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**ENTERPRISE FINANCE IN SUB-SAHARAN AFRICA:
AN ANALYTICAL FRAMEWORK**

by

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Abstract

Key conceptual elements for the analysis of enterprise finance and financial intermediaries are discussed. Some methodological issues relevant to the study of the demand and supply of financial services for enterprises are addressed.

ENTERPRISE FINANCE IN SUB-SAHARAN AFRICA: AN ANALYTICAL FRAMEWORK^{1/}

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I. INTRODUCTION

Among all developing country groups, Sub-Saharan Africa showed the poorest performance of gross domestic investment, the lowest growth rate of the industry sector, and the second lowest growth rate of manufacture in the last decade (Table 1). The contribution of industry to gross domestic product (GDP) in the Sub-Sahara region grew from 20 percent to only 27 percent in the quarter-century after independence. Manufacture, included in the industry sector, increased its contribution to GDP from 8 percent to 11 percent during this period, a share still by far the lowest among developing countries (Table 2).

The weak performance suggested by the figures above is observed in spite of substantial inflows of external assistance to the region. While disbursements of official development assistance went from 9 billion in 1985 to 14 billion in 1988 and 13 billion in 1989, gross domestic investment remained at about 25 billion dollars per year during this time period (Table 3). Severe crowding out by the government in the allocation of external assistance appears to have limited capital accumulation in the region. While aggregate GDP decreased between 1980 and 1989 in the region, general government consumption increased

^{1/} The views contained in this paper are those of the author and do not represent The World Bank or its affiliated institutions.

at an annual growth rate of 1.1 percent in this period, representing 14 percent of GDP in 1989, the highest share among all developing country groups. Private consumption growth averaged only 0.7 percent per year in the same decade while gross domestic investment decreased at 3.9 percent per year.

The allocation distortions suggested above have been compounded by flawed and inefficient mechanisms used to support real sector output and capital accumulation. Directed credit programs, a favorite instrument of African governments and international donors, usually target industry, state-owned enterprises, agriculture, and small and medium-scale enterprises, adopting different forms of intervention: credit allocation rules imposed on banks, refinance schemes, subsidized loans, credit guarantees, and direct lending by Development Finance Institutions (DFIs) (World Development Report 1989). Specifically, most targeted credit initiatives to small and medium enterprises in developing countries are based on the allegation that credit is the major constraint to enterprise operations and growth.

However, it seems now clear that these targeted initiatives have followed the path of the small-farmer credit programs of the 80's, i.e., either they result in costly and regressive income transfers, or they are so bound by restrictions and provisions that they fail to meet their disbursement targets. In both cases, these targeted programs fail to attain their intended goals, while seriously compromising the viability of the financial intermediaries acting as conduits of donor funds. Although individual sectors may have benefitted from directed credit, the evaluations of the effect these programs have on resource allocation is at best inconclusive. The connection between credit allocations and real economic activity

is difficult to establish. Substitution, diversion, and the fungibility of finance may render changes in credit totally ineffective to induce changes in real activity (Gale 1991, Von Pischke and Adams).

Designing sound and "safe" donor interventions in enterprise development requires a thorough understanding of the true role finance plays in firm dynamics, of the factors underlying liability and asset portfolio choices, and of the interactions between finance and the other markets and institutions comprising the firm's environment. In addition, interventions need to account for the effects they are likely to exert on the financial intermediaries operating in this environment. Hence, a clear understanding of the role and functioning of financial intermediation must precede the design of enterprise development strategies.

The Regional Program on Enterprise Development of The World Bank (RPED) is concerned with the microeconomic environment in which African firms operate, with the "determinants and characteristics of behavior" of these micro units, and with the dynamic processes through which these firms interact. A major focus of the research program is the "impact of government regulations and the networks of markets and support institutions that provide the enabling environment for firm development"^{2/}. The role that financial markets, financial intermediaries, and financial regulations play in this environment is a central issue in the RPED research program.

A number of questions can be formulated to guide the analysis of the role that finance plays in the environment surrounding African enterprises, among others:

^{2/} RPED. "The Dynamics of Enterprise Development in Africa: Concepts Paper." October 1991.

- what are the services demanded by firms from financial intermediaries?,
- in addition to borrowed capital, what is the significance of the demand for portfolio management options?, for insurance substitutes?,
- what is the nature and the relative importance of the so-called "credit constraint" to enterprise development?,
- how does the availability (absence) of financial services affect firm activities?,
- does the choice of sources of finance affect the choice of investments by entrepreneurs?,
- are there significant differences across industries in the role played by the availability of liquidity?,,, by the availability of borrowed funds?,
- do these inter-industry differences create "comparative advantages" among industries?

In addition to the direct relationship between financial intermediaries and enterprises, it is essential to investigate the indirect effects financial markets are likely to have on enterprise development through non-financial support mechanisms (e.g., financing of marketing agents, input suppliers and other complementary businesses). Furthermore, regulations and incentives affecting financial intermediaries will potentially affect manufacturing firm operations and growth through several (direct and indirect) mechanisms. Typical examples are the crowding out of the private sector by public sector borrowing from the banking system (directly through treasury bills, and indirectly through reserve requirements), and the restrictions on institutional lending to trading enterprises and the service sector. The former reduces the total amount of institutional credit available to private

enterprises, while the latter restrict the ability of non-manufacturing firms to provide (informal) credit to manufacturing firms.

The key conceptual elements to analyze enterprise financing are necessarily coincidental with those guiding the analysis of institutions. The New Institutional Economics approach (imperfect information, transaction costs, bounded rationality) applies to financial transactions and financial markets as it does to labor contracts and labor markets. The demand for financial services by enterprises, hence for "financial support systems", is analyzed below under the same general framework labor demand and demand for other factor services are analyzed (see section II). Likewise, this general conceptual framework is valid for financial intermediaries as firms/agents operating in the same micro and macro environment surrounding non-financial enterprises (section III).

Case studies of financial support mechanisms (section IV) are justified to the extent that the systems/mechanisms under analysis are relevant for the provision of financial services to enterprises. Case-study selection should include the key financial intermediaries servicing enterprises identified in the enterprise survey, and should consider the nature of the services contracted between firms and intermediaries.

II. THE DEMAND SIDE: DYNAMICS OF ENTERPRISE DEVELOPMENT AND FINANCIAL MARKETS

The demand for financial services by enterprises, or more generally their participation in financial markets, can be analyzed as a problem of constrained portfolio selection by firm-households. Here the firm-household is seen as an entity maximizing a weighted sum of profit and utility, where the weight of the profit maximization objective (and therefore that of the utility maximization objective) ranges from 0 to 1. Purely profit-maximizing decisions can be associated with conventional firms, while utility-maximizing choices will dominate among household (family) enterprises.

Enterprises and households generate a demand for financial services through their asset portfolio allocation decisions, and their choices of debt instruments (their liability portfolio). While current production and long-term investment drive the profit maximizing behavior of conventional firms, both consumption and investment decisions are involved in the household constrained utility maximization process.

Since a majority of the firms in the size distribution of enterprises are likely to lie somewhere between the pure extreme cases (conventional firm to household firm), in what follows the terms enterprise or firm are used to refer to this composite firm-household. Therefore, the firm's optimizing behavior encompasses current production, investment and

consumption objectives, and portfolio allocation decisions are consistent with these combined objectives^{3/}.

As indicated earlier, the New Institutional Economics (transaction costs) approach summarizes the appropriate conceptual elements to analyze enterprise finance. A significant departure from frictionless neoclassical economics, transaction-cost economics emphasizes the matching of governance structures with the attributes of transactions, as a condition for the efficient organization of economic activity. When markets are the relevant governance structure, the price mechanism is the primary driving force for resource allocation. However, when the costs of using the price mechanism are significant, hierarchical (intra-firm) decisions supersede the price mechanism, and resource allocation is decided by a single administrative entity (Coase, Williamson, 1975). As will be clear below, portfolio allocation decisions (purchases and sales of financial contracts) are driven by the attributes or "characteristics" of transactions and financial instruments, much like other real resource allocation processes.

Imperfect information and uncertainty are major sources of transaction costs, since contracting parties need to provide for contingencies associated with the transaction or specify contract terms covering unforeseen contingencies. These "terms of governance" involve costs of monitoring, administration and enforcement. Providing for opportunistic behavior also creates transaction costs, in magnitude inversely proportional to the extent of uncertainty about human behavior^{4/}.

^{3/} i.e., business decisions and household decisions are not separable.

^{4/} See RPED. "Institutions: The Transactions Environment." 1991.

At the firm level, imperfect information and uncertainty constraint the entrepreneur's decision-making^{5/}. At the market level, imperfect information and uncertainty condition the nature of contracts. A well-known example of the latter is the effect of adverse selection and incentive effects on credit market equilibrium (Stiglitz and Weiss), described earlier in the RPED "Institutions" paper. Enterprise portfolio choice under this contractual environment is discussed first below. The behavior of financial intermediaries in the same environment is the subject of a subsequent section.

A. Contractual Environment and Portfolio Choice

Firms participate in financial markets not exclusively, or even not primarily, to obtain liquidity (to borrow)^{6/}. Instead, enterprises resort to financial markets to satisfy a number of requirements, raising capital being one of them. Portfolio management options or alternatives which may enhance firm revenues and/or reduce overall risk exposure, and insurance or insurance substitutes are two major motivations to engage in financial transactions.

In developing countries, the absence of specialized capital and insurance markets makes the enterprise's choice among available financial contracts even more complex than in developed environments. Financial instruments and contracts, and their providers, are evaluated and ranked by potential users according to the extent to which they meet the

^{5/} Note that bounded rationality applies to firms as it does to financial intermediaries, which are defined later as firms producing financial services.

^{6/} Indeed, as it will be argued below, borrowing (debt) is not the preferred component of the firm's capital structure.

requirements indicated above, as well as the transaction costs associated with these instruments and contracts. Both assets and liabilities are seen as commodities endowed with characteristics, and the matching of these characteristics with those demanded by the firm will determine the firm's portfolio composition. In addition, the role some transactions may play as substitutes for missing contracts becomes an important consideration in portfolio choice^{7/}.

1. Asset Choice and Demand for Financial Services.

What distinguishes cash under the mattress from a savings account in the Postal savings bank?, from a goat in the back yard?, from a piece of baking equipment, for the Nigerian baker entrepreneur? Return, liquidity, and safety, are the key asset characteristics by which these asset holding options can be compared. While expected return increases from cash to bank savings to goats to a new oven, liquidity decreases from immediate to none as the entrepreneur rates these asset options. Safety varies across these assets depending on the perceived risks associated with each asset type. Cash can be stolen or borrowed by dubious relatives, the government may freeze savings account balances amidst desperate adjustment measures, goats may fall victims to disease or theft, bakery equipment may break down off-warranty.

Clearly, the array of alternative asset holdings will vary across industries, and across firm size-categories. Physical assets may include pure stores of value (e.g., jewelry) as well as productive assets. The latter may be industry-specific investments with minimal value as

^{7/} See Udry for a discussion of state-contingent credit transactions as substitutes for insurance in Nigerian villages.

inflation hedges (e.g., a forge), or equipment of a more general nature which also plays a role as store of value (e.g., trucks). Financial assets may range from bank deposits to informal loans to "tontine" contributions, with different rates of return and maturity (liquidity) conditions. Enterprises are likely to use sales on credit or consignment as a form of linked transaction which provides them with a financial asset (a loan) as well as cost-reducing marketing strategy.

A comprehensive enumeration and characterization of all alternative asset purchases (holdings) available to the firm is essential while modelling the firm's asset portfolio choice. Return (net of transaction costs), liquidity, maturity, and safety (risk) need to be measured or proxied to appropriately portray the firm's environment. The comprehensiveness of this enumeration and characterization of assets will be a function of the size and diversity of the sample of enterprises. The broader the range of activities, and the wider the spread of firm sizes, the better the description of available assets.

Likewise, the description and measurement of the nature and "terms of governance" of contracts associated with the acquisition (holding) of different assets is essential to understand enterprise asset choices. Among these contract terms, the nature of the relationship between the firm and its transaction partners should provide important insights into the extent, quality, and symmetry of information prevailing in the relevant transactions. Moreover, the nature of the relationship between contracting parties will indicate the degree to which financial transactions may be substituting for absent markets.

The model of asset portfolio choice outlined in the "Institutions" paper must then be complemented with explanatory variables measuring asset characteristics, terms of associated

transactions, and nature of relationship with transaction partners. Although a model of liability portfolio choice is set forth separately below, interactions are likely to exist between liability choice, particularly the choice of providers of funds, and the firm's asset choice^{8/}. Hence, the data collection effort should provide for a combined asset *cum* liability portfolio model. The questionnaire for enterprises (Appendix A) attempts to capture all data requirements suggested in this section.

2. Liability Choice and Demand for Financial Services

How do firms finance their entry, their expansion, their transformation?, what factors determine their choice of capital structure? These questions are a matter of concern not only in Sub-Saharan Africa, but also among analysts of U.S. corporations. A brief review of recent conceptual developments in the latter context follows. Their extension to enterprise financing in Africa is then proposed as a conceptual framework for the RPED research.

In his 1984 presidential address to the American Finance Association, Stewart Myers contrasted two views about capital structure: the *static tradeoff* hypothesis, and the *pecking order* framework. The former states that a firm will set a target debt-to-value ratio and then will gradually adjust towards that target. The optimal debt ratio is determined in turn by a tradeoff between the costs and benefits of borrowing. The firm is supposed to substitute debt for equity, or *viceversa*, until the value of the firm is maximized.

^{8/} See for example MacKie-Mason.

The *pecking order* theory postulates that firms have a preference for internal finance and that, if external financing is sought, firms will prefer debt over equity. In corporate jargon, firms "adapt their target dividend payout ratios to their investment opportunities"...; if, due to unexpected imbalances between profits and investment opportunities, internally-generated cash flows fall short of investment outlays, "the firm first draws down its cash balance or marketable securities portfolio" (Myers, p. 581).

If external finance is required, the pecking order approach continues, "firms issue the safest security first. That is, they start with debt, then possibly hybrid securities such as convertible bonds, then perhaps equity as a last resort" (Myers, p. 581, my underlining). Myers goes on to show that predictions based on asymmetric information are consistent with the central propositions of the pecking order theory. Information asymmetries in this case arise from the manager's better knowledge about the firm than that of potential outside investors, which results in a different valuation of the firm's stock.

More recently, information asymmetries between entrepreneurs and outside investors (hidden information) have been submitted as a reason for firms to rank order providers of funds instead of security types, while other factors determine the choice between debt and equity (MacKie-Mason). Under this approach, the information available to the providers of funds becomes crucial to explain firm financing decisions.

Hybrid securities and equity markets are not likely to be available for African enterprises. However, the central ideas of the pecking order theory and the relevance of information asymmetries to the selection of a firm's capital structure are an appropriate conceptual framework for the analysis of enterprise portfolio choice. Two points are worth

emphasizing here: first, the distinction between internal and external financing, and second, the "safety first" principle.

The idea of a hierarchical preference between internal and external financing bridges an important gap usually present in financial market research. Profitable, efficient firms with carefully drawn investment plans will borrow relatively less than other enterprises, since they will finance their investment expenditures with retained earnings. Poorly managed enterprises, firms with overly ambitious expansion plans, or enterprises affected by unforeseen shocks are more likely to acquire debt.

The "safety first" idea ruling external financing predicts that the enterprise will seek risky debt (e.g., collateralized loans), only after all sources of soft, state-contingent loans are exhausted. Borrowing that exposes the firm to enforceable foreclosure of collateral, amounts to the relinquishing of ownership involved in selling stock. Observed debt contracts, therefore, will vary across firms in terms of the borrower's risk exposure, depending on the firms total indebtedness, and on the information available to the lender about the borrower's condition.

Finally, once external borrowing becomes necessary, a key question is the ability of enterprises to pledge collateral. Enterprises facing low-risk investments will reduce overall borrowing costs if they can "show" their low risk by offering collateral (Bester, Gale 1990a). The inability to pledge loan guarantees consistent with the firm's perceived production risks makes them susceptible to "undeserved" credit rationing, and induces lenders to allocate funds to higher risk ventures. Collateral and collateral substitutes are key issues in the analysis of enterprise liability portfolios.

B. Model of Liability Portfolio Choice

The empirical analysis of enterprise liability portfolio starts, in a way akin to the asset choice problem, with a comprehensive enumeration and characterization of available debt instruments. Debt terms and conditions (which are at the same time the contract terms) need to be carefully documented: interest charges, non-interest transaction costs, maturity, and collateral. Informal loan transactions, specially linked transactions, pose particular measurement difficulties that need to be accounted for and overcome.

As was the case with assets, the profiles of available debt contracts will be as comprehensive as the heterogeneity of the enterprise sample permits. Sufficient variation in contract terms will allow the identification and measurement of tradeoffs between contract characteristics, notably interest charges and collateral. Furthermore, a sizeable and heterogeneous sample would permit the distinction and characterization of different sources of finance by the terms of contracts they offer.

The dependent variables in a model of liability portfolio are the shares of different debt balances in the enterprise's portfolio. Formal loans from banks and non-bank financial institutions, loans from credit unions or other cooperative financing entities, informal loans from commercial moneylenders, from informal groups, or from relatives and friends, are likely to comprise the debt portfolio of enterprises. Their relative portfolio shares will vary across enterprises as a function of firm specific, activity (industry) specific, and environmental factors.

Firm specific factors are represented by explanatory variables such as scale, availability of family labor, managerial capacity, and characteristics of the associated

household. Activity specific variables capture the differences in production cycle, and the characteristics of input and output markets associated with the industry (e.g., terms of trade, unionization). Environmental factors are associated with regulations and distortions not specific of a particular industry, such as the density of financial intermediaries in the area of activity of the firm. The characteristics of, and the extent of information shared with, different providers of funds could be classified under environmental factors. Several proxies for the nature and quality of this relationship are included in the questionnaire for enterprises (Appendix A).

III. THE SUPPLY SIDE: FINANCIAL INTERMEDIATION AND THE POLICY ENVIRONMENT

The analysis of the demand side discussed in the preceding chapter will produce a comprehensive profile of financial services effectively used by enterprises. The enterprise questionnaire (Appendix A) will document in detail the characteristics of financial assets purchased by these enterprises, as well as the terms and conditions of contracts associated with the acquisition and holding of these assets. Likewise, the composition of the liability portfolio, the characteristics of debt instruments acquired by enterprises from different financial intermediaries, and the terms and conditions of these loan contracts, will provide a clear indication of the relative importance of different sources of funds, and of the determinants of liability choice among these enterprises.

The analysis of the supply side attempts to respond two sets of questions. The first set of questions has to do with the matching of financial services offered by intermediaries *versus* those used (purchased) by enterprises: how do financial services effectively used by (manufacturing) enterprises compare against the range of financial services offered by financial intermediaries?; are enterprises rationed out of certain types of loan contracts?; is there a sufficiently diverse range of financial instruments available in the market to allow enterprises effective portfolio management?; if so, is the entire range accessible to all firms?.

The second group of questions relates more directly to the financial intermediaries and their transactions environment: what characterizes the asset and liability portfolio of

financial intermediaries?; what determines the intermediaries' portfolio decisions?; what are their rationing criteria to allocate instruments and contracts in excess demand?; how is the enterprise (manufacturing) sector perceived by different intermediaries *vis à vis* other sectors of their clientele?. On the other hand, what exogenous (environmental) factors condition the behavior of financial intermediaries?; what macro and financial regulations constrain the ability of these intermediaries to offer improved contracts to their clients?, to manufacturing enterprises?.

This chapter presents first an overview of financial services and financial intermediaries prevailing in Sub-Saharan Africa. This overview section submits a set of issues and questions to guide the RPED research in this area. Subsequently, a conceptual framework to approach these issues and questions is developed in this chapter, before proposing criteria for case study selection and research methods in the final chapter of the paper.

A. Overview of Financial Intermediation in Sub-Saharan Africa

A brief review of the status of financial market development in Sub-Saharan Africa is presented here, emphasizing the characteristics that distinguish the region from other developing areas. The relative underdevelopment of formal finance, and the relative importance of informal and semi-formal intermediaries provide a basis for the definition of issues and questions in the second part of this section. Central among these, are the issue of regulatory policies and government crowding out affecting financial intermediation, and the question of integration and complementarity between formal, semi-formal, and informal finance in this institutional environment.

1. Financial Services and Financial Intermediaries

Institutional finance is notoriously underdeveloped in Sub-Saharan Africa as compared to other developing regions. While developing countries in Latin America and Asia show bank density ratios in the order of 8 to 30 thousand inhabitants per bank agency, the typical ratios for Sub-Saharan countries range from 100 to 420 thousand inhabitants per bank agency^{9/}. Moreover, as will be discussed below, bank expansion is constrained by a number of factors, notably the absence of appropriate legal frameworks for the negotiation and enforcement of contracts, the financial regulations discouraging deposit mobilization and portfolio growth, inflation, exchange rate uncertainty, and foreign currency controls. The poor conditions of transportation and communications, and the low levels of literacy of prospective clienteles compound the restrictions to formal finance development.

Special projects aimed at financing small and medium enterprises do not differ significantly in their performance to that of African financial institutions in general. A review of World Bank lending to small and medium enterprises between 1973 and 1988 found the lowest subloan repayment rates in Africa (61 percent), with specially poor performance in projects intermediated by development finance institutions (DFIs)^{10/}.

As a consequence of the underdevelopment of the formal financial system, informal finance is more prevalent in Africa than in other developing areas, both in terms of the relative number of households and enterprises using informal financial services, as well as in terms of the amounts of liquidity circulating in the informal market compared to the

^{9/} There is a few exceptions with better bank density ratios, e.g., Togo, Zimbabwe.

^{10/} See Webster.

banking sector. Furthermore, informal financial intermediaries appear to succeed where formal financial institutions have failed.

Loan recovery rates and financial viability are high among informal lenders, while banks and DFIs show poor loan repayment rates, and require permanent subsidies and/or periodic recapitalization by the government or international donors to avoid financial collapse. Substantial amounts of voluntary savings circulate among informal groups and other informal intermediaries offering safekeeping and deposit services, while formal institutions show limited success in mobilizing deposits^{11/}.

Along with the apparent dominance and success of informal finance, several semi-formal forms of intermediation display successful records in Africa that they have not attained elsewhere. The credit union networks in Cameroon and Togo, for example, have performed better than their counterparts in Latin America in the late 80s, and certainly better than the banking systems in their respective countries.

No comprehensive study (to my knowledge) has been undertaken of the portfolio composition of financial intermediaries in Sub-Saharan Africa. This in spite of the credit allocation policies that prevail in most countries, that typically establish overall lending ceilings and minimum portfolio shares for preferential sectors such as agriculture or small and medium-size enterprises. A widespread impression is that these credit allocation practices are for the most part ineffective due to weak enforcement procedures, and to the ability of financial institutions to circumvent the regulation. Furthermore, semi-formal and informal intermediaries are not subject to these credit controls. As a consequence, beyond

^{11/} For a recent comprehensive review of informal finance see Adams and Fitchett.

the public/private split of domestic credit statistics, the sectoral distribution of institutional credit reported by Central Banks in the region is at best a biased estimate of the true domestic credit allocation among sectors of economic activity.

The extent to which semi-formal and informal intermediaries represent a significant source of financial services for enterprises is for the most part unknown. The RPED enterprise survey will certainly improve the available evidence in this area^{12/}. From the point of view of the analysis of financial support systems, the prevalence of the non-institutional sector calls for a careful appraisal of the potential of these intermediaries to perform a complementary role to formal finance in the provision of financial services to enterprises. The issue of market integration, market segmentation, and formal-informal communication becomes a particularly important topic of analysis.

2. Issues and Questions

A first set of issues the RPED project will investigate is the legal and regulatory framework comprising the environment of financial institutions. The legal structure, notably the system of property rights, and the credibility of law enforcement constitute crucial elements of the contractual environment under which banks operate. Macroeconomic and financial regulations condition the scale of operations, and the portfolio decisions of financial institutions.

Although informal and semi-formal finance may perform better as intermediaries of the existing liquidity in the private sector, they are not able to "create" aggregate additional

^{12/} See Adams and Fitchett.

liquidity potentially available for enterprises and households. The ultimate competitor of private enterprises in the allocation of domestic credit is the public sector (i.e., the government, and the non-government public institutions). Hence, an important issue to investigate is the degree of crowding out exercised by governments, both through their interference in Central Bank policies and practices (primarily reserve requirements and discount rates), and through the direct incentives and signals issued by the Treasury.

Interest rate policies and credit controls need to be documented as well, keeping in mind the caveat formulated above about enforcement and avoidance of these two types of policies. More interesting and reliable information is likely to be obtained directly from the financial institutions (provided that there is reasonable access to their records).

Akin to the study of the legal and regulatory framework for financial institutions, is the research of rules and bylaws governing semi-formal financial institutions such as credit cooperatives and credit unions. Likewise, the contractual rules associated with informal financial transactions need to be documented for those agents relevant to enterprise financing, enterprise portfolio management, and enterprise risk management^{13/}.

The second set of issues and questions to guide RPED field research is that of market integration between formal, semi-formal, and informal financial intermediaries. Each type of financial intermediary offers advantages and limitations when dealing with different segments of the market. The informational advantages of informal intermediaries, and to some extent of semi-formal intermediaries, make these intermediaries effective

^{13/} The legal and regulatory framework relevant to formal, and possibly semi-formal, financial institutions could be a component of the RPED country background studies. For informal intermediaries, a survey parallel to that of enterprises is preferable (see Chapter IV).

lenders among low-income, low-collateral borrowers. Their reliability as sources of funds however, depends to a large extent of their ability to raise liquidity in their own businesses or elsewhere. How fluid is the access to formal credit by informal intermediaries is a key question in this respect.

Large enterprises and traders, well connected with the banking sector and able to pledge collateral acceptable to banks and other financial institutions, have been found to perform a complementary role to formal finance by lending informally to clients and suppliers^{14/}. The significance of this role in the countries included in the RPED study, and more importantly the constraints and limitations in the performance of this function, need to be carefully assessed.

On the other hand, the services offered by credit unions and informal groups must be documented. A primary concern here is the degree of integration, through the market, across these intermediaries, and between them and the formal sector. The ability of these informal and semi-formal intermediaries to effectively use the formal sector for their own portfolio management crucially determines their capacity to offer portfolio management options to enterprises.

B. Imperfect Information, Transaction Costs and Financial Intermediation

The diversity of financial intermediaries operating in the enterprises' environment represents a challenge to the selection of a conceptual approach for their analysis. The nature of this diversity, the common grounds still remaining among financial intermediaries,

^{14/} See Cook, Cuevas, and Graham on grain and livestock traders in Chad and Niger, and Graham *et al* on Niger wholesalers.

and their repercussions on portfolio decisions, market integration, and response to regulations are discussed first in this section. The conceptual elements on the specially relevant issues of imperfect information, credit rationing and the role of collateral are presented in the final part of this chapter.

1. Diversity of Financial Intermediaries and Portfolio Choice

From modern branches of European banks to "susu" collectors, financial intermediaries differ substantially in their behavior and performance. Hence, behavioral assumptions, analytical models, and performance indicators used in their analysis must recognize and account for this diversity. In addition to the usual classification into formal, semi-formal, and informal intermediaries, based primarily on their exposure to regulation, the distinction between market-driven *versus* government-directed has a bearing in the expected behavior and performance of intermediaries.

As a general approach, the treatment of financial institutions as firms using real resources to produce outputs (financial services) is generally accepted and has been regular practice in the analysis of banks (Baltensperger, 1980, Benston and Smith, Hunter and Timme). The approach has been extended to credit unions by Murray and White and others in developed countries. Competitive approaches appear in the study of credit unions and specially in the analysis of informal financial groups, where collective action and the theory of clubs offer alternative analytical routes to that of production theory. The study of individual informal intermediaries faces further complexities, since the goals and

objectives of their primary business activities and households interact with their role as financial intermediaries.

Perhaps the most significant differences across financial intermediaries appear in their objective functions (or in the objective functions analysts can plausibly attach to different intermediaries). While the theory of the banking firm is applicable to both private commercial banks and public development banks, profit maximization is a clearly debatable objective for public banks. Equity and developmental goals, or managerial objectives compete with profit as optimization functions in public financial institutions.

Likewise, the very definition of credit unions as not-for-profit organizations rules out the profit maximization assumption in their analysis. Instead, the maximization of net surplus to members under zero profit and balance sheet constraints has been suggested as a more appropriate model of credit union behavior, raising the issue of borrower *versus* depositor domination in these organizations (Smith).

Informal financial groups have been studied little beyond the descriptive stage. Among other analytical approaches (e.g., linked transactions, transaction costs) the theory of clubs offers a promising framework for the analysis of these organizations. Voluntary participation, cost-sharing in the provision of the "impure public good", the fund, and sharing members' characteristics in multi-lateral reciprocal transactions of tangible and intangible commodities, are features of informal groups that conform to the general definition of clubs (Sandler and Tschirhart).

A common model applied to both banks and credit unions that circumvents the question of what to maximize is cost minimization. The underlying assumption here is that

no matter what is being maximized, cost minimization behavior will yield more surplus to be appropriated by someone, hence this behavior is preferred to an alternative cost strategy. This general approach can be extended to all financial intermediaries, as long as the diversities in costs magnitudes and structure are recognized.

The RPED research effort will identify *a priori* three types of intermediaries as potentially relevant for manufacturing enterprises: (a) in the formal sector, banks (private and public); (b), in the semi-formal sector, credit unions and similar cooperative financial organizations; and (c), large enterprises and traders, among informal financial intermediaries. The latter will be given special attention since they are potentially a better point of intervention for policy makers than other forms of informal intermediation. Evidence from Latin American and Asian informal markets suggests that small and medium enterprise access to credit relies heavily upon the activity of large enterprises and traders. The limitations faced by these agents in Africa are of particular significance for the objectives of this research program.

Informal financial groups such as rotating savings and credit associations ('tontines' in francophone Africa) will be studied to the extent they are detected as significant providers of financial services in the survey of enterprises. Likewise, individual intermediaries such as moneykeepers or "susu" collectors can be subjects of case studies where their activities are deemed meaningful.

All three types of intermediaries are assumed to behave in a "boundedly rational" way, subject to information imperfections and uncertainty. In all cases, transaction costs of acquiring information about contractual partners are a major determinant of their portfolio

composition (of assets and liabilities), and a key factor in explaining market shares. Although technically only formal institutions are subject to monetary and financial regulations, other financial intermediaries (and therefore overall financial intermediation) are affected by regulations in varying degrees and with different time lags. The extent to which economic agents participate in more than one market will affect the extent, accuracy and speed of transmission of regulatory measures.

Portfolio choice is again the keyword in this component of RPED research. Documenting the magnitude and composition of the intermediaries' asset and liability portfolios is required to answer three groups of questions. First, how do enterprises enter the asset and liability portfolio of financial intermediaries, i.e., the question of provision of loan services, portfolio management alternatives, and insurance substitutes to manufacturing enterprises.

Second, documenting how financial intermediaries participate in each others' portfolios addresses the question of financial market integration. Regular business (market) relationships across financial intermediaries enhance overall diversification, and improve the range of available financial contracts to all participants. Conversely, total isolation implies that the intermediary is restricted by the covariance of surpluses of its clientele, and exposed to the same exogenous shocks these clients face.

Finally, it is essential to know how regulators and regulations enter and affect the portfolio of financial intermediaries. How do reserve requirements alter the asset portfolio of commercial banks?; to what extent subsidized discount rates discourage deposit mobilization?. Answering these and the preceding two groups of questions responds to the

general question of regulation transmission from formal to less-formal sectors of the financial market.

In addition to documenting and analyzing the intermediaries' portfolio structure, it is essential to enumerate and characterize the instruments and contracts offered by different financial intermediaries, i.e., the terms and conditions of transactions associated with the various components of their asset and liability portfolios. As indicated above, it is important to determine whether the range of contracts offered by intermediaries matches that of contracts observed among (used by) enterprises. Departures of the latter from the general pattern of contracts offered will reflect either intermediaries' specialization in certain clientele, or rationing of enterprises out of particular contracts, both of these phenomena worth investigating further.

This "pricing" question is also a key indicator of the existing degree of market integration. Other things being equal, terms and conditions of comparable contracts offered by different intermediaries will overlap in their distributions if the market is sufficiently integrated.

2. Information Costs, Credit Rationing, and Collateral

Information costs have been already highlighted in the RPED "Institutions" paper as essential determinants of credit rationing: ..."financial institutions tend to group firms into categories based on the amount of information available on their performance and the probability of business failure"..., since the costs of distinguishing individual firms from the group average are prohibitive for banks, "the 'best' small firms will be discriminated against statistically by lenders" (RPED, "Institutions" paper, page 41). A brief review of credit

rationing is added here to emphasize the role of collateral, and the importance of documenting collateral and collateral substitutes in the analysis of enterprise credit transactions.

Several definitions of credit rationing are offered in the literature. Credit rationing is said to occur when some borrowers receive a loan and others do not, although the latter would accept higher interest payments or an increase in collateral (Stiglitz and Weiss). Alternatively, credit rationing occurs when lenders quote an interest rate on loans and then proceed to supply a smaller loan size than demanded by the borrower (Jaffee and Russell).

Apart from the rather straightforward case of credit rationing due to constraints on price setting (disequilibrium rationing caused by government intervention), equilibrium rationing has been modeled by Stiglitz and Weiss, and Bester, among others. All of these models assume imperfect and asymmetric information in the credit market, and some form of price-setting behavior by lenders. Recent work by Gale (1990a, 1990b, and 1991) has applied this framework to the analysis of government intervention in credit markets.

In the Stiglitz and Weiss model, the interest rate a bank charges may affect the riskiness of the pool of loans a bank makes by : (a), sorting potential borrowers (the adverse selection effect), and/or (b), affecting the actions of borrowers (the incentive effect). The former implies that only borrowers with riskier investments will apply for a loan at a higher interest rate (i.e., the share of riskier or potentially "dishonest" borrowers in the pool of borrowers increase), while the latter suggests that firms are induced to undertake projects with higher-but-less-probable payoffs, i.e, with lower expected return.

As a consequence of the adverse selection and incentive effects, the expected (mean) return on loans to the bank is a concave function of the interest rate charged on loans. While loan supply responds to the mean return on loans to lenders, loan demand is a function of the interest rate on loans faced by borrowers. In equilibrium, some borrowers will be rationed out even though they are willing to pay above-equilibrium interest rates^{15/}.

Bester on the other hand, states that "no credit rationing will occur in equilibrium if banks compete by choosing collateral requirements and the rate of interest to screen investors' riskiness" (Bester, p. 850), based on the assumption that banks' decisions on interest rate and collateral are simultaneous.

Two other important assumptions condition Bester's model: first, that low-risk borrowers are "able to raise sufficient collateral to distinguish themselves from high risk ones" (Bester, p. 854); second, not explicit in Bester's article, is the assumption that banks can freely adjust the interest rate on loan contracts, to offer different combinations of interest and collateral.

Exogenous factors can (and do) violate these two basic assumptions in rural areas of developing economies. On the one hand, restrictions on the resource endowment of "honest" borrowers may not allow them to reveal their low-riskiness through offering sufficient collateral, (i.e., the small-farmer/micro-entrepreneur syndrome). On the other

^{15/} As Biggs has correctly pointed out elsewhere, no empirical evidence has confirmed the predictions of this model.

hand, financial regulations usually constrain the range of (explicit) interest-rates that banks can charge on loans.

Under these constraints, lenders establish mechanisms and procedures to allow for collateral substitutes, (e.g., additional information and/or inter-linked contracts), and engage in "regulatory avoidance" or implicit-price setting (Kane), to compensate for the restrictions on loan-rate differentiation. This involves the discriminatory application of loan procedures, i.e., the selective imposition of transaction costs, as substitutes for explicit-interest rate differentiation between borrowers of different riskiness. Thus, transaction costs (implicit pricing) become an important rationing mechanism under interest-rate restrictions.

The survey of financial support mechanisms must place special emphasis in the analysis of the role of collateral in credit transactions, as well as in the effects of regulations on the valuation and enforceability of loan guarantees. These issues are not only important to understand enterprise access to liquidity. More importantly, they offer a potential "window of intervention" for governments and donors, that would not compromise the viability of financial intermediaries.

IV. CASE STUDIES OF FINANCIAL SUPPORT MECHANISMS

Financial intermediaries comprising the environment of enterprises should be surveyed contemporaneously with the sample of enterprises, and as many times as enterprise surveys are carried out. The advantages of gathering longitudinal data for the analysis of enterprise behavior apply as well to the analysis of enterprise financing and intermediaries' behavior.

Although the study of financial support mechanisms has been conceived as case studies, as opposed to representative sample surveys, the relative scarcity of some intermediaries will make the scope of this component of RPED research necessarily comprehensive. Opportunities for relatively advanced analytical techniques may arise by pooling data across countries and/or over time.

The diversity of financial intermediaries RPED is likely to find in the countries under analysis does not allow a detailed formulation of research methods and data collection strategies at this stage. A preliminary assessment of the spectrum of intermediaries, their scope of operations, and specially their record-keeping practices and procedures is required before detailed instruments and techniques can be designed. Hence, this chapter provides necessarily general guidelines for case study selection, as well as methodological indications that should be followed in all countries. Likewise, the questionnaires and data collection instruments outlined in Appendix B are intended to provide a framework that needs to be adjusted to each country's situation.

A. Case Selection Criteria

The most important signal to select financial intermediaries for detailed case studies will be their identification in the survey of enterprises as suppliers of financial services. However, the sparsity of formal financial institutions in African countries allows to pre-determine the need to survey all formal financial institutions operating in the relevant enterprise environment, regardless of whether they have appeared as suppliers of financial services for the enterprises in the sample.

In most cases, a similar criterion can be applied to semi-formal intermediaries, to the extent that these are registered with some government institution or local (national) association. In other words, once a geographic area has been chosen for the enterprise survey, all formal and semi-formal financial intermediaries operating in the area are targeted for case studies.

Since there is no sample frame for informal intermediaries, their identification relies upon the responses to the enterprise survey. As pointed out above, large enterprises and traders (wholesalers) will receive particular attention among informal intermediaries. These case studies will be selected so that they are representative of the diverse areas of economic activity prevailing in the sample of enterprises. In addition, well-known wholesalers, marketing and processing firms may be selected for case studies when secondary information identified them as actual or potential financial intermediaries.

For large enterprises and traders, in addition to applying first the enterprise survey questionnaire set forth in Appendix A, supplementary interviews and data gathering will be conditional upon the findings of this first interview. The design of this questionnaire,

focusing on the nature of contractual relationships with suppliers and clients, and on access to formal and informal financial intermediaries, permits the identification of specific lines of commercial activity where explicit or implicit credit components are significant.

B. Methods and Data

For all intermediaries, case studies will combine data collection from intermediaries records with semi-structured interviews. The latter will focus on adding detail to the data collected from their records, specially in two areas: characteristics of contracting counterparts, and terms and conditions of transactions^{16/}.

Case studies of financial intermediaries should be carried out by well-prepared junior researchers, with a clear understanding of the objectives and directions set forth earlier in this paper. Bank branch managers, credit union leaders and managers, and specially large entrepreneurs and traders are likely to be reluctant to disclose sensitive information to young, however enthusiastic, enumerators. Field supervisors in the enterprise survey may be appropriate interviewers for financial intermediaries, while selected enumerators may participate in the collection of data from intermediaries records, once the case study subject has agreed to provide the information.

Questionnaires and data collection instruments for banks, credit unions, and large enterprises and traders are outlined in Appendix B. When collecting data from records, event though the variables being documented will be consistent across intermediaries, the

^{16/} For large enterprises and traders, most of these data will have been gathered in the first interview using the questionnaire in Appendix A.

specific data collection forms should follow the way in which records are kept in the institution or organization. This not only economizes time and effort in data gathering but also prevents errors of adjusting the information from the intermediaries' records to fir pre-established forms. Compatibilization of data series is better done afterwards, provided that the accounting definitions and practices for the different data sets have been properly recorded.

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Table 1
Selected Growth Indicators for Developing Countries

Country Group	Average annual growth rates 1980-1989, percent						
	GNP per capita	Gross Domestic Investment	GDP	Agriculture	Industry	Manufacture ^a	Services ^b
Sub-Saharan Africa	-1.2	-3.9	2.1	2.0	0.7	3.4	2.3
East Asia	6.3	9.9	7.9	5.2	10.4	12.6	7.7
South Asia	2.9	4.1	5.1	2.9	6.7	7.1	6.3
Latin America & the Caribbean	-0.5	-2.3	1.6	1.9	1.6	1.5	1.6
World	1.2	3.7	3.1	2.6	2.4	3.7	3.2

Source: World Bank. World Development Report 1991.

^a Manufacture is part of the industrial sector.

^b Services include unallocated items.

Table 2
Structure of Production in Developing Countries, 1965 and 1989

Country Group	Distribution of Gross Domestic Product, percent							
	Agriculture		Industry		Manufacture ^a		Services ^b	
	1965	1989	1965	1989	1965	1989	1965	1989
Sub-Saharan Africa	41	32	20	27	8	11	39	38
East Asia	42	24	35	44	27	33	23	34
South Asia	44	32	21	26	15	17	35	41
Latin America & the Caribbean ^c	16	17	33	33	23	22	51	50
World	10	na	40	na	30	na	51	na

Source: World Bank. World Development Report 1991.

^a Manufacture is part of the industrial sector.

^b Services include unallocated items.

^c Estimated for 1989.

Table 3

Sub-Saharan Africa: Gross Domestic Product, Gross Domestic Investment, and Official Development Assistance, 1980 and 1985-1989

Indicator billions of dollars	1980	1985	1986	1987	1988	1989
Gross Domestic Product	225	198	168	151	164	171
Gross Domestic Investment	45	24	25	24	26	26
Official Dev. Assistance		9	11	12	14	13

Source: World Bank. World Development Report 1991.