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Determinants of Loan Default Rates in Project Financing in Banks in Ghana from the Perceptive of Credit Experts Using Econometric Model Selection in the Financial Sector

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Abstract
This study identifies the determinants of loan default for project financing in Development Banks in Ghana from the credit experts perspective. In order to fulfill the stated objectives an explanatory research design with quantitative data approach was used. The collected data was taken from experienced credit officials in banks directly involved in project financing from beginning to end. In order to obtain more insight, the open and close ended questions were used. The variables used in the study are policy induced attributes, source of equity contribution, credit evaluation criteria of banks during project appraisal and specific commodity nature attributes were assessed. In the study, probit regression model was used to identify variables which determine project loan default rates in banks. Based on the responds collected from 122 purposively selected senior employees of banks in Ghana, and run by the probit regression and correlation analysis, I assessed the relationship between loan default rates, independent and aggregate variables. The study established that policy induced attributes and credit evaluation criteria during project appraisal stages have significant impact on loan default rates in project financing which is consistent with the Researcher's expectation. Whilst source of equity contribution and specific commodity natures attributes is found to have no significant contribution to loan default rates. The findings further reveals that credit evaluation criteria such as banks' credit project appraisal and evaluation parameters do not impact significantly to successful project realization. The research data do not reflect realistic facts, project appraisal of financial projections are exaggerated and unrealistic, and finally there is no prudent lending practice in banks, were statically significant determinant of loan default rates of banks financed projects. Thus, banks policy to reduce the rate of non-performing loans percentage to single digit of less than 5% is highly unachievable. Banks should critically appraise feasibility of projects before financing and also strong follow-up is required after financing, credit evaluation criteria unit of the bank (i.e. research directorate of the bank) is better outsourced to project experts and detail parameters genuinely set by independent professional researchers.

Keywords: *Project Financing, Loan Default, Credit Experts, Econometric Model, Bank Loan*

1.0 INTRODUCTION

Development banking as harbingers of financial innovation, entrusted with national growth–oriented tasks is a recent phenomenon. Almost all the developing economies especially in Africa, have a strong urge to revitalize and rejuvenate their developmental efforts so as to compete with their counterparts in the western world. These developing economies have found that development banks are endowed with financial and non-financial qualities to foster all round economic development in general and industrial development in particular in the shortest possible time. At times, development banks have to sacrifice business principles of conventional financial institutions and pay due regard to public interest so that it can act as an instrument of economic development strictly in conformity with national objectives, plans and priorities. Development banks are generally created with community support to undertake projects that accelerate development and that which might not be done by purely commercial banks. Development Banks are viewed as intermediary supplying medium of long term funds to bankable economic development projects and providing related services. That is why, as gap fillers, development banks are like artificial limbs created to compensate for relatively slow growth of normal source of finance for national development projects.

In Ghana, as in many developing African countries, the growing demand of investment in commercial agriculture, manufacturing industry, mining and extractive industry and agro processing requires huge amount of funds to be invested. Various reports indicate a growing demand of project loans at an increasing rate (GSS Annual report, 2016). For such increasing demand of project loan, Development Banks (BDs) in the country should be able to finance such projects in order to benefit from opportunities and contribute to the country's growth and transformation plan. In line with the national development planning, DBs are trying their level best in financing various investment projects that contribute to the development goal of the country. Hence, Projects, as crucial building blocks of development

have to be financed provided that they are technically feasible, financially viable, economically sound and environmentally friendly.

According to DBs lending procedure, Project Finance is a medium or long term loans intended for financing of the acquisition and/or leasing of fixed assets, for the establishment of new projects and expansion of existing ones. Due to its nature, in most of the cases, project finance requires huge resource mobilization than other credit products. Accordingly the risk inherits and the payoffs are great. Hence, DBs make their utmost effort to avoid or minimize the risk of project loan default or becoming non-performing loan (NPL) in as much as possible. This paper tries to explore the basic determinants of project loan default in general and particularly determinants in connection with the various bank policy induced variables, commodity specific nature, sources of equity contribution and credit evaluation criteria factors that might cause the occurrence of default in project finance. Development Banks are the main strategic government banks like GCB, ADB and NIB specialized to spur national development agenda through financing. The Banks' focal point is the provision of customer focused lending to various projects in line with government priority areas by mobilizing fund from domestic and foreign sources while ensuring its organizational sustainability. DBs financing and management process commences from the appraisal stage and continues up to evaluation through, project life cycle which typically includes identification, formulation, appraisal, implementation, monitoring and evaluation. Project identification and formulation, therefore are carried out by the promoters themselves before approaching the bank. The bank terminates its attachment when the project settles its debts.

At the appraisal stage, eligibility of the promoter for the bank finance, technical feasibility, financial viability, institutional capacity, socio-economic benefits and environmental soundness of the project are evaluated. If a project is found to be sound through these evaluations, the bank approves a loan according to the financial requirement of the project. Under implementation stage the bank intervenes through frequent inspections in order to ensure judicious utilization of the finance for the intended purpose and that projects are implemented according to planned schedules. After implementation, the bank continues with monitoring and evaluation of projects through its follow up inspections and operations until the project fully repays its loan. The main purpose of the follow-up operations are to evaluate project performance with respect to project financing, to propose corrective measures whenever there is deviation from plan, to enhance collection and to provide feedback for future appraisal process. Although DBs has been following these steps in its long journey of project finance using different organizational arrangements, they have been frequently exposed to liquidity problems, poor asset quality and customer frustrations as a result of project failure. This study therefore, concentrates on the determinants of project loan default from the credit experts view point within the project stages that are under the banks' intervention and measure their significance in order to help the banks in developing strategies and mitigation measures to reduce project failure.

1.1 Problem Statement

One of the measures of the success of development banks depends on financing of successfully operating projects as per the appraisal study i.e. the established projects must keep generating and/or saving resources, creating employment opportunities, meeting debt obligations and generate income for the government in the form of income tax. Thus, effective control of loan repayment is critical for sustainable and healthy growth of the banking sector especially for those predominantly engaged in provisioning of medium and long term investment loans. In other words, the determinant factors of establishing successfully operating projects have to be properly investigated because the survival and the sustainable operation of such lending institution are directly influenced by these factors. For banks, investigations of the major determinant factors for successful loan repayment are essential, especially for medium and long term investment financing. Any loan granted for investment purposes by banks are generally provided at a cost, referred to as interest, for employment generation, resource generation and /or saving and generate revenue income for the government in the form of taxes, as the primary incentive for the lender to engage in the provisioning of medium and/or long term loan. In such loans, each of these obligations and restrictions are enforced by contractual agreements or loan covenants between stakeholders that clearly states the rules of the game agreed upon by both parties on different aspects including the purpose, disbursement schedule, implementation period, repayment period and the charges associated with the loan as per the appraisal study.

As per data obtained from the central database of banks, the loan recovery performance trend for the last six years in Ghana, thus 2010/11, 2011/12, 2012/13, 2013/14, 2014/15 and 2015/16 shows 41%, 70%, 51%, 41%, 47% and 53% respectively. This shows that, the yearly loan collection performance of bank loans largely remain unpaid past their due dates. Similarly, non-performing loans (NPLs i.e. loan which couldn't meet their debt obligation as per the agreed terms and conditions) against the total portfolio outstanding ratio of the bank for the last six consecutive years 2010/11, 2011/12, 2012/13, 2013/14, 2014/15 and 2015/16 shows 9.73%, 8.36%, 8.62%, 8.2%, 12.54% and 17.71% respectively. Although Development Banks strive to reduce these ratios using, NPL's resolution strategy, the ratio of

non- performing loan against the total outstanding loan portfolio is growing from year to year and still above the banks' tolerance limits of 5%.

In the area of determinants of loan repayment performance, emphasized on commercial banks, non-priority working capital loan and short term loans aspects under development banks focused on borrower's characteristics, project characteristics, commodity characteristics, specific sub-sector, private borrowers and specific branch aspect, the development banks focused on specific sector, sub sector, product, pre and post credit assessment and processing times. Thus, none of them assesses policy induced aspect, loan provision evaluation criteria, source of equity contribution and nature of commodity. Based on the aforementioned evidence, this paper will focus on identifying the major factors that determine project default in Development Banks. This paper will focus on detailed examinations to be conducted for the causes of default from policy induced characteristics, evaluation criteria for lending, source of equity contribution from promoters and nature of commodity perspective which have not been addressed so far by previous researchers. Additionally expected major different variables will be tested and finally to identify the major determinant factors of loan default in project financing. This study is therefore to assess various banks policy induced variables, specific commodity nature, source of equity contribution and credit evaluation criteria factors that contributes to the occurrence of default in project financing from the credit experts point of view.

2.0 LITERATURE REVIEW

These chapter is made of mainly development of the study, different theories and historical thinking. I will also review three articles related to the subject area of identified research gap so as to analyze and identify the main determinants of loan default in project finance and conclude the chapter with a summary. While there are several definitions of projects in the literature, a project for our purpose is an organization of people and resources dedicated to a specific objective. Projects generally involve large, expensive, unique or high risk undertakings which have to be completed by a certain date, for a certain amount of money, with some expected level of performance. At a minimum, all projects need to have the required personnel, sufficient resources and well defined objectives to carry out all the required tasks. In line with the definition provided by Pinto & Slevin (1988) and for the purpose of this research, a project can be defined as possessing the following characteristics:

- A specified time for starting and completion.
- A specific objectives, predetermined set of goals and performance expectations.
- A series of expected interrelated activities and phases.
- A limited set of budget or resources.
- A required set of personnel at needed times.

Gittinger (1972), defines projects as a whole complex of activities involved in using resources to gain benefits. He also explains that generally, projects form a clear and distinct portion of a larger, less precisely identified program. The whole program might possibly be analyzed as a single project, but by and large it is better to keep projects rather small, close to the minimum size that is economically, technically and administratively feasible. If a project approaches program size, there is a danger that high returns from one part of it will mask low returns from another. Project is an activity for which money will be spent in expectation of returns and which logically seems to lend itself to planning, financing and implementing as a unit. It is a specific activity, with a starting point and a specific ending point, intended to accomplish specific objectives. Usually it is a unique activity noticeably different from preceding, similar investments, and it is likely to be different from succeeding ones, not a routine segment of ongoing operations. It will have a well-defined sequence of investment and production activities, and a specific group of benefits, that we can identify, quantify and usually determine a money value for. Often a project will have a partially or wholly independent administrative structure and set of accounts and will be funded through a specially defined financial package.

Turner (1999) stated that a project is an endeavor in which human, financial and material resources are organized in a novel way to undertake a unique scope of work, of given specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives. A project is a temporary endeavor undertaken to create a unique product or service. Temporary, in the sense that every project has a definite beginning and completion period and unique, in the sense that the product or service is different in some distinguishing way from all other projects or services.

Plans and Projects: Sound planning rests on the availability of a wide range of information about existing and potential investments and their likely effects on growth and other national objectives. Project analysis provides information for projects selection for implementation and then become the vehicle for using resources to create new income. Realistic planning involves knowing the amount that can be spent on project activities for a particular kind of investment. Well-analyzed projects often become the vehicle for obtaining outside assistance when both the company and the external financing agency agree on a specific project activity and know the amount of resources involved, the timing of loan disbursements and the benefits likely to be realized. But project analysis should not be

confined to only those investments for which external financing will be sought. Projects are a part of an overall development strategy and a broader planning process. Within the broad strategy, analysts must identify potential projects that address organizational policies and priorities. Generally there are more than one project alternatives available for a company to investment in, of these; all the projects being evaluated should use a consistent set of assumptions about such things as the relative scarcity of resources and labor. Gittinger (1972) states that, if carefully designed, high-yielding projects are offset by essentially unplanned investments and then the net contribution to the organizational objectives is substantially undermined. That projects provide an important means by which investment and other development expenditures foreseen in plans can be clarified and realized. Sound development plans require good projects, just as good projects require sound planning. The two are interdependent.

Project Life Cycle*:* Robert et al (2003) have developed a theoretical sequence of phases that may be identified with most projects. That Project management is the application of knowledge, skills, tools, and techniques to a broad range of activities in order to meet the requirements of a particular project. There are phases of project management that accomplishes project idea such as conceptual, planning, testing, implementation or execution and closure. It is generally better in planning projects to analyze successive increments or distinct phases of activity; in this way the return to each relatively small increment can be judged separately. Like products follow a product life cycle, projects follow a project life cycle that has certain phases of development. Dividing a big project into manageable chunks makes the complex task of managing projects easier, these chunks in a sequential form can be termed as project phases which can further be divided into sub-phases and a collection of these phases makes up what is commonly termed as project life cycle. Each project phase is marked by completion of one or more deliverables. Although many project life cycles have similar phase names with somewhat similar deliverables required, very few are identical. Most have four or five phases, but some have more. Sub-projects within projects may also have distinct project life cycles. Importantly, these phases are not always consecutive in nature but are more simultaneous. Prasanna C. (2002) states that, a sequence of phases throughout a project must pass. There are a variety of definitions that generally reflect different industry practices. The generally accepted sequence is: pre-feasibility (validation of concepts); feasibility (detailed investigation of viability) design; contract (procurement); implementation; commissioning; handover and operation. Project life cycle generally defines: The tasks to be accomplished in each phase or sub-phase ***and*** the team responsible for each defined phase

According to Archibald & Voropaev (2003), there is a general agreement that the 4 broad, generic project phases are:

1. **Concept** (initiation, identification, selection.)
2. **Definition** (feasibility, development, demonstration, design prototype, quantification.)
3. **Execution** (implementation, realization, production/deployment, design / construct / commission, installation/test.)
4. **Closeout** (termination, including post-completion evaluation)

However, the practical number of phases in a project life cycle depends on a variety of factors like nature of industry, type of output, size of project etc.

Characteristics of a project life cycle*:* According to Adamu (2013), risk and uncertainty is highest at the beginning of projects and reduces thereafter as the project progresses. The ability of stakeholders to influence the final characteristics of project's product and final cost of project is highest at the start and gets progressively lower as the project continues. Also the cost of correcting an error increases as the project progresses. Projects are unique in nature and much depends on the industry, size, location, nature, complexity, business environment etc. in which they operate. The truth appears to be that the concept of 'one size does not fit all' is a good point to start with in project management.

2.1 Different Theories

Project Finance is a financing mechanism where a firm (project sponsor) forms a separate Special Purpose Vehicle (SPV) whose assets and cash flows are separated from the firm and provides equity and raise non-recourse debt to carry out a specific business operation for a finite period of time. On the other hand, the firm (non-sponsor) can finance project without legally separating it from its existing assets, and this method of financing is called corporate finance. (Zinat, 2010). Esty and Megginson (2001)further explains the difference between Project Financed investments from corporate financed investments as the assets are financed as stand-alone entities rather than as part of a corporate balance sheet. In the case of project financing, although creditors may have partial recourse for a period of time or for a fraction of the total loan amount, project loan by its definition is non-recourse to sponsoring organization. In addition to the above main difference, project finance is characterized by high investment costs and high risks. (Neila, 2014). In most of the cases, the types of financing covered by project financing is large complex and expensive installation that might include power plants, chemical processing plants, mines, transportation infrastructures, telecommunication infrastructures, etc (Basel, 2001).

In addition, project finance may take the form of financing of the construction of a new capital installation or refinancing of an existing installation, with or without improvements. The borrower is usually a special purpose entity that is not permitted to perform any function other than developing, owning and operating the installation. The consequence is that repayment depends primarily on the project cashflow and the collateral value of the project's assets (Basel, 2001).

Basic Characteristics of Project Finance: Based on the review of various literatures the characteristics of project Finance is summarized as follows; (E.R. Yascobe (2014), Enzo (2012), Basel (2001), Zinat (2010))**.** Project usually relates to major infrastructure with a long operating life. Hence the financing must also be for a long term usually 15-25 years. Lenders rely on future cashflows projected to be generated by the project to pay loans, interest and fees. Therefore, the project must be ring-fenced (legally and economically self-contained) and the project is usually carried out through SPV (usually a limited liability company whose only business is the project). There is a high ratio of debt to equity (Leverage or gearing) - relatively, project finance debt may cover 70-90% of the capital cost of the project. The project company's physical asset are likely to be worth much less than the debt if they are sold after a default on the financing and in project involving public infrastructure they cannot be sold anyway. So the main security for lenders is the project company's contracts, licenses or other rights, which are the source of its cashflows. Therefore, lenders carry out a detailed analysis of the project risks and how these are allocated between various parties. Projects have finite life, based on such factors as the length of the contracts or licenses, or reserves of natural resources. So project-finance debts must be fully repaid by the end of the project's life. There is no guarantee from the investors, in the project-finance debt so this is non-recourse finance.

Bank Lending in Project Finance*:* Project finance refers to the financing of long-term infrastructure, industrial or public services using limited recourse long-term debt raised by an enterprise operating in a focused line of business in accordance with contractual agreements. Principal and interest payments are made solely from cash flows generated by the enterprise. Projects are usually undertaken by special purpose vehicles that can only engage in the business of the project – the scope and duration of which is defined in the contractual arrangements entered into by the special purpose vehicle. Projects are usually structured with recourse to the special purpose vehicle's assets, and with only limited recourse to the project sponsors' other assets which are therefore outside the scope of collateral available to secured debt providers in the event of the failure of the project In project finance, banks may offer two kinds of service; advisory and financing services. Project finance has two sources of funds; debt and equity. Debt capital is usually provided by commercial and investment banks while equity capitals is usually provided by project sponsors and outside equity investors. Banks are the largest providers of debt capital in project financing and the financial structure of the project (leverage ratio) is very important in convincing bankers to provide the needed capital. It implies that banks must pay particular attention to the evaluation of credit risk of the project. Hence, the failure of the project and the subsequent borrower's insolvency may damage lenders heavily. (Enzo, 2012). Preliminary test of project practicability (viability test) is the first step for banks. A "dynamic" analysis is necessary in funding project finance because lender's primary security is the future revenue stream of the project. In particular, a lender should deeply evaluate the degree of innovation of the project, the professional skills of people who execute and manage the project, the capabilities, competencies, and knowledge of firms involved in the project, the reaction of the target market to the introduction of new services and products. The assessment of economic and financial feasibility of projects made by banks should primarily evaluate the expected economic return of projects on medium and long term basis rather than focusing on collaterals provided by sponsors. To assess the viability of projects, it is necessary to carry out feasibility studies. Banks have to differentiate bankable projects from non-bankable ones. (Enzo, 2012)

Role of Debt in Project finance: Debt is principally repaid using cashflows generated from project operations: Limited recourse to project sponsors;

- Secured by the project's assets or contracts, i.e. the power purchasing agreement, the off-take or the asset having been created;
- First priority on project cashflows is given to Senior Lender(s);
- Consent of Lenders is required to disburse any surplus cashflows to project sponsors;
- Riskier projects may require surety/guarantees of project sponsors.

Ddefinitions and concepts in Project Default: The definition of default for this study is based on the standard Basel II definition of default, which captures a wider range of defaults, including circumstances wherein a reporting bank considers that the obligor is unlikely to pay its credit obligation in full.
According to Basel II (2001), a project is in default if:

- Payment is past due more than 90 days on any material credit obligation.

- The lender takes a charge-off or an account-specific provision because of perceived deterioration in credit quality of the project exposure.
- The lender sells the project instrument at a material credit-related loss.
- The lender consents to distress restructuring likely to result in diminished financial obligation caused by the material waiver of principal or interest.
- The obligor has sought or has been placed in bankruptcy protection.

A project is resolved from default if:

- After default, a project loan(s) resumes scheduled payments on a regular basis (i.e. returns to performing).
- Following restructuring workout, scheduled payments resume based on restructured debt service.
- The lender sells or transfers the defaulted debt instrument.
- Liquidation proceeds distributed to creditors.
- Bankruptcy process completed.
- The guarantor provides additional capital support covering some portion of scheduled debt service

In broad terms, the Basel II definition of default not only captures the events which are included in Moody's definition of default, but also captures a wider range of defaults, reflecting subjective assessments made by the reporting bank. For example, under the Basel II definition, defaulted credits would also include debt obligations where:

- The bank puts the credit obligation on non-accrued status
- The bank makes a charge-off or account-specific provision resulting from a significant perceived decline in credit quality subsequent to the bank taking on the exposure. In theory therefore, the number of defaults reported under the Basel II definition might differ materially from the number of defaults considered to have occurred under Moody's definition of default.

2.2 Historical Thinking

The wide range of default timing across project financing illustrates that a default can happen at any time during a project's life. Some project defaults are due to technology or construction issues early in a project's life-cycle, whilst others default from operational issues later in the projects' life-cycle attributable to factors such as low market price, lower than expected volumes or unexpected maintenance costs. However, as per the review of different literature, default experience has shown that construction and ramp-up issues aside, there are other risk factors that drive project finance defaults. In the context of default analyses of rated project finance debt, the study outlines the following broad risk factors that contribute to project underperformance. Factors responsible for loan losses are evident by various empirical studies. Bad loans make a major negative effect on Bank's lending potential and financial performance in terms of return on investment. The problem can also lead to banking crises and even to final insolvency. Asanty & Tensey (2014). Based on review of various empirical studies, it is possible to classify determinants of default broadly as; Bank specific factors, borrower's specific factors, and external /macroeconomic factors.

Bank Specific Determinants of Project Loan Default: The empirical study made by Fikiret (2015) indicates the existence factors in connection with credit origination i.e. poor due diligence assessment to know the customer and weak credit negotiation have found to be the major determinant of loan default as per the results obtained from the survey. In addition the interview result also affirms these facts. Weak credit assessment made by the Bank and lack of proper skills of the loan officers were found to be the cause of default, as per the study made by Fikirte, (2015). However, speedy loan processing due to external pressure as a factor for loan default was not supported by the survey result. Additionally, there is a significant relationship between over-finance and the occurrence of NPL, as the survey result indicated. The survey result also indicates the existence of strong relationship between poor loan monitoring and NPL. Moreover, according to the researcher the interview result and the document study have supported such finding. However, inadequate debt recovery regulations were not mentioned as a cause of default, as per the study made by Fikirte (2015).

Borrower Specific Determinants of Project Loan Default*:* Fikirte, (2015), factors in connection with the character of the borrower, the integrity of the borrower, fund diversion and willful default as a cause of default. Selection of unsuitable and unviable schemes and projects are found to be the cause of default. In connection with management capacity problem, knowledge limitation of the borrower and performance of the entrepreneur as cause of loan default.

External Factors Determinants of Project Loan Default: Fikirte, (2015), data or information constraint was the major external cause of default as the survey result indicated. Additionally, inflation and exchange rate fluctuation as

significant factors for loan default. However, GDP growth, lack of infrastructure and government policy had not obtained much support by the survey result.

2.4 Empirical Evidence

So far, I found two relevant articles at Ethiopian banks worked by Fikirte (2015) on the determinant of default in project finance, in the case of Development Bank of Ethiopia (DBE) and Adamu, (2013) on the determinants of failure for project financed by DBE were reviewed. He applied explanatory research; fifteen determinant variables were used to measure their significance for DBE financed projects failure. All of the variables, except project implementation time overrun have shown that the expected magnitude of influence on the dependent variable - project failure. One of the key findings of the researcher reversed and inducted that decrease of project failure as time overrun increases for project implementation. According to the researcher observation, this was attributed to the intervention of bank to protect projects from failure through rescheduling of loan repayment, reallocation of loan and interest payment weaving; because these corrective measures were found statistically significant in reducing project failures. The project specific explanatory variable, project size by investment cost exhibited the same effect on project performance and statistically insignificant. Out of three project specific variables included in the study two variables (sales shortfall and recruitment variation) were found statistically significant. The remaining, relevance of the project owner's educational background or experience was found statistically insignificant. These statistically significant variables, sales shortfall and recruitment variation clearly have shown that the seriousness of marketing knowledge gap and poor understanding about the importance of human resource for project success respectively in case of Ethiopian project owners.

Regarding banks' specific explanatory variables, the study considered operational projects and estimated the significance of cashflow overestimation for project failure. Loan appraisal capacity and technical support were mentioned as project success factors in this study but not measured in any of the regression models used. The estimation in logit model exhibited that cashflow overestimation and technical support through follow-up operation for DBs were insignificance in project failure Adamu, (2013). According to the findings, the researcher indicated that overestimation of cashflow have positive relation for project failure. As far as the insignificance of follow-up coverage is concerned, it simply tells that the follow-up work of DBs is not a problem solver by providing technical support based on finding or not aligned with its purpose rather than reported for consumption of performance evaluation. Even though, investment cost overrun of the project used to measure different explanatory variable in his study, the result of the same has shown similar magnitude on project performance and statistically significant. The impact of economic growth on project performance measured using GDP indictor of the economic sub-sectors in which the project is categorized considered in this study. The estimation of this inductors has shown that statistics is not significant Adamu, (2013). In the study macroeconomics explanatory variable, inflation rate is tested but found statistically insignificant.

According to Adamu, (2013), regarding sociopolitical variable, the researcher had used population size, political regions, literacy level and religion dominancy. The estimation results of population size in the study has shown that the statistical significance of the variable and similar direction of influencing project performance. The sociopolitical variables, the result of literacy level has shown statistical significance for project failure. Political regions and religion dominancy, which captured by dummy variable are also found statistically insignificant. Fikirte, (2015), used data gathering instruments survey, document review and an in-depth interview. The questionnaire was distributed to all 52 credit performers in Commercial Bank of Ethiopia, but only 40 have completed and returned successfully. Hence 77% of the populations were involved in the survey. Since, the large portion of the population are customer relationship manager followed by credit appraisal experts, the large portion of the respondents, i.e. 48% and 27% are also customer relationship managers and credit appraisal experts respectively. Besides, all the credit performers who involved in the project financing process, from the initial customer's loan application to final loan recovery measures in case of default, were included in the survey. According to the study most of the respondents had ample experience in the banking area as well as in the credit process. Moreover, they were well qualified.

Hence, they had a better knowledge in project finance and determinants of default. In order to strength the findings obtained from the survey, a document study was made on the record basis of the actual major cause of default for 45 outstanding project loan borrowers. In addition, to reinforce the findings from the survey and the document study, and to understand the situation in full context, an in-depth interview was conducted on credit directors who had ample experience in the banking area as well as in project finance. According to Fikirte, (2015), the results obtained from the survey on; bank specific determinants of default, borrower specific determinants of default and external factor determinants of default are summarized against the literatures and presented as follows. Various determinates of non-performing loans have been identified by various literature and these determinates have been categorized under three broad categories namely external factors, bank-specific factors and borrower's specific factors.

However, the following gaps are identified in the literatures; Adamu, (2013), and Fikirte, (2015) studies are emphasized more in specific sector, sub sector, commodity, product, private borrowers, branch, borrower's characteristics, project characteristics, commodity characteristics, and some of them were included non-priority working capital and short term loans, pre and post credit assessment, processing time aspects. But none of them asses the policy induced aspects like the impact of establishing mega projects using re-locating of second hand machinery, using rain-feed agriculture and buy-out of projects on default. Adamu, (2013), and Fikirte, (2015) studies are conducted on the overall credit default determinants. However, no studies conducted specifically on determinant of loan default in case of development bank of Ethiopia from credit performer's perception point of view. Considering the above gap, this study therefore try to assess various bank policy induced variables, commodity specific nature, source of equity contribution and credit evaluation criteria factors that might cause the occurrence of default in project finance in Development Bank of Ethiopia from credit performers perception.

3.0 RESEARCH METHODOLOGY

The research design sets the conceptual structure within which the study is conducted. It constitutes the blue print for collection, measuring, presentation and analysis of data collected. In this study, both descriptive and explanatory analyses are used. Descriptive statistics like tables and percentages are used to describe the data. Explanatory analysis using econometrics probit regression models are employed to analyze cause-effect relationships between determinants of default and banks financed projects from the credit performer's point of view. Setting of major determinants of default for bank loans are done based on literature review and factors unique to financed projects. Data was collected using questionnaires at one point to know the determinants of loan default in project financing from the banks point of view.

3.1 Research Methods

The target populations of the study were 185 bank officials of selected development banks in Ghana excluding tellers, operations officers, secretaries, guards and other supportive staffs that are not directly involvement in the credit appraisal process. The opinions of the purposively selected sample size of 126 questions were distributed physically, however, due to unavailability of some credit performers on duty and other reasons only 122 of them filled and returned the questionnaires successfully. Hence, the respondent rate is 97%. In the determination of purposively selected sample size, three criteria were very important to gather the required data from respondents. These included the level of precision, the level of confidence or risk and the degree of variability in the attributes being measured that enable the researchers to determine the appropriate sample size (Miauous &Michener, 1976). Therefore, the total numbers of employees in the selected development banks were with those directly involvement in project finance of 185 employees. The primary source of data were obtained by using the questionnaire to staff under the credit line like officers, team mangers and directorates randomly selected to fill the questionnaire. To maintain the representativeness of the samples to all credit-processing units of the banks, as much as possible, 185 staffs were considered in this study.

According to simplified formula for proportions sample size determination at 95% confidence level, Israel (2009).Out of 185 employees who participate in credit operation in project finance.

$$n = N / [1 + N (e2)]$$

Where **n** is the sample size, **N** is the population size, and **e** is the level of precision. By using this formula at 95% confidence level and 5% level of precision the sample size were obtained as follows:-

$$n = 185 / [1 + 185 (0.05)2)]$$

$$n = 126$$

From the distributed questioner of the sample size 126, the data responded only 122 of them.

3.2 Data collection Instruments

Methods of data collection relatively dependence on standard questionnaires prepared by Swaminathan (2004) which was prepared in the form of open ended and closed ended questions. However, to measure the determinant of default rates in the banks, the researcher modified in relation to the study for that matter the researcher test the reliability and check the dependability. For the purpose of data collection, the researcher used closed-ended and open-ended structured questions. Closed-ended questions were prepared on the basis of determinant of default variables from the credit expert's perspective. Thus, closed ended questions helped to avoid pressure on the respondents in any direction and better be able to obtain the required data in the study area.

The questionnaire was divided in to three sections. The first section requested the demographic characteristics of the respondents to provide information on gender, age, years of service or experience and education level. The second section was designed to incorporate all possible policy induced attributes, specific commodity nature attribute, source

of equity contribution and credit evaluation criteria parameter that leads to project default. This section of the questionnaire was designed to enable the researcher gather information about the determinant of default in project financing. For all questionnaire included in section 2, the respondents were requested to indicate their feeling on the questions to measure weighted as follows: 1=strongly disagree, i.e., very much dissatisfied with the case described, 2=disagree, i.e., not satisfied with the case described, 3=neutral, i.e., uncertain with the case, 4=agree, i.e., feeling alright with the case described, and 5= strongly agree, i.e., very much supporting the case described. The third sections encompassed general comment open ended questions about project financing practice in banks that contribute to the occurrence of project default. 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 were explained in the beginning of the questionnaire

Results: In the determinant of default, credit evaluation criteria for project appraisal study, policy induced attributes, source of equity contribution and the nature of commodity attributes for the performance of DBG is analyzed using primary data. The primary data is collected from 122 relevant bank employees in project finance only. The sample employees were asked four kinds of questions. These questions are related to the bank's general background of the respondent, such as age of the respondent, educational background of the respondent, gender of the respondent, experience of the respondent. The second types of questions are related with the credit evaluation criteria for project appraisal study, policy induced attributes, and source of equity contribution and the nature of commodity attribute using the survey. The third types are open ended questions for respondents. The survey results were analyzed by descriptive analysis and empirically by applying probit econometric model. The survey result reveals that the age of the respondents', 47.5% are between the age of 21 to 30 years, 50.8% are between the age of 30 to 50 years old and 1.6% are at the age of above 51 years old. Regarding to gender of the respondent 78.7% of the respondent are male and the remaining 21.3% of the respondent are female. Furthermore, the educational background of the respondents', 64.8% have at least bachelor's degree and 33.6% have at least a master's degree and 1.6% are at least diploma holders. Hence, from the survey the respondents are well qualified and in relation to their age most of the respondent are young. Additionally, most of the respondents' have adequate experience in project financing or banking operations. Thus, their opinion and view on the existence and determinants of default is based on their ample and sufficient knowledge and experience in banking business operations.

Methods of Data Analysis: After the data was collected from primary source it was checked and in-house editing was undertaken to detect errors that had been committed by the respondents. Then, the edited data were coded and manually entered in to statistical package for social science (SPSS) version 16 computer software. Moreover, both qualitative and quantitative methods of data analysis techniques were employed. Analysis of data in this research was done by using descriptive statistical methods like: frequency and inferential statistical methods such as: correlation and probit regression. In addition to these, it was analyzed properly by using the output of probit regression analysis model. The regression analyses were conducted to determine by how much percent the independent variables i.e. policy induced attributes, commodity nature, source of equity contribution and credit evaluation criteria explains the dependent variable which is loan default performance. Correlation analysis was conducted to test the proposed hypothesis whether there is a positive significant relationship between the dependent variable and the independent variable. Finally, in the discussion and summery part of the study, the data obtained from the survey was analyzed against the literatures. The information obtained from the document study was also summarized as additional information to reinforce what were obtained from the survey result.

Econometric Model Selection: In order to achieve the objective of the paper, the study was conducted primarily based on structured questionnaire data. The advantage of using questionnaire data and knowing the determinant variable was examined using descriptive statistics, correlations, regression analysis and inferential statistics. Correlation matrix was used to examine the relationship between the dependent variable and explanatory variables. A random effect method of probit regression model and t-static was used to determine the significance level of each independent and control variable in influencing default.

The regressions model was run using probit and E-Views 6 econometric software package, to test the casual relationship between the dependent and independent variable to determine the most significant and influential independent variables and other control variables affecting loan default rate in banks. In connection to this, the general model for this study, as is mostly found in the existing literature is represented by;

$$Yi,t = \alpha + \beta\, Xi,t + ei,t$$

The subscript 'i' representing the cross-sectional dimension and't' denote the time-series dimension. The left-hand variable 'yi, t', represents the dependent variable in the model, which is loan default. 'xi, t' Contains the set of

independent variables in the estimation model, is taken to be constant over time 't' and specific to the individual cross-sectional unit 'i'. If 'α' is taken to be the same across units, then probit model regression provides a consistent and efficient estimate of 'α' and 'β'. In light of the above model, the structured questionnaire data constructed by taking independent variable which determined loan default was analyzed by using the probit regression model. The probit regression model underlying response variable 'Zi' in this study defined by the regression relationship of explanatory variables that contain major determinant from project loan default, policy induced variable, source of equity contribution, credit evaluation criteria and commodity nature attribute factors as shown here below.

$$Zi = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$$

Where,
Zi = Project financed in DBG is defaulted
β = Vector of Unknown parameters.
X1= policy induced attributes
X2=source of equity contribution
X3= credit evaluation criteria
X4= Commodity nature attributes
ε = an error term
$\beta_1, \beta_2, \beta_3,$ and β_4, = slope of each independent variable and they measure by what extent affect the dependent variable, i.e loan determinant of default in this case.

Dependent (explained) variable: The dependent variable in this research is loan default, and it is measured as a dummy variable and have been measured for all the financed project borrowers' that have fully met their debt obligation as per the covenant agreement and takes one and zero for the project financed projects based on the perception of credit experts. 1 for those financed projects that have fully met its debt obligation based on the contractual agreement. 0 for those financed projects that do not able to meet its debt obligation based on the contractual agreement. The loan default of banks or NPL's characterized by the financed project borrowers that haven't met their debt obligation as per agreed covenant i.e. didn't repaid their loans, don't create employment opportunity, haven't generate or save resources and generate income tax for the government.

Independent (Explanatory Variables): In the study, there are four independent variable that explains the dependent variable such as policy induced variable, credit evaluation criteria, specific commodity nature attributes and sources of equity contribution.

4.0 DATA ANALYSIS

This chapter contains the general information of respondents obtained from administering the questionnaire during the survey which are presented and analyzed. There is also the reliability test of the data obtained, the relationship between the dependent variable with the explanatory variables and the correlation analysis between independent variables. The determinants of loan default rates in project financing is also presented and finally the summary of the research discussions and analysis obtained by the survey i.e. all the results obtained from the respondents are summarized and analyzed against the existing literature.

4.1 General Information of the Respondents

This section shows the respondent's general profile regarding their current positions, age, gender, level of education and work experience in project financing.

Respondents' age, gender and educational background

Table 4.1: General Information of the respondents

Characteristics	Values	Frequency	Percentage
Age (in Years)	Less than 20	0	0
	21 to 30	58	47.5
	41 to 50	62	50.8
	More than 50	2	1.6
Gender	Male	96	78.7
	Female	26	21.3
Educational level	Diploma	2	1.6
	Bachelor's Degree	79	64.8
	Master's Degree	41	33.6

	PhD	0	0

(Source; Survey result from Questionnaire)

With the age of the respondents, 47.5% are between the ages of 21 to 30, 50.8% are between the ages of 30 to 50 and 1.6% are above 51 years old. Regarding gender, 78.7% of the respondents are male and 21.3% are female. The educational background of the respondents are 64.8% Bachelor's Degree, 33.6% Master's Degree and 1.6% are diploma holders (See table 4.1.) Hence, from the survey we can deduce that majority of the respondents are youngsters and well educated for their jobs.

Hence, it is possible to conclude that from the collected data of 122 respondent most of the banks' staff are young, male and equipped with well qualified personnel.

Respondents' Experience in Banking

Table 4.2. Years of service in the bank

Years of service	Frequency	Percentage
1-5	36	29.5
6-10	49	40.2
11-15	25	20.5
16-20	12	9.8
Total	122	100.0

(Source; Survey result from Questionnaire)

As shown in Table 4.2, 29.5% of the respondents have 1 to 5 years, 40.2 % have 6 to 10 years, 20.5% have 11 to 15 years and 9.8% have 16 to 20 years of banking experience. Hence, we can deduce that respondents have enough experience in the banking and project financing. Accordingly, their opinion and view on the existence and determinants of loan default in project financing is based on sufficient knowledge and experience in the banking and their perception actually influence the actual performance of loans.

Respondents' Current Position in Banks

Table 4.3 Job position

Current Position	Frequency	Percentage
Team Leaders	87	71.0
Managers	22	18.0
Other Officers	13	11.0
Total	122	100.0

(Source; Survey result from Questionnaire)

From Table 4.3 above, a large portion of the respondents are Team Leaders (principal officers) who represents 70%, followed by Managers and other officers who represent 18% and 11% respectively. The results indicates that each and every activity is carried out in a team (i.e. team work). The respondents' current positions in banks indicate that all the respondents who participate in project financing, from credit origination to final loan recovery proceedings in case of default, are encompassed in the survey. Hence, the respondents are very familiar about project finance and causes of project loan default. As mentioned earlier, a large portion of the respondents are Team Managers. Using stratified sampling method to get reliable information, the respondents' population targeted to those engaged directly in project financing. In addition, Team Managers have relatively more exposure in the project financing process from recruiting the customer to final loan disbursement and follow-ups. Additionally, they have acquired ample experience of project financing and loan default starting from trainee officer to the level of Team Manager positions. Furthermore, they have direct contact with the customers and the information obtained from them is more realistic and appropriate than any other.

Reliability Test

Table 4.4 Reliability test

Dimension	**Number of items**	**Cronbach's alpha**
Policy Induced Attributes	7	0.765

Specific Commodity Nature Attributes	3	0.708
Source of Equity Contribution	4	0.720
Credit Evaluation Criteria	7	0.707
Over all attributes	21	0.738

(Source: SPSS Output from Survey Data, 2017)

As stated by "Hair et al., (2007) reliability test indicates the extent to which variables or a set of variables is consistent in what it is intended to measure" (Cited by Siddiqi; 2011:20). Reliability analysis is used to measure the consistency of a questionnaire. There are different methods of reliability test, for this study Cronbach's alpha is considered to be suitable. Cronbach's alpha is the most common measure of reliability. Cronbach's alpha reliability test of the study depicted in Table 4.4 above. As shown in the above table, the Alpha coefficient for this study for the overall scale calculated as a reliability indicator is 0.738. The Alpha coefficients for the scales were presented in Table 4.4 as described by Andy (2006) the values of Cronbach's alpha around 0.7 is classified as good. The alpha values in this study, both for the independent and overall attributes are above 0.7 and therefore considered to be good.

Impact of exceptional and deviational approval

Table 4.5 Relationship with exceptional and deviational approval of loan

			Impact on loan default		Total
			No	Yes	
Banks' exceptional and deviational loan approval and its impact on project loan default	Strongly Disagree	Count	2	0	2
		Percentage (%)	6.7%	0.0%	1.6%
	Disagree	Count	1	3	4
		Percentage (%)	3.3%	3.3%	3.3%
	Neutral	Count	7	7	14
		Percentage (%)	23.3%	7.6%	11.5%
	Agree	Count	15	57	72
		Percentage (%)	50.0%	62.0%	59.0%
	Strongly Agree	Count	5	25	30
		Percentage (%)	16.7%	27.2%	24.6%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square = 12.572 Pr = 0.014

Table 4.5 above summarizes the impact of banks exceptional and deviational loan approval and its impact on project loan default from the credit expert's perceptive. The results indicated that 24.6% of the respondents strongly agree and 59.0% agree that exceptional and deviational loan approval significantly impacts on project loan default. The Pr Value of the result is .014 which is less than the minimum standard for Pr value=0.05. Thus the relationship between exceptional and deviational loan approval have significant impact on project loan default. From this we can understand that the probability of defaulters and successful projects in exceptional and deviational loan approval contributes significantly in project loan default rates. This implies that project financing with exceptional and deviational approval have more probability of default. According to the SPSS output from the survey data in the above table factors in connection with exceptional and deviational loan approval is agreed to increase loan default of banks. Thus, exceptional and deviational loan approvals impacts significantly in loan default rates.

Impact of uniform interest rate application for all sectors

Table 4.6 Relationship with uniform interest rate application for all sectors

			Impact on loan default		Total
			No	Yes	
Impact of banks uniform interest rate application for all	Strongly Disagree	Count	7	1	8
		Percentage (%)	23.3%	1.1%	6.6%
	Disagree	Count	11	8	19
		Percentage (%)	36.7%	8.7%	15.6%

sectors on loan default rates	Neutral	Count	8	35	43
		Percentage (%)	26.7%	38.0%	35.2%
	Agree	Count	4	34	38
		Percentage (%)	13.3%	37.0%	31.1%
	Strongly Agree	Count	0	14	14
		Percentage (%)	0.0%	15.2%	11.5%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square = 37.888 Pr = 0.000

Table 4.6 above summarizes banks uniform interest rate application for all sectors contribution on loan default rates from the credit expert's perceptive. The result indicated that 35% of the respondents are neutral whilst 31% agree, that uniform interest rate application for all sectors on loans impacts on default rates. Thus, it is indifferent to differentiate interest rate application for financed projects. That uniform interest rate application for project loans have low impact on loan default rates. The P Value of the result is .000 which is still less than the minimum standard for P value=0.05. Thus the relationship between uniform interest rate applications for all sectors and its impacts on loan default has relatively low. From this we can understand that the probability of failed and successful projects based on uniform interest rate application for all sectors low.

Specific Commodities Nature Attributes (SCNA)

Table 4.7. Relationship with commodity nature attributes

			Impact on loan default		Total
			No	Yes	
Impact of Specific Commodities Nature Attributes (SCNA) eg. Textiles and garments, leather and tannery have on non performing project finance loans	Disagree	Count	7	9	16
		Percentage (%)	23.3%	9.8%	13.1%
	Neutral	Count	6	7	13
		Percentage (%)	20.0%	7.6%	10.7%
	Agree	Count	14	62	76
		Percentage (%)	46.7%	67.4%	62.3%
	Strongly Agree	Count	3	14	17
		Percentage (%)	10.0%	15.2%	13.9%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square = 8.429 Pr = 0.038

Table 4.7 shows the relationship between the SCNA and loan default. It is found that about 67% of the respondents agreed that SCNA have great impact on non-performing project finance loans whilst 47% agreed that SCNA does not impact on loan default rates.

The Pr Value of the result is 0.038 which is less than the minimum Pr value=0.05 showing a strong relationship between SCNA and loan default rate. Also, the result shows that 67% agreed that SCNA impacts on loan default. This implies that specific commodity nature attributes increases the probability of loan default rates.

Banks participation in the risky project finance ventures

Table 4.8. Relationship with participation in risky project finance ventures

			Impact on loan default		Total
			No	Yes	
Impact of Banks participation in the	Strongly Disagree	Count	0	0	0
		Percentage (%)	0.0%	0.0%	0.0%
	Disagree	Count	8	16	24

risky project finance ventures and loan default		Percentage (%)	26.7%	17.4%	19.7%
	Neutral	Count	3	29	32
		Percentage (%)	10.0%	31.5%	26.2%
	Agree	Count	11	35	46
		Percentage (%)	36.7%	38.0%	37.7%
	Strongly Agree	Count	8	12	20
		Percentage (%)	26.7%	13.0%	16.4%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square = 7.557 Pr = 0.056

Table 4.8 shows the relationship between the banks participating in risky project finance ventures and loan default rates. The study result shows that 38.0% of the respondents agreed that participation in risky project finance ventures exposes banks to high loan default rate whilst, 36.7% agreed that participating in risky project finance ventures may not expose banks to loan default rate. The Pr Value of the result is 0.056 which is greater than the minimum Pr value=0.05 indicating no relationship between the participating in risky project finance ventures and loan default rate.

Promoters equity contribution on total investment

Table 4.9. Relationship with promoter's equity contribution on total investment

			Impact on loan default		Total
			No	Yes	
Impact of promoters equity contribution to total investment on loan default rate	Strongly Disagree	Count	0	0	0
		Percentage (%)	0.0%	0.0%	0.0%
	Disagree	Count	6	12	18
		Percentage (%)	20.0%	13.0%	14.8%
	Neutral	Count	6	18	24
		Percentage (%)	20.0%	19.6%	19.7%
	Agree	Count	17	48	65
		Percentage (%)	56.7%	52.2%	53.3%
	Strongly Agree	Count	1	14	15
		Percentage (%)	3.3%	15.2%	12.3%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square = 3.429 Pr = 0.330

Table 4.9 above summarizes promoters' equity contribution on total investment for realization of project objectives. The result indicated 56.7% of the respondents agreed that the impact of promoters equity contribution is vital for the realization of project objective and will minimize loan default whilst, 52.2% agreed that promoters equity contribution does not guarantee low loan default rates. Thus, it is possible to conclude the promoters equity contribution is vital for realization of project objectives and consequently leads to minimized rate of loan default. The Pr Value of the result is .330 which is greater than the minimum standard for Pr value=0.05. Thus, exhibiting no relationships between promoters' equity contributions of total investment cost of any project and the rate of default.

Project appraisal and evaluation parameters

Table 4.10. Relationship with project appraisal and evaluation parameters

			Impact on loan default		Total
			No	Yes	
Impact of project appraisal and	Strongly Disagree	Count	2	0	2
		Percentage (%)	6.7%	0.0%	1.6%

evaluation parameters on achievement of project objectives	Disagree	Count	19	29	48
		Percentage (%)	31.5 %	63.3%	39.3%
	Neutral	Count	6	15	21
		Percentage (%)	16.3%	20.0%	17.2%
	Agree	Count	3	40	43
		Percentage (%)	10.0%	43.5%	35.2%
	Strongly Agree	Count	0	8	8
		Percentage (%)	0.0%	8.7%	6.6%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square = 21.934 Pr = 0.0002

Table 4.10 shows the relationship between project appraisal and evaluation parameters and loan default rate. It is found that about 63.3% of the respondent disagree on project appraisal and evaluation parameters as a factor in achievement of project objectives and thus default rate whilst, 31.5% disagree. The Pr Value of the result is 0.0002 which is less than the minimum P value=0.05 thus having a strong relationship between the project appraisal and evaluation parameters and loan default rates.

Assumption of financial projections on project viability

Table 4.11. Relationship with assumption of financial projection on project viability

			Impact on loan default		
			No	Yes	Total
Impact of financial projections of financial statements on project viability	Strongly Disagree	Count	0	4	4
		Percentage (%)	0.0%	4.3%	3.3%
	Disagree	Count	3	11	14
		Percentage (%)	10.0%	12.0%	11.5%
	Neutral	Count	10	36	46
		Percentage (%)	33.3%	39.1%	37.7%
	Agree	Count	10	34	44
		Percentage (%)	33.3%	37.0%	36.1%
	Strongly Agree	Count	7	7	14
		Percentage (%)	23.3%	7.6%	11.5%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square = 6.538 Pr = 0.162

Table 4.11 shows the relationship between the assumption of financial projections on project viability and loan default rates. The study result shows that about 39.1% of the respondents are neutral whilst 33.3% do not agree that, it results in increased loan default rates.

The Pr Value of the result is 0.162 which is greater than the minimum P value=0.05 thus showing no relationship between assumption of financial projection on project viability and loan default rates.

Management intervention on project viability

Table 4.12. Relationship with management intervention on viability checks

			Impact on loan default		
			No	Yes	Total
Impact of Management intervention on project viability by	Strongly Disagree	Count	0	2	2
		Percentage (%)	0.0%	2.2%	1.6%
	Disagree	Count	18	33	51

sufficiently supporting project evaluation criteria and default rates		Percentage (%)	60.0%	35.9%	41.8%
	Neutral	Count	10	21	31
		Percentage (%)	33.3%	22.8%	25.4%
	Agree	Count	2	31	33
		Percentage (%)	6.7%	33.7%	27.0%
	Strongly Agree	Count	0	5	5
		Percentage (%)	0.0%	5.4%	4.1%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square = 12.527 Pr = 0.014

Table 4.12 shows the relationship between management intervention on project viability and loan default from the credit experts point. It is found that about 60% of the respondents disagreed that management intervention on project viability affects loan default rates whilst 36% agreed. The Pr Value of the result is 0.014 which is less than the minimum Pr value=0.05 thus showing a strong relationship between the management intervention on project viability and loan default rates. This implies that management intervention on project viability significantly impacts on loan default rates

Prudent lending practices

Table 4.13. Relationship with prudent lending practices

			Believe loan default		Total
			No	Yes	
Impact of prudent lending practices and loan default rates	Strongly Disagree	Count	4	4	8
		Percentage (%)	13.3%	4.3%	6.6%
	Disagree	Count	10	34	44
		Percentage (%)	33.3%	37.0%	36.1%
	Neutral	Count	8	25	33
		Percentage (%)	26.7%	27.2%	27.0%
	Agree	Count	8	23	31
		Percentage (%)	26.7%	25.0%	25.4%
	Strongly Agree	Count	0	6	6
		Percentage (%)	0.0%	6.5%	4.9%
Total		Count	30	92	122
		Percentage (%)	100.0%	100.0%	100.0%

Pearson chi-Square =4.851 Pr = 0.303

Table 4.13 shows the relationship between prudent lending practice in banks and loan default rates. The study result shows that about 37% of the respondents disagreed that prudent lending practices decreased loan default rates whilst, 33% agreed that prudent lending practice have no impact on loan default rates. The Pr Value of the result is 0.303 which is greater than the minimum Pr value=0.05 thus showing no relationship between prudent lending practices and loan default rates.

Correlation Analysis between Independent Variables

In this section the correlation between explanatory variables and loan default rate is discussed. A correlation matrix is used to ensure the correlation between the explanatory variables. Cooper and Schindler (2009) suggested that a correlation coefficient above 0.8 between explanatory variables should be correlated because it is a sign of multicollinearity problem. Malhotra, (2007) argued that the correlation coefficient can be 0.75. The result of correlation analysis shows that of all the independent variables used in the empirical analysis, source of equity contribution and credit evaluation criteria have high correlation coefficient. This indicted that the researcher can use

the two variables. A correlation coefficient is a statistical measure of the degree to which changes to the value of one variable predict change to the value of another.

Table 4.14. Correlations

CORRELATIONS					
		Policy induced attributes	Specific Commodity Nature attributes	Source of Equity contribution	Credit evaluation Criteria
Policy induced attributes	Pearson Correlation	1	.380**	.279**	.374**
	Sig. (2-tailed)		.000	.002	.000
	N	122	122	122	122
Specific Commodity Nature attributes	Pearson Correlation	.380**	1	.203*	.265**
	Sig. (2-tailed)	.000		.025	.003
	N	122	122	122	122
Source of Equity contribution	Pearson Correlation	.279**	.203*	1	.391**
	Sig. (2-tailed)	.002	.025		.000
	N	122	122	122	122
Credit evaluation Criteria	Pearson Correlation	.374**	.265**	.391**	1
	Sig. (2-tailed)	.000	.003	.000	
	N	122	122	122	122
** Correlation is significant at the 0.01 level (2-tailed).					
*Correlation is significant at the 0.05 level (2-tailed).					

From the above table loan default have a significant correlation with credit evaluation criteria, this indicates that credit evaluation criteria has direct relationship to loan default. Secondly, the source of equity contribution also have significant correlation with loan default. Specific commodity nature attributes and policy induced attributes also have relatively significant correlation to loan default.

Policy Induced Attributes: Table 4.14 specifies that policy induced attributes have strong positive linear relationship with source of equity contribution, credit evaluation criteria and commodity nature attributes. The relationship between the policy induced attributes with the stated independent variable had 28%, 37% and 38% positive liner relationship. The result shows that the better the policy induced attributes the lower the loan default rate of banks.

Specific Commodity Nature Attributes: Table 4.14 specifies that the specific commodity nature attributes have strong positive linear relationship with policy induced attributes, credit evaluation criteria and source of equity contribution. The relationship between the sources of equity contribution with the stated independent variable had 38%, 27% and 20% positive linear relationship. The result shows that promoters with low equity contribution have high probability of loan default. This indicates that the lower the equity contribution during project implementation, the higher the default rate.

Source of Equity Contribution: Table 4.14 specifies that sources of equity contribution had strong positive linear relationship with policy induced attributes, credit evaluation criteria and specific commodity nature attributes. The relationship between the sources of equity contribution with the stated independent variable had 28%, 39% and 20% positive linear relationship. This indicates that the lower the equity contribution during project implementation, the higher the default rate.

Credit Evaluation Criteria: Table 4.14 specifies that credit evaluation criteria have strong positive linear relationship with policy induced attributes, source of equity contribution and specific commodity nature attributes. The relationship between the credit evaluation criteria with the stated independent variable had 37%, 26% and 39% positive linear relationship. The result shows that weak credit evaluation criteria increase project loan default. This indicates that as the better the credit evaluation parameters used during project appraisal, the better the loan default rate.

Determinants of loan default in project financing: As discussed in chapter 3, the probit econometric model was selected for analyzing the determinant of loan default in project financing. Prior to running the probit regression model explanatory variables were checked for the existence of collinearity and the degree of association using correlation coefficient. To determine the independent variables that are good predictors of the loan default from the credit expert's point of view, the probit regression model was estimated using the Maximum Likelihood Estimation Method. The results of the analysis are presented in the table below.

Table 4.15 - Probit regression

Dependent Variable: Q6
Method: ML - Binary Probit (Quadratic hill climbing)
Sample: 1 122
Included observations: 122
Convergence achieved after 4 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-1.889606	1.333012	-1.417546	0.1563
CEC	1.103521	0.284585	3.877647	0.0001
SCNA	0.057439	0.234426	0.245019	0.8064
PIA	0.324512	0.314225	1.032739	0.3017
SEC	-0.566441	0.308611	-1.835455	0.0664

The fitted regression model is
LD = -1.89 + 0.32 PIA + 0.057 CNA -0.57 SEC +1.10 CEC
Where
LD = Loan Default as independent variable.
PIA=Policy Induced Attributes that leads to loan default
SCNA=Specific Commodity nature Attributes that brought loan default
SEC=Source of Equity Contribution that leads to loan default
CEC=Credit Evaluation Criteria during project Appraisal that leads to loan default.

Policy Induced Attributes (PIA): From the regression analysis result policy induced attributes had significant contribution for loan default next to credit evaluation criteria by 5% level of significant, this indicates that availability of better policy induced attributes in banks ensure a better level of loan default rate

***Specific Commodity Nature Attributes (SCNA*)**: As seen from the table above, the probit regression analysis result on specific commodity nature attributes have no significant contribution for loan default.

Source of Equity Contribution (SEC): From the regression analysis result, source of equity contribution have no significant impact on loan default, since the Pr-Value is 0.066 which is greater than the highest significant level of 10%.

Credit Evaluation Criteria (CEC): From the regression result, credit evaluation criteria have high significant impact on loan default since the Pr-value for it is 0.000 which is less than the least significant level of 1%. This indicates that the better the credit evaluation parameters used during project appraisal, the better the loan default rate.

4.1. Analysis and Conclusions From Interviews

The data gathering instruments used was questionnaire. The questionnaire is distributed to the selected sampling credit line performers of 126 employees, but only 122 completed and returned successfully. Hence around 98% of the distributed survey is collected. In stratified random sampling selection technique, the large portion of the populations are management staff (Team Managers) of credit operation in project finance, i.e. 70% and 18% of the respondents are Branch Managers. Besides, all the respondents are involved in project financing process, from the initial customer's loan application to final loan recovery measures in case of default.

Most of the respondents have ample experience in banking as well as credit processing and well qualified. Moreover, they are well qualified. Hence, they have a better knowledge in project finance and their perception in credit financing is the main determinants of default. The results obtained from the survey on; credit evaluation criteria and policy induced attributes as the main significant determinants of project default, while the specific commodity nature attributes and source of equity contribution as the insignificant determinant project default are summarized against the literatures and presented as follows. The additional information obtained from the open ended questioner study is also incorporated.

Interview Discussion of the significant Explanatory Variables

Weak credit appraisal assessment made by banks and lack of proper skills of loan appraisers is found to be a major cause of default, as per the study made by Patersson, (2004), and Waweru and Kalini, (2009). Such findings have also obtained supported by the survey result. In addition, the open ended questions results affirms such findings. Poor project appraisal and evaluation parameters, unrealistic project appraisal a technique bring exaggerated and unrealistic financial projections and consequently leads to wrong financial decision and at last have a strong relationship with loan default. Additionally, poor prudent lending practices have a strong correlation with loan default. The bank's policy which allows to establish projects by using relocating second hand machinery's from abroad, establishing mega commercial agriculture projects by using rain feed agriculture, establishing projects by using buy-out from other banks and establishing mega project by top management exceptional and deviational approval have strong correlation with loan default. Additionally, according to the SPSS output from the survey data in connection with exceptional and deviational loan approval is neutral for smooth operation of project finance. Thus, exceptional and deviational loan approvals have great impact on default. There are empirical studies that assert factors in connection with credit policy and procedure as a cause of loan delinquency. (Gitamu, 2014, and Munen & Guyo, 2013). These findings have obtained strong support by the survey result. In addition, the open ended questions result supported such findings. Finally, the overall survey result on such the study reveals that credit evaluation criteria during project appraisal and policy induced attributes of the bank have significant impact on loan default from the credit experts' perceptive.

Discussion of the Insignificant Explanatory Variables

As per the SPSS probit regression model output from the survey data in connection with commodity nature attributes and source of equity contribution by its own very risky nature have its own impact for loan default , but the extent is insignificant. However, no literature was obtained to support such findings. From the survey analysis result, the source of equity contribution and specific commodity nature attributes had no significant impact on loan default from the credit expert's perceptive.

5.0 EVALUATION OF THE RESEARCH

This study assessed the determinants of default in project finance in development banks. The study adopted both qualitative and quantitative approaches using structured questionnaires. A survey was conducted on banks' credit performers directly involved in all the stages of loan processing for financing projects. In order to obtain more insight on the cases, the study used document review on banks records and conducted in-depth interviews on senior credit officers. The findings of the study indicates; poor due diligence assessment made by banks Know-your-customer (KYC) policy, weak credit negotiations, weak credit assessments on feasibility of projects, inadequate skills of the credit officers, inadequate financing, poor monitoring and follow-ups, unwillingness of the borrower to disclose true information, unplanned and ambitious business expansion, lack of commitment by project promoters, inadequate understanding of projects by project promoters, management capacity issues, poor working capital management,

willful default, data or information constraint to appraise project loan, inflation, foreign currency fluctuation and poor credit culture in the banking industry, as a significant cause of default.

5.1 Findings and discoveries

In the determinants of loan default, credit evaluation criteria for project appraisal, policy induced attributes, sources of equity contribution and the nature of specific commodity attributes for performance of banks is analyzed using primary data. The primary data is collected from 122 key employees of banks (i.e. directly involved in project finance) only. The sample employees were asked four kinds of questions. These questions are related to the bank's general background of the respondent, such as age of the respondent, educational background of the respondent, gender of the respondent, experience of the respondent. The second types of questions are related with the credit evaluation criteria for project appraisal, policy induced attributes, and source of equity contribution and the nature of specific commodity attribute using questionnaire. The third type are open ended questions for respondents. The survey results were analyzed by descriptive analysis and empirically by applying probit econometric model.

The survey result reveals that the age of the respondents' were 47.5% between the ages of 21 to 30 years; 50.8% between the ages of 30 to 50 years and 1.6% above 51 years old. Regarding gender, the respondents were 78.7% male and 21.3% female. Furthermore, the educational background of the respondents were 64.8% bachelor's degree; 33.6% master's degree and 1.6% have at least a diploma. Thus the respondents are well qualified and in relation to their age most of the respondent are young. Most of the respondents have adequate experience in project financing and banking operations in general. Their opinions and views on the existence and determinants of default is based on their ample and sufficient knowledge and experience in banking. In identifying the determinants of loan default for project financing in development banks from credit officers point of view, a probit model is estimated. The model describes that credit evaluation criteria during project appraisal and policy induced attributes had significant contribution for loan default. This indicates that banks highest amount of nonperforming loan or default rate is due to banks nature of policy induced attributes and credit evaluation criteria does not definitely identify viable projects for funding. On the other hand variables like, specific commodity nature attributes and sources of equity contribution are not statistically significant.

5.2 Limitations

The major limitation of the study stems from availability of credible and reliable data from the central bank and the development banks. This study will not include the opinions of the customers whose projects have been financed by the banks in the form of loans and defaulted by various reasons. Since these customers have already defaulted and are not in the good books of the banks, we are unable to access any information related to these customers. In addition, to the above mentioned limitation, there was no relevant studies found on this specific subject of Development Banks situation. The reliability of the information provided by the credit experts in the development banks for fear of superiors reprimand and possible job loss with the issues of clients' confidentiality cannot be guaranteed.

5.3 Recommendations

The following recommendations and policy implications can be drawn based on the research findings. An important policy implication from the strong relationship between credit evaluation criteria during project appraisal for financing decision and default rate brings to the fore, the need to consider project appraisal parameters and credit policies of banks. It should be given high emphasis before approving to finance projects. The reconsideration of banks policies to reflect modern trends is vital in reducing levels of nonperforming loan percentage to the required 5%.

The significant relationship between project viability checking criteria and loan default rate implies that banks should critically appraise feasibility of projects before financing and strong follow up is required for these projects. Additionally, credit evaluation criteria unit of banks (i.e. research directorate) is better outsourced and detail parameters genuinely set by independent professional researchers.

5.4 Further study and research

Further study and research could be carried out from the customers' point of view on why they defaulted in the facilities advanced by the banks to support their projects. This will then ensure a holistic view of the determinants of especially project loan default in general. This study dwelled only on the bank officers' perspective looking at the loan appraisal processes and policy induced attributes. Another study area could be picking the thoughts of the approving authority of such project loans and the sort of experience and knowledge they have in approving such facilities since most of the approving authorities in banks are not directly involved in the credit appraisal process or the post financing and implementation stages of funded projects. For such quantum of loans by banks, the final

approval is actually done by the banks boards most of who have very little or no dealings with the day-to-day running of the bank in question.

5.5 Conclusions

In the determinants of loan default, credit evaluation criteria for project appraisal, policy induced attributes, sources of equity contribution and the nature of specific commodity attributes for performance of banks is analyzed using primary data. Thus the respondents are well qualified and in relation to their age most of the respondent are young. Most of the respondents have adequate experience in project financing and banking operations in general. Their opinions and views on the existence and determinants of default is based on their ample and sufficient knowledge and experience in banking. In identifying the determinants of loan default for project financing in development banks from credit officers point of view, a probit model is estimated. The model describes that credit evaluation criteria during project appraisal and policy induced attributes had significant contribution for loan default. This indicates that banks highest amount of nonperforming loan or default rate is due to banks nature of policy induced attributes and credit evaluation criteria does not definitely identify viable projects for funding. On the other hand variables like, specific commodity nature attributes and sources of equity contribution are not statistically significant.

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