors for cost overrun						
1	Delay due to external factors.	1	2	3	4	5
2	Difficulties to get prompt service from government office.	1	2	3	4	5
3	High cost of environmental safeguard.	1	2	3	4	5
4	Unstable and unpredictable market situation in the country /Inflation.	1	2	3	4	5
5	Escalation in labor cost	1	2	3	4	5
6	Inadequate availability of skilled resource. As a result skilled often imported from abroad.	1	2	3	4	5
7	Incremental financial cost (volatility of foreign exchange and borrowing cost).	1	2	3	4	5
8	Unpredictable weather conditions.	1	2	3	4	5

If you have additional comments regarding cost overrun, kindly requested to write here

APPENDIX-B

INTERVIEW QUESTIONS

1. What is your education level?

2. What is your position in the bank?

3. What is your work experience in CBE?

4. What is your work experience in Project finance department?

5. Do you think that projects financed by your organization are often vulnerable to cost overrun?

6. Do you think that projects financed by your organization are often vulnerable to time overrun?

7. What factors do you think that the main determinants of cost and schedule overrun for projects financed by your organization? Please, explain factors in connection with bank specific, borrower specific and external environment specific.

8. If you have any comment regarding the issue

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