CONCEPTUAL PARADIGM AND RETHINKING PROJECT FINANCE STRATEGY FOR HIGHWAY PROJECTS FINANCING IN GHANA

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Abstract

Project finance (PF) strategy is a finance process for infrastructure projects that integrates a mixture of equity and debt financing from different sources, which derive their return from the revenue steam of the project over a long-term period with equity component consisting of 20% - 40 % whereas the debt component is of 40% - 80%. Most theoretical and empirical studies on project finance strategy focus on adoption of project finance strategy in financing large capital-driven projects such as petrochemical projects, mineral extractions and exploitation of 'green' ventures in developed and emerging economies. Meanwhile, the demand for basic infrastructure projects delivery, more especially, highway projects in developing economies such as that of Ghana are in excesses of what the governments' budget allocations can afford. The paper utilized literature and theory to examine the position of highway construction financing and provides rethinking into possible exploitation of project finance strategy as an alternative means of financing highway projects in Ghana. The paper concluded that revenue-generating mechanisms from the project should be set up characterized by potentially low-risk grading in order to attract PF investors. The originality and value of the study is the integrated and holistic approach of viewing the problem between theoretical and empirical interface. The paper's key contribution to knowledge is the identification of influential variables in a typical PF deal in the context highway projects funding.

Introduction

Spending on road network accounts for between 0.5 and 10 percent of public expenditure and between 10 and 20 percent of the development budget in many countries (Gwilliam and Shalizi, 1999). In view of that, the Ghana Highway Authority (GHA) was initially established under NRC Decree 298 in 1974 with sole authority to plan, implement and maintain all types of roads in Ghana (Kwakye, 2002). This has been superseded by Act 540 of 1997 to reflect changes, which have occurred in the road sub-sector. Now, GHA is charged with the responsibility for the administration, development and maintenance of trunk roads (thus, aggregate distance of 13,400Km) and related facilities in the country. Among its mission is to provide a safe and reliable trunk road network at optimal cost by taking advantage of modern technology in road building and new income-generating methods to facilitate socio-economic development in the country (GHA, 2005). Before 1983, about 60% of the road network was in poor conditions due to lack of funds for road construction and maintenance works with marginal development in recent years (Kwakye, 2002).

This has necessitated various Governments and road sector agencies to develop efficient-driven institutional framework to promote private sector participation in the areas of financing and managing highway projects in Ghana through specialized designed instruments such as; BOT, BOOT, MOT, BOO, MOO, PFS, etc. In this paper, we narrow our scope to PFS and focussed on providing technical analytical

framework for considering PF strategy as an alternative means of financing highway projects in Ghana. Analysis on financial domain of road construction which, are usually classified as capital expenditures, financed through borrowing and subsequent debt servicing, are not discussed in this paper and recommended for future research.

Sorge & Gadanecz (2004) reported that project finance strategy is an important method of financing large-scale capital-driven projects in both advance and emerging economics where the demand for financing exceeds the financing supply capacity of the project sponsor. The last three decades have witnessed a boom of studies in the field of project finance whilst researchers in this area are keen and interested in the development of sophisticated and efficient-driven operating environment in developed and emerging economies (Farrell, 2003). Meanwhile, there is unparallel attention given to studies and implementation of PF strategy in developing countries and for that matter Ghana.

In the early and mid eighties, many empirical studies were conducted in developed countries, notably those pioneered by Wynant, (1980) and Nevitt, (1983) which provided holistic view about PF strategy and further development of grounded theories. Subsequently, in the 1990s, another group of studies made excellent reports on PF strategy; prominent among such studies were those engineered by Fadhley (1991) and Shawa (1995). These studies were tailored to investigate the motives and objectives of borrowers, lenders and host countries in adopting PF strategy in financing petrochemical projects in LDCs. Available literature provides enough grounds that PF strategy has been explored in the past and is still evolving with potentially huge acceptance accross many economic sectors in both developed and emerging economies (Reinier, 2003). Despite the tremendous recognition of PF in literature and excellent contribution of PF strategy towards achieved developmental goals and governmental agenda in many developed countries, it is unfortunate that PF strategy has received little or no attention in terms of implementation and research-oriented innovations in every economic sector of Ghana.

However, Ghana's developmental strategy for the next decade or so will continue to address macroeconomic imbalances. Thus, the government focus is geared towards removing structural bottlenecks and creating an environment for sustained and balanced growth with major emphasis on efficient communication networks throughout the country. The goal of the paper is to examine the funding patterns of highway construction projects delivery in Ghana with special reference to project finance strategy. In achieving the set purpose, the following objective to explore PF strategy in both conceptual context and to present a set of stylised facts that will stimulate fresh thinking and exploitation of PF strategy in highway construction projects delivery in Ghana.

Methodology

The paper employed mainly secondary data (i.e. literature review) supplemented by primary data (i.e. interviews with the Ministry of Roads and Transport; and selected local and foreign banks in Ghana). The interviews were kept informal, simple and informative enough in other to derive the best from it. The interviews addressed a number of issues arising from the literature such as the choice of funding and financing methods used for highway construction projects delivery in Ghana, the value of the projects executed, funding agency, constraints and challenges. The analysis on the trends of financing highway construction projects delivery in Ghana contained in this paper is based on the identified database of highway projects that have been signed and executed in Ghana between the periods of 1980 and 2006. Explanation building analytical technique was adopted to analyse and present the research findings scientifically.

Theories and Definitions PF Strategy

The term "project financing" has been used to describe all types and kinds of financing of capital projects with or without recourse, on-balance sheet or off-balance sheet, since its inception by the Americans in the early seventies. However, PF strategy has evolved in recent years to have a more precise definition (Nevitt & Fabozzi, 1995). Notwithstanding, in an attempt to define PF, it is realized in existing literature, that there is no particular definition that adequately covers all the variations in the theories of PF strategy. Over the period, many PF definitions and theories have been originated by different researchers. In this paper, we explored five influential defintions of PF and expatiated on the parameters that stimulate fresh thinking into project finance.

Table 1: Definitions of project finance

Author (s)	Definition
Nevitt, P.K., & Fabozzi, F. (1995)	The financing of a particular economic unit under which the lender partially or wholly relies upon the assets of the unit for collateral and upon the cash flow from the units as its source of funds for the repayment of debt; which the project may take longer period to put in place
Herrick J., (2000)	A finance process for infrastructure projects that integrates a mixture of equity and debt financing from different sources, which derive their return from the revenue steam of the project over a long-term period. Whereas equity component of PF package consist of 20% to 40 %, the debt component is of 40% to 80%
Leslie E. Sherman (2002)	Project financing involves non-recourse financing of the development and construction of a particular project in which the lender looks principally to the revenues expected to be generated by the project for the repayment of its loan and to assets of the project as collateral for its loan rather than to the general credit of the project sponsor.
Farrell, L.M. (2003)	The financing of a project by a sponsoring entity whereby the cash flows generated by the project serve as the source of funds from which the loan will be repaid and where the assets of the project serve as the collateral for the loan
Sorge, M., & Gadanecz, B. (2004)	Limited or non-recourse financing of a new project through the establishment of vehicle (project) company. Sorge and Gadanecz further argued that the reliance on non-recourse debt represents the key differences between project finance and traditional corporate finance.

Analytical Domain for Considering PF Strategy in Funding Highway Projects

Gwilliam and Shalizi, (1999) and Gwilliam and Kumar, (2003) argued that the establishment of a road fund may affect the efficient working of the economy through three main channels. The first channel: fiscal control influences the efficiency with which resources are collected and allocated among activities to maximize total community welfare (Gwilliam and Shalizi, 1999). The second channel, management incentives partly determines the efficiency with which the agents of production use the resources allocated to them (Gwilliam and Kumar, 2003). The third channel, rent-seeking behaviour, can adversely affect both fiscal control and management incentives. Rent-seeking behaviour occurs when individuals or agencies attempt to secure their own specific advantage at society's expense. The relative importance of and balance among these channels critically affects the assessment of the usefulness of project finance strategy as an alternative to traditional road financing.

Fiscal Control and Allocational Efficiency

Public finance economists argue against earmarking because the optimal charge on road users would be unlikely to generate the revenue stream required to finance the optimal stream of road maintenance expenditures in terms of scale or timing (Heggie, 1995). If this is always true, then project finance may be defeated contextually in terms of applicability in highway financing. Nonetheless, in any given time period, any earmarked stream of revenue is likely to generate either insufficient or excessive funding. Too little funding causes the

road authority to require continued recourse to the general budget whilst too much funding creates the potential for financing lower-priority expenditures (Gwilliam and Shalizi, 1999).

In the former case, ensuring independence from poor budgetary processes and allocations requires rate-setting capabilities; in the latter case, avoidance of wasteful allocations requires public accountability through strict monitoring and auditing mechanisms. A related point is that current political pressures or the electoral cycle may result in myopic decisions. Vehicle operating costs, which do not enter into the road agency accounts, make up a high proportion of total transport costs (7590 percent); these costs increase progressively as road conditions deteriorate (Harral and Faiz 1988). Expenditures on timely maintenance do not yield such obvious improvements in system performance as do expenditures on new investment. Yet long-term investment funded at the expense of optimum maintenance actually leads to a long-term decline in total available road system quantity and quality. The introduction of explicit road user charges, directed to a road fund in lieu of allocations from the general revenue budget, would contribute to allocative efficiency.

The introduction of explicit road user charges, however, would not automatically eliminate the need to address tradeoffs. In the absence of complete independence between specific road user charges and general taxes, securing funding for roads would entail an opportunity cost in other sectors. For example, in developing countries with low taxable capacity, fuel taxes represent a fairly secure tax source, accounting for 7 to 30 percent of total tax revenues and 1 to 3.5 percent of gross domestic product, or GDP. The loss of control over this source of revenue may particularly damage the central government's economic management abilities.

Introducing an indirect road user charge, in the form of a surcharge on fuel taxes, would limit the government's ability to increase taxes on fuel for general tax purposes. The independence of general taxing capacity from the level of road user charges is likely to be greatest when a group of beneficiaries is well defined and the payment of user charges is directly linked to the receipt of services.

Management Incentives and Operational Efficiency

The life of a highway investment and the benefits accruing from it depend on the maintenance of the facility (Gwilliam and Shalizi, 1999). Most appraisals assume optimal maintenance, although they may not explicitly address what this implies. Failure to provide the required maintenance effort means that the return on the initial investment will be lower (Gwilliam and Kumar, 2003). If normal budgetary practices do not provide the necessary funding for optimal maintenance, then project designers and evaluators should reduce the likely benefit stream (and therefore the expected rate of return) or introduce complementary institutional mechanisms to ensure appropriate maintenance practices.

In the first case, fewer investment projects would meet the criteria for selection. In the second case, establishment of a road fund to ensure funding for road maintenance from road user charges (quasi prices) may be the logical corollary of accepting projects with attractive rates of return, but in contexts where budget practices are poor. The introduction of project finance strategy where the management is assigned to a sponsoring company can improve managerial incentives by increasing autonomy from unwarranted political interference. In many countries, wrangling over the budget delays its approval and disbursement. Even if the total level of road funding is open to competition from other demands, a road fund may enable the executing agency to perform more efficiently by guaranteeing the availability of a secure core of funding. The guarantee of a core of finance may also allow road agencies to extend and improve contracting arrangements with the

private sector.

In Ghana, the greater certainty of funding associated with earmarking allowed the introduction of effective competitive bidding. In general, more reliable financial arrangements lead to better use of resources. Operational efficiency may also increase if users willingly pay for maintenance because the road authority channels payments more directly to the provision of a service of value to the users. (The availability of these additional resources, which might not be forthcoming otherwise, can also improve the government's ability to manage macroeconomic imbalances.) Some countries, including many in Sub-Saharan Africa, have experienced a severe crisis in the maintenance of their main road networks. Heavy users, such as truckers and other operators of commercial vehicles, have demonstrated a willingness to levy an additional charge on their "own" use of fuel to finance a road fund with responsibility for maintaining a core network. There is no mystery to this behaviour. Users more than recoup the surcharge if it is dedicated to fund better road maintenance, which in turn reduces vehicle-operating costs.

- **Rent-Seeking Behaviour and the Distribution of Welfare**

At the heart of the problem of traditional road financing was the failure of the associated earmarking arrangements to address incentive and governance issues. Unlike marketable commodities, including deregulated rail and airline services, the typical traditional road fund had no link between the tax rate (or the amount of taxes earmarked) and spending priorities (in light of the level of road use).

Road fund managers had incentives to maximize their discretionary expenditures (including investment in low-priority roads or ancillary activities) rather than to optimize the level of road maintenance. The combination of public scrutiny and periodic monitoring by a competent central bureaucracy may provide some defense against this problem in industrial countries, but that combination is less likely in developing countries with less developed institutional capabilities. Public choice theorists express skepticism even about institutional capabilities in industrial countries, including the political process that translates citizens' preferences into public action. Essentially, they believe that diverse citizens' preferences do not permit aggregation into a well-defined community preference function. They also believe that monitoring costs and informational asymmetries may enable public officials (regardless of whether they respond to organized pressure groups) to project their personal interests onto their function of allocating resources. Moreover, they believe that budget choices do not depend solely on the inherent costs and benefits of services but also on the ability of one set of taxpayers to transfer the costs of programs that benefit them to others. Where individual preferences for public goods differ, separate earmarked funds could potentially increase general welfare if the payments to those funds reflect individuals' relative marginal utilities for different public goods.

Despite the ingenuity devoted to designing ways of getting consumers of public goods to reveal their marginal utilities truthfully, this analysis remains difficult to apply practically. Quasi prices, or user charges, may have welfare advantages because they can be levied approximately in proportion to the demonstrated benefit of consumption. Public choice theorists have pointed out a fundamental flaw in general fund budgeting. That is, heavy consumers of a service that is financed through general taxes would benefit from lobbying for larger expenditures on that service (thereby transferring welfare to themselves). At the same time, non-consumers would argue for lower expenditures. The outcome depends on the respective political power of the parties, rather than the aggregate value attached to each individual service.

The road authority can eliminate this bias by setting prices, such as tolls and vehicle duties, for the beneficiaries of a specific service. Using a fuel surcharge as a quasi price for road use (with appropriate corrections for agricultural

vehicles and for fuel not used for road vehicles) is analogous to establishing a special taxing district. These districts are common in the provision of some facilities, such as water, and could be consistent with the government's pursuit of redistribution objectives through its policies on general taxation and the allocation of merit goods. The argument for earmarking as a way of separating allocation and distribution issues may also be applied spatially. The government could implement a program of regional financing for services consumed regionally. This program would avoid overprovision in some regions at the expense of others as the regions compete to maximize their share of the national budget. Of course, the road authority may justify some regional disparities in provision, particularly of road investment, on both efficiency and equity grounds. The government would require operational criteria for the spatial allocation of resources, as have recently been developed for second generation road funds, regardless of whether the funds are earmarked

By Exclusion, Project Finance is Different from Traditional Finance

Off-balance sheet finance and Non-recourse or limited finance are the two fundamental elements that differentiate PF from traditional form of finance (Howcroft, 1986). Ketz, (2003), defines off-balance financing as a form of borrowing in which the obligation is not recorded on the borrower's financial statements. However, this is really a complete misnomer as almost invariably there is such mention of such finance in the accounts.

What is really meant is that the finance is not provided by means of a loan secured against the balance sheet assets of the sponsoring company (Kleimeier and Megginson, 2000). Off-balance sheet financing can employ several different techniques, which include development arrangements, leasing, product financing arrangements or recourse sales of receivables (Ketz, 2003). Off-balance sheet financing does raise concerns regarding the lenders' overall risk, but it improves their debt to equity ratio, which enhances their borrowing capacity. As a result, loans are often easy to arrange and are given lower interest rates because of the improved debt structure on the balance sheet. Off-balance sheet financing is a technique often used by multinational businesses in order to secure additional loans on the worldwide loan market (Shawa, 1995; Ketz, 2003). Similarly, Nevitt, (1983), established that non-recourse finance is a loan where the lending bank is only entitled to repayment from the profits of the project the loan is funding, not from other assets of the borrower, thus a type of debt for which a borrower is not personally liable.

Thus, if there is a default on a non-recourse loan, the lender must recover the amount owed by foreclosing on the property by which the loan is secured. Typically, non-recourse finance is ambiguous because in practice there will be recourse to some assets or revenue, however such recourse is limited (Yassucovitch, 1978). What non-recourse finance meant in concept is that there will be no repayment guarantee of the loan itself whether as a direct repayment obligation of the borrower or of the parent of the company, whose interest is being, financed (Kensinger and Martin, 1988). In order to minimize the risks associated with a non-recourse loan, a lender typically will require indirect credit supports in the form of guarantees, warranties and other covenants from the sponsor, its affiliates and other third parties involved with the project (John and John, 1991; Leslie, 2002).

The Market, Participants and Sources of PF Strategy

According to Beidleman et al. 1991 and Farrell, 2003, the market for project finance involves a supply of public and private sector projects seeking financing and a demand by investors, lenders, financial intermediaries, engineering and construction contractors, and equipment suppliers, for such projects. Financing instruments used in PF strategy include leases, limited partnerships, joint ventures, warrants, conversions, swaps, caps and floors, as well as traditional forms of debt and equity financing. The project finance process includes the actual

operation of the facility and expected cash flows (Shawa, 1995; Kleimeier and Megginson, 2000). According to Howcroft, 1986; Altunbaş and Gadanecz, 2003; Sorge and Gadanecz, 2004; potential sources of project financing can be enormous ranging from wide variety of domestic and international sources, including banks (i.e. commercial, banks, development banks, merchant banks) leasing companies, insurance and reinsurance companies, pension funds, governmental bond authorities, finance companies, export credits, private lenders, international financing agencies such as the World Bank Group, DFID, etc.

The financial plan should be designed to select from the various possible options the financing package, which minimizes risk adjusted financing cost consistent with the existing supply and demand conditions in global capital markets (Woody and Pourian, 1992). Similarly, integration of PF strategy into efficient-driven framework should be holistic and embodied with contingent measures to absorb potentially adverse risks that are likely to be exposed to the project at both construction and implementation stages. Thus, a more

Bird Eye View on Typical Project Financing Participants

According to Leslie, 2002, project finance participants vary from industry to industry and may typically include equity and debt participants such as sponsor (whose interest is being financed), Additional Equity Investors, Construction Contractor, Feedstock Supplier, Product Off-taker, Operator and Lender. Each participant has a characteristic motive, thus, to make profit from the investment being it medium-term or long term. The project under consideration must therefore demonstrate adequate revenue-generating potentials.

Risk Spreading is Key to Project Finance Strategy

Project finance can be best understood when seen as a means of risk spreading or risk segmentation (Wynant, 1980) that. According to Howcroft, (1986), Woody and Pourian, (1992), though these risks vary with the type of

Table 2: Participants of project finance

Participants	Characteristics
Sponsor/Developer	The sponsor(s) or developer(s) of a project financing is the party that organizes all of the other parties and typically controls, and makes an equity investment in, the company or other entity that owns the project. If there is more than one sponsor, the sponsors typically will form a corporation or enter into a partnership or other arrangement pursuant to which the sponsors will form a "project company" to own the project and establish their respective rights and responsibilities regarding the project.
Additional Equity Investors	In addition to the sponsor(s), there are frequently additional equity investors in the project company. These additional investors may include one or more of the other project participants.
Construction Contractor	The construction contractor enters into a contract with the project company for the design, engineering and construction of the project.
Operator	The project operator enters into a long-term agreement with the project company for the day-to-day operation and maintenance of the project.
Feedstock Supplier	The feedstock supplier(s) enters into a long-term agreement with the project company for the supply of feedstock (i.e. raw materials or other resources) to the project (e.g., for highway project, the feedstock supplier will supply plant and equipment, cement and concrete products, etc.).
Product Off-taker	The product off-taker(s) enters into a long-term agreement with the project company for the purchase of all the products produced from the project. This particular participant is not typical with highway projects.
Lender	The lender in a project financing is a financial institution or group of financial institutions that provide a loan to the project company to develop and construct the project and that take a security interest in all of the project assets

project under consideration, there are certain risks categories which occur in most projects and they are typically divided into pre-completion and post-completion risks. Among such risks are: reserves, credit, political, marketing, technical, operator, legal, financial, environmental, maturity, etc. According to Farrell, (2003), assessing risk to the lender in project finance is more difficult because these projects are not well-defined commercial entities with credit histories which can be used to quantify risk. Similarly, the expected future cash flows from different projects undertaken by the parent company may overlap and mingle with the cash flows of the project under project finance, which in this case, analyzing them requires a sound knowledge of the underlying technical domain as well as in-depth financial modelling skills (Leslie, 2002; Ketz, 2003).

Concussions, Recommendation and Agenda for Future Research

Investors are profit-driven entities operating in both the micro and macro economic environments towards a common purpose, thus, achieved national developmental goals. Contextually, several reasons can be accounted for using PF package towards investor expectations in both medium and long-term. The possibility of funding projects with 70% and more non-recourse debt is attractive to the sponsors and investors. Thus, project finance allows sponsors and investors to share in potentially large revenues while committing relatively little equity; deconsolidating projects off-balance sheet makes it possible for the sponsors to preserve their corporate debt capacity and keep their cost of funding low.

A further reason for the sponsors to consider project finance is that the risks of the new project will remain separate from their other activities, avoiding any potential risk contamination and enhances sharing of risk among participants. Along with non-recourse debt, another key feature of project financing is the extensive network of contractual agreements that is developed to suit any particular project structure. Again, PF strategy allows sponsors to enjoy the benefits of non-recourse debt and extensive contracting, while minimising the related risks to lenders.

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