Financing of Construction Investment in Developing Countries through Capital Markets

by

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Submitted to the Department of Civil and Environmental Engineering on May 9, 2003 in Partial Fulfillment of the Requirements for the Degree of Master of Science

ABSTRACT

Construction projects (especially infrastructure) require high capital investments, both during construction and operation, and account for between 3 and 8 % of a developing country's GDP. On average, half of the investments in the economy are in construction and supporting economic activities. In developing countries, the construction sector must be included in national development plans in order to promote a sound building market by developing the whole national economy gradually, taking into account the interrelationships with other branches of the economy.

Infrastructure is one of the fastest growing sectors in the world in terms of private participation and financing. The unavailability of debt remains a significant constraint in many private infrastructure projects. Many developing countries have had less access to capital markets, due to a global decline in lending, increased uncertainty among investors, and reduced willingness to assume risk. The question then is "What needs to be done to get more FDI to developing countries"?

In developing countries, there is plenty of room for positive growth and access to new pools of capital. However, these countries need to first develop the legal, financial, and technological infrastructure to reap those benefits. International capital market integration will continue to give developing countries improved access to private foreign capital. Policymakers must tailor their policies to suit investor's interest in order to access the international capital markets and obtain the necessary financing for their PPI (Private Participation in Infrastructure) projects.

Private Participation in infrastructure is here to stay, and as more developing countries are opening up to private financiers, the policy debate has changed from "whether to" to "how to". The objective of this thesis is to arrive at a strategy that developing countries can follow in order to Finance Construction Investment, especially in infrastructure, through better and more efficient access of domestic and international Capital Markets.

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I. INTRODUCTION

Construction is the 2nd largest sector after agriculture in developing countries. There are several contributions of the construction sector to the national economy of a developing country, including value-added, GDP, gross fixed capital formation, and employment. Employment in the construction industry accounts for 4-5 % of total national employment, and the construction sector can be a way for unskilled laborers to enter the urban economy. The average share of construction in investment for most economies in development varies between 45 and 65%[i]. Demand varies in the long run due to cyclical forces, such as political instability. Risk and uncertainty tend to decrease investment in construction and fixed assets, and increase investment in liquid assets.

The objective of this thesis is to arrive at a strategy that developing countries can follow in order to Finance Construction Investment through better and more efficient access of domestic and international Capital Markets.

Background and Methodology

Construction, and especially infrastructure, projects require high capital investments, both during construction and operation. Demand exists for the three types of construction- residential, non-residential, and infrastructure. On average, the construction industry in developing countries is 40% residential, 22% non-residential, and 38% infrastructure. The demand for construction by different sectors of the economy will vary, depending on the sector's need of facilities. In the distribution between public vs. private investment, the public sector seems to dominate in such countries, but construction firms in the developing countries are mostly in the private sector[ii]. Construction industries in developing countries are concentrated in urban cities and in areas undergoing major development; furthermore, firms tend to locate near the sites of their projects.

In most developing countries, the urbanization of the population is greater than the capability to provide adequate housing and infrastructure, therefore creating an unfulfilled demand for construction. Such a demand has led people in the past to conduct studies on cause and the supply for such a demand.

This thesis will address the following Issues:

- The specific characteristics of the construction industry in developing countries and how the industry is interrelated with investment, both local and foreign, and development of the economy. The importance of construction for national economy calls for government intervention in defining policies and measures for industrialization of construction and development of the economy in general. The government plays a role at the macroeconomic and microeconomic level by acting as a policy maker and as creator of demand.
- Construction market adjustments and investment determination in order to obtain a better understanding of how investments are decided. Competitive markets adjust to different types of shifts in exogenous factors, such as demand for output, supply of input, technology and interest rate. Since markets adjust through capital changes, the theory of adjustment is equivalent to the theory of investment. The analysis of capital adjustments yields an investment strategy, where the strategy is determined by the optimal capital adjustment for any expected shift in the exogenous factors. Firms and Governments face exogenous input and output prices in a competitive market; they adjust to its short and long run equilibrium position determined by these prices.
- Private financing of infrastructure, access to international capital markets, and the development of domestic financial markets often occur in parallel. How have investments been financed and how further investments, specifically in infrastructure, can be more efficiently financed by Capital Markets? Given the size of financing needs, particularly in relation to the size of financial sectors in developing countries, foreign lenders play a major role. Domestic debt markets are not deep and adequate lending capacity has not yet developed in these countries, which leaves projects dependant almost entirely on foreign investors. The government's task is to introduce stable regulatory regimes and contractual agreements to mitigate the risks that scare off foreign investors.
- Strategy for Developing Countries to establish the necessary policies and framework in order to keep tapping the Capital Markets in their difficult task towards development (with references to Honduras). Once investors observe that PPI (Private Participation in Infrastructure) investments, both through privatization and new projects, are successful, a country's risk rating should improve. The large size of PPI projects and their high political profile means that they cans serve as "credibility markers" for foreign investors.

II. CONSTRUCTION MARKET, INVESTMENT & DEVELOPMENT

Growth in developing countries is expected to accelerate to 5 percent in 2003. However, the rebound will be less pronounced in many of the poorer, commodity-dependent economies due to continued weakness in commodity prices. These countries will fall short of the growth rates needed to meet the international target of reducing by half the proportion of people in extreme poverty between 1990 and 2015[iii].

Construction Industry in Developing Countries

The constructions sector contributes the following to the national economy of a developing country: value-added, GDP, gross fixed capital formation, and employment. Value added is the gross value of the output of the construction sector minus the value of its intermediate consumption (purchases from other economic sectors), which is generally in the range of 3 to 8 % (the average value added as a percentage of total output for the construction industry stands at 45%, while for developed countries the average is 58%). Intermediate consumption can exceed value added by the construction sector. On average, value-added accounts for 45% of total output value[iv]. The construction sector also contributes to gross fixed capital formation (GFCG) in the form of investments in capital goods. The industry provides, on average, 55% of this capital formation. Contributions are in the form of residential and non-residential buildings, and infrastructure.

The Construction Industry in Developing Countries is subdivided as follows:

- Traditional: rural and suburban areas; minimum consumption of purchased materials and services
- Modern: up-to-date techniques and organization; foreign capital and specialists
- Intermediate: nationally held, small to medium firms capable of less sophisticated projects using local skills and materials. Attention to this sector through public assistance is essential to improve its organization, management, technology, and production.

In general, there is a demand for the three types of construction: residential, non-residential, and infrastructure. In typical developing countries, housing, building, and civil engineering construction activities may each account for 1/3 of the construction work, varying with time and country.

Investments in construction are sensitive to fiscal policies, budgetary resources of the government, and to foreign aid. Also, in the distribution between public vs. private investment, the public sector seems to dominate in such countries.

Capacity of the industry is determined by the resources (men, materials, plant) available to it, and the manner in which these resources are made use of. The capacity may have qualitative, quantitative, or technological attributes. There are seasonal variations in construction output that can occur due to large demands by the agricultural sector during certain periods (usually in rural areas), and in the distribution between urban and rural construction activity, there is considerable more construction in the urban areas. Furthermore, strong fluctuations in the demand for construction lead to decreased levels of material and labor inventories.

Construction works are the physical foundations on which development efforts and improved living standards are established. Construction industry usually accounts for between 3 and 8 % of a developing country's GDP[v]. Improving construction capacity and capability is important to most developing countries:

- The basic infrastructure built up at high cost (during the 1960's and 1970's) must now be maintained; it is expensive and almost impossible to bring foreign contractors back again for this type of work
- Much of the continuing new investment is in scattered small works, unsuited for foreign firms
- There is a need to improve on the efficiency, timeliness, and quality of construction and maintenance work in many developing countries.

The construction sector develops in the following stages:

- Foreign firms handle most of the construction of the larger projects (infrastructure)
- As a result of a subcontract in the previous stage, indigenous firms develop
- Small local contractors take over, joint venturing with foreign firms as necessary
- Local contractors go abroad

Foreign construction firms are important in developing countries for the following reasons:

- Large industrial and public works projects require technology for planning, design, and construction, and only multinationals have the skills and expertise
- Need for professional and managerial skills that locals lack
- Projects require often locally unavailable capital so that international sources must be used

There are two types of capital involved in construction: the owner's funds (used to finance the project from the beginning to when it starts operation) and the contractor's capital, which bridges the gap between payments by the owner and project requirements. Construction industries in developing countries need basic resource inputs, such as materials, supplies, labor, equipment, and finance. The appropriate level of mechanization depends on relationship between capital and labor costs. In general, the higher the per capita income, the higher the labor costs, the higher the percentage use of equipment. Even in the poorest countries, mechanization is cheaper than none at all. Amount of investment in building machinery and plant is low: 1-2% in construction mechanization out of the whole economy.

To stimulate construction, governments provide capital at interest rates lower than the market rate, and many governments also institute minimum wage laws. To influence the private sector, governments use mechanisms such as licensing, special tax incentives or rebates, and changes in depreciation formulas. Effective promotion strategy from the government is the promotion of the development of an indigenous construction industry[vi]. In addition, during design the following should be introduced: new and improved materials, prefabrication, standardization, modular construction, and improve site plans. Partial Prefabrication on site: necessary for the industrialization of building methods.

Development of the Construction Industry

The importance of construction for national economy calls for government intervention in defining policies and measures for industrialization of construction and development of the economy in general (application of modern industrial, organizational, and production methods). Construction is the 2nd largest sector after agriculture in developing countries, and on average, half of the investments in the economy are in construction and supporting economic activities. In developing

countries, the construction sector must be included in national development plans in order to promote a sound building market by developing the whole national economy gradually, taking into account the interrelationships with other branches of the economy. The construction industry is highly integrated with other sectors of the economy, both vertically and horizontally. This integration, combined with a high, value added-to-output ratio, indicate that construction provides a substantive growth stimulus throughout the economy and vice-versa[vii]. In spite of the significant contributions made by the construction sector in the social and economic development of most developing countries, the sector has not been accorded the priority attention it deserves in the formulation of national development plans and programs[viii].

A labor-intensive building industry may provide developing countries with a smooth economic transition in development. The Industry can offer a large-scale employment while raising its productivity; it is wrong to believe that productivity improvements are not important because labor is still inexpensive and plentiful because by increasing productivity, more people could be employed. Its importance for development can also be measured by the fact that construction employs a large number of unskilled workers, who can later be trained for more demanding jobs. Construction can be a more important generator of jobs and a source of managers and businessmen.

The main inputs to construction are management, personnel, equipment, materials, and capital. The following table illustrates typical differences in input participation using two different construction methods:

TABLE 1 CONSTRUCTION METHOD (% OF TOTAL COST) [ix]

Input	Labor Intensive	Equipment Intensive
Labor	55-70	20-30
Equipment	10-20	40-60
Materials	10-20	10-20
Overhead/Profit	10-20	5-15

Source: World Bank

Labor-intensive technology played an important role in the early stages of development of infrastructure in the more developed countries[x]. Labor-intensive construction operations can be mounted if serious efforts are made and a good supply of well-managed labor is available at

competitive wages. Deterrents of labor-intensive technologies: pricing distortions, dependence on labor force, potential unrest, and lack of funds.

Current manual technologies exist in the developing world for the construction of infrastructure. These construction methods, which do not require a large capital investment, can be used to establish a civil engineering construction sub-sector in countries with an incipient construction industry. The World Bank has conducted research on how to substitute labor for capital in the construction of roads and other civil works. The results of research and application work carried out in Honduras, showed that labor-intensive methods were technically and economically feasible for a wide range of construction activities and their product was of a quality comparable to the produced with equipment-intensive methods[xi]. The losses to the industry can, at times, be permanent when, for instance, trained personnel emigrate, inactive equipment becomes obsolete, or companies are unable to meet their financial obligations, and therefore, are forced to liquidate[xii]. This risk discourages investment in the industry.

Large construction projects, which are technically and organizationally more difficult, give rise to prefabricated parts and industrialization of construction. During the first phase of industrialization, the following must occur: extensive rationalization (use of organizational, planning, and control techniques in construction to improve quality and increase productivity), development and expansion of building materials production, partial prefabrication, and creation of prerequisites for further progress of industrialization. As a result of changes in the organization of production, small firms merge into larger enterprises; the gradual development of the building industry is also reflected in the size of construction firms. In practice, most firms operate in perfect competition. By developing a high degree of specialization, such as roadway construction, there will be fewer competitors and these markets will approach imperfection. Small and medium companies can assert their positions in the market by specializing, through cooperation and joint production facilities. Imperfect competition involves some ability of a firm to control the price that it receives for its product. Government helps small companies in adapting to changing conditions in the following manner:

- Improving the supply of information concerning new findings
- Promoting research and innovation
- Improving training of professional groups

- Influencing the demand in the direction of construction projects involving industrialization and rationalization

Demand for Construction

Since the majority of construction industry output is capital investment, demand tends to fluctuate considerably more than for most other industries[xiii]. The output of construction fluctuates considerably more than that of manufacturing and the economy as a whole. A contractor must therefore deal with sharp fluctuations in workload, employees, and equipment. These fluctuations are more dramatic for civil works than for building. This is inherent in the demand structure of capital goods industries where relatively small changes in demand by consumers will cause the production capacity (investment) to be expanded or contracted at a considerable higher rate. The fluctuations in construction activity, relative to those of other sectors, tend to be grater in developing than in developed countries[xiv]. Unlike manufacturing and the utility industries, the construction industry does not operate at a fixed location, has limited office space, and their principal assets is equipment which experiences an accelerated depreciation and do not provide adequate collateral.

Housing and Industrial output is linked to the resources available, the characteristics of the building process, and the industry itself:

- demand fluctuates due to changes in investment trends. Even under stable economic conditions, there are considerable variations in demand due to different income levels and propensities to spend on housing.
- technological backwardness and flow of foreign aid contribute to an active role for foreign consultants and contractors
- small firms play a dominant role in the building and materials industry due to the nature of the building process and the structure of demand costs of land and building are rising faster than general inflation and investment capacity. This is due to rising land, material, and transport costs, combined with stagnant or declining productivity

Firm's output will anticipate the direction of market demand. Short-term forecasts of construction output can be obtained by combining the subjective judgments of a group of construction experts; firms can then modify these forecasts for a particular application.

There exists a demand to purchase and rent houses. Demand for houses to purchase depends upon the real income of the purchaser and the effective price of the house. The buyer must be capable of raising the necessary loan and interest payments. Expectations of changes in future real income will influence people's willingness to commit to the purchase of a house. When interest rates rise, demand for houses to purchase decline. Demand for rental housing is largely residual, determined by households who are unable to enter the purchasing market. The growing number of households will ensure the sustainable demand for house rentals.

House-builders regulate their supply of units onto the market and other contractors do not bid for all available products. In this way, supply is restricted to yield higher average revenues and firms take advantage of any existing market imperfection. The construction industry remains a very open sector facilitating easy entry to any new firm. In the long run, excess profits will be constrained. This prevailing state of competition is important to the construction firms' decision-making regarding output and price.

The following are determinants of the housing market:

- Rate of growth of population and distribution of this population
- Changes in the number of separate households in existence. Proportion of households with less people has increased.
- Existing housing stock is inadequate to meet current needs
- Economic growth leads to increasing standards of living, so living conditions will also rise

The massive need for housing calls for land, finance, building materials, and institutional capacity. There is evidence that people in developing countries can and do save and invest in housing for their own occupation, providing housing costs are affordable and the necessary institutional arrangements are set up to enable payment from their incomes.

Main factors behind the demand for industrial buildings is the expectation of the future output of the product manufactured in those buildings. In addition to this willingness, the firm's ability to finance also plays a crucial role. When tight monetary policies are being operated, such that bank loans are more controlled and interest rates are high, this will depress the market for buildings[xv]. Non-housing works (civil engineering works and works commissioned by the public sector) is determined by the government's willingness to advance investment funds in the form of grants, spending approvals, or borrowing sanctions. In the case of most public corporations, it is the demand for their final product or service from which the need for the building is derived.

Government and the Construction Industry

Construction work in developing countries involves grave risks. The construction entrepreneur moves from site to site, organizes the logistics for timely assembly of all the inputs, and follows a custom design for each site. Jobs are won by means of a bid, and costs have to be estimated for each site, with assumptions made about many variables such as site conditions, weather, productivity, and time to delivery. The central issue in the development of a country's construction industry is the growth of human capacity to manage these risks. The management task is often more difficult in developing countries because of shortage of resources and inadequacies of other systems on which construction relies. Managers of construction companies disregard the training of personnel, especially those in management positions, which is required in order to delegate responsibilities and support further growth of the company.

Construction work in many developing countries also suffers from administrative and allocative inefficiencies. Due to a lack of a sound framework of institutional and legal arrangements, the industry is not shaped to respond quickly and efficiently to the needs of the client. The Governments need to develop the industry, adopt measures to resolve problems and constraints, and introduce policy and procedure reforms to improve the business environment of the industry. The strategies for developing the domestic construction industry will require concerted actions by a number of sectors and need to be sustained over long periods. They may also call for the implementation of difficult policy reforms. The strategies will only succeed if the government is committed to them and is willing to sustain the actions and implement the reforms that are needed. The very significance of construction as a factor of development, however, can turn it into an

impediment to progress[xvi]. The small scale of infrastructure projects and maintenance work in small and poor countries makes international investment unattractive. Not only does private sector resources and demand fluctuate with earnings, but public sector investment also increases during high economic growth, therefore magnifying the cyclical variations. Fluctuations in construction demand affect the demand for labor and materials, as well as the time it takes to supply construction output.

The government plays a role at the macroeconomic and microeconomic level by acting as a policy maker and as creator of demand. Through the timing of its investments, the government can influence fluctuations in demand for construction. Similarly, the government's overall economic policies and specific industry-related regulations can have a profound influence on investment decisions of the private construction sector. The government influences both the supply and demand sides of civil construction through policies, legislation affecting licenses and permits, codes, wages, taxes, imports, and financing. Poor planning of public projects leads to fluctuations in demand, loss of key personnel, and inefficient use of equipment. A stable economy would also stabilize the demand for the construction industry. The public sector plays a dominant role in generating demand for construction, especially in developing countries where it accounts for a high percentage demand on the formal construction sector. Some countries have fostered the development of their domestic contractors by protecting them from crippling risks and assuring them of profits for reinvestment[xvii].

A variety of measures can be used to stabilize demand. The government can even out demand by better planning its works program or phasing its projects taking out the aggregate construction demand from other sectors. Other measures, which are rarely applied, are policies of interest rates and taxation. The taxation regime of a country, such as tax incentives, investment allowances, accelerated depreciation, and customs duties exemptions, can have an important effect of the development of the industry by fostering growth and promoting the export of its services. Construction tends to boom when earnings are high, therefore adding to the inflationary pressures through the constraints on capacity and shortage of materials. One possible measure that can be considered by governments to stimulate construction is the establishment of a counter-cyclical credit policy that would create a reserve fund in periods of high demand to be released for investment

during economic downturns[xviii]. Even though credit may be available during a low cycle, demand may depend on other factors, such as fiscal and monetary policies.

Recommendation to government policy makers in Developing Countries[xix]:

- Promotion of indigenous construction industries in the context of national policies to increase self-reliance within developing countries
- Promotion of indigenous construction industries in the context of resolving balance-of-trade, foreign exchange, and national debt problems
- Promotion of indigenous construction industries in the context of resolving employment problems.
- Document the value added, fixed capital formation, and employment contributions made by the construction sector to the country's national economy

Planning for construction was generally limited: establishing goals for the construction sector in terms of the macroeconomic indicators for contributions to GDP, GFCF, and employment; listing major public sector construction projects; and setting targets for increased domestic production of certain materials. The following is recommended:

Policy actions[xx]:

- Preliminary estimates of resource and material requirements of the projects
- Feasibility studies of using indigenous capabilities and materials in the construction of the projects
- Establishing alternate dates for completion of construction and defining associated impacts on the achievement of other goals and objectives
- Designating specific portions of the construction requirements that could be earmarked for the indigenous industry; establishing a building materials industry:
    - Depends on economic and technical considerations
    - Performa pre-investment survey and market study
    - Asses existing skills in order to consider the suitability of the new material
    - Costs related to labor, production supplies, maintenance, and overhead
    - In turn, these are related to availability, accessibility, and quality of raw materials

- Benefits from such an industry: increased employment and training and improved income distribution, output generation, and balance of payments

Final Guidelines for Government policies and Measures:

- Inclusion of construction activities in a national economic development plan
- Development/expansion of building materials production
- Strengthen organization of building industry
- Establish an administrative set-up for building construction
- Establish semi-public organizations assisting industrialization
- Incentives for advancement of industrialization
- Revise construction legislation and regulations
- Extension of building standards
- Reinforce research
- Improve training
- Consolidate building design with industry requirements
- Application of rationalization measures
- Invest in building tools and equipment
- Introduce partial prefabrication

III. MARKET ADJUSTMENT & INVESTMENT DETERMINATION

Firms need to carry out investment decisions in order to create productive capacity. In addition, firms will make decisions regarding the purchase of plots of land for development or existing sites for redevelopment. Also, the construction industry depends on the investment behavior of the economy, which demands new buildings and dwellings. All companies need to invest in fixed assets to enable them to supply the market. Firms in general will invest in order to improve their production capacity when they expect the future demand for their product or service to be strong. Firms undertake investment on the basis of positive expectations about the future net revenue produced by the investment asset.

When there is a large amount of buildings not in use, this will signal firms not to invest in new facilities, but rather rent or refurbish existing buildings. This lower cost option turns out to be more attractive, financially speaking, then a new building. Therefore, investment decisions may be delayed until a clearer economical picture is obtained, or until depreciation and obsolescence lead to new investments. Since investments have a long-term horizon, they should be made for projects that will yield the highest income for the longest period of time.

For firms, the investment decision will require uncertain future income flows which add a degree of risk to the investment. The methods used to choose between investment alternatives will be briefly described, since more comprehensive analysis are discussed in Finance.

- Pay-back method: identifies the number of years it takes to pay back the cost of the original investment out of net cash flows arising from the project.
- Rate of Return method: calculates the profit yielded by each investment option each year and reflects this return as a percentage of the initial cash outflow.
- Net Present Value method: discounts annual cash flows to the present time; the rate used to discount these cash flows depends on several factors, but it normally is the cost of capital
- Internal Rate of Return method: produces the rate for which NPV is equal to zero; this rate can then be compared to a required or minimum rate of return.
- Equivalent Annual Cost: reduces all cost expenses to a uniform annual basis.
- Incremental Analyses method: examines the incremental yield between projects in order to determine if the bigger investment is justified according to its incremental yield.

In reality, it might not be easy to attribute specific cash flows to investment items. Along with building facilities, labor and inventory interact in production. An alternative will be to use a determined profit margin attributable to the asset in question.

Depreciation reductions to taxable income play an important role in obtaining future streams of income. Therefore, the initial investment, depreciated over the useful life of the building facility, will enhance profits. Frequently, firms will also want to make the necessary adjustment to their income flow due to inflation. The longer the life of the asset, the more important inflation is. In order to take inflation into account, the inflation rate is subtracted from the discount rate, used in the above investment analyses methods, in order to obtain the real rate.

For firms who wish to purchase or rent an existing building, they should take into account the building's services, age, condition, location, and use when deciding on the rental price. Firms must understand the nature of the demand curve for its product: price elasticity of demand. Often, in the short run, demand for many products will be inelastic as there are insufficient substitutes.

After the cost of materials and labor, the next most important supply cost for the construction industry is the acquisition and operation of plant. For small firms, the decision to acquire an item of mechanical plant means entering into a hiring or leasing agreement. Purchasing is ruled out due to the lack of necessary financing. For larger firms, hiring or leasing may also be the preferred mode of acquisition.

The essential difference between hiring and leasing is one of time. Plant is hired on a relatively short time basis. Where continuing usage is anticipated, leasing is more advantageous. Hiring rates are higher and there is less certainty about the availability and condition of plant. The optimum decision with respect to the acquisition of plant depends upon the financial position of the company, interest rate levels, and the levels of plant rental and leasing charges.

Since markets adjust through capital changes, the theory of adjustment is equivalent to the theory of investment. The analysis of capital adjustments yields an investment strategy, where the strategy is determined by the optimal capital adjustment for any expected shift in the exogenous factors. How

does a firm in a competitive market respond to a shift in demand and how does the industry respond to the shift?

An unexpected shift is the case when information on the shift emerges at the same time as the shift. An expected shift corresponds to the case with strictly positive information lead. The shift to a new supply-demand equilibrium requires a capital adjustment, which can only be done through a flow of net investment. How are prices and quantities determined during the adjustment period? What is the length of such period?

Price and quantity paths are determined during the adjustment period between two long-run equilibrium positions. In the short run, however, most inputs are variable, and give rise to a short run supply curve. Over time, the short run supply curve changes to the long run supply curve, which will only remain in the case of a permanent demand shift.

Investment Model

Simple accelerator Model[xxi]

Inet = b*(X1-X); b is the desired quotient between capital and output, and X is output

Model assumes adjustments take place during one period

Extended accelerator Model: allows for partial capital adjustments

Inet = n*(bX – K); n is the share between desired and actual capital filled in one time period, Net investment is determined by current and past output changes.

The firm's optimizing behavior produce the simple partial adjustment model as follows[xxii]:

Inet = n * (Desired K – K), where Desired K is the long run equilibrium capital at current prices, and n is an endogenous factor determined as part of the firm's optimization

The previous models can be modeled in the following manner: Inet is a vector of flows of inputs, K is a vector of stocks of inputs, and n is a matrix of adjustment coefficients. Partial adjustments models based on the firms' optimization leads us to characterize investment by the exogenous prices

for output, investment goods and other inputs. Exogenous prices are adequate for analysis of the firm, but not of the industry.

Changes to our earlier model to obtain an industry model:

- Prices and quantities are endogenous variables, not exogenous
- Investment is determined for any expected path of the exogenous factors instead of being restricted to stationary conditions; investments then might be interpreted as an optimal capital adjustment towards a constant and moving target
- Desired capital is determined from weighted averages of future expected demand, supply, and production functions; these weights depend on the interest rate, depreciation rate, long-run growth rate of demand, elasticity of the price of investment goods, and the elasticity of the marginal revenue product of capital

The single firm faces exogenous input and output prices in a competitive market; the firm adjusts to its short and long run equilibrium position determined by these prices. In this analysis, we will assume that the firm's net investment is determined by current changes in exogenous factors only[xxiii]. The firm's net investment will also be affected by endogenous factors, such as firm specific risk, which will be discussed in a separate chapter.

Deficiency of the model: stationary expectations. Firm expects output price to remain constant, not taking into account price decrease that happen during the adjustment. Investors should realize that positive net investment leads to increases in capital stock and decreases in output price. The decreasing output price leads to decreasing investment and expected capital losses.

An efficient model:

- Determines the firm's and the industry's adjustments to unexpected changes under the assumption of rational price expectations
- Prices of investment goods and labor are endogenous for the industry
- Analyzes the effects of shifts with any information lead, not only unexpected shifts
- Should distinguish between permanent and temporary shifts

Investment Determination

For the firm, investment is forward looking in the sense that current investment depends on expected future paths for exogenous prices. The expected paths for exogenous prices determine the optimal adjustment for the firm and industry, but the models do not include the determination of these price paths; to know how the firm and industry react to shifts in demand, these models must assume the price paths during the adjustment period.

Firm's investment is determined in a 2-step process:

- Determination of the expected price path as the equilibrium price path for the industry
- Single firm uses these exogenous price paths to determine its optimal quantity

The industry's investment is the aggregate of all the firm's net investment

An increasing supply curve for investment goods is used to explain successive capital adjustments at the industry level; marginal cost of investment increases as a result of internal adjustment costs for the firm. Firm's marginal cost of investment is the sum of the exogenous price of investment goods and the marginal internal adjustment cost (increases with gross investment). In the long run, net investment is zero, or gross investment equals depreciation.

Theory of Adjustment

Firm must form expectations on future development of output and input prices that are reasonable with respect to other firms' plausible reactions to the expected demand shift. Assume that the firm has a picture of the market in the form of expectations on the time paths of a simple demand curve for output, simple supply curves for inputs and a simple aggregate production function for the industry.

- A permanent shift in demand implies successive capital adjustment from the original towards the new long-run equilibrium position.
- Information on a future demand shift causes an upward shift in investment and a windfall capital gain to capital owners. A peak is reached at the time of the demand shift

- Capital Adjustments before an expected shift causes output adjustment towards its new long-run equilibrium level.
- A longer information lead gives rise to a smaller shift in investment and a lower windfall capital gain; higher output and lower output prices.
- The speed of capital adjustment increases directly with depreciation rate, long-run growth rate of demand, interest rate, absolute elasticity of the marginal revenue product of capital with respect to capital, and inversely with the elasticity of supply price of investment goods.
- Investment increases directly with any type of upward shift in current and future demand curves, supply curves of labor, marginal productivity functions for capital, supply curves for investment goods.
- Investment decreases in: size of capital stock, interest rate, current supply curve for investment goods, current and future marginal productivity functions for labor.
- Higher depreciation rate, long-run growth of demand, interest rate, elasticity of marginal revenue product of capital with respect to capital, and lower elasticity of the supply price of investment goods: increase importance of near future and leads to less forward looking.
- Industry model might me interpreted as a theory for a profit-maximizing monopolist. Theory for social welfare maximizes with different weights for benefits and costs.
- Fluctuations in demand for investment goods are inversely proportional to the sum of depreciation rate and long-run growth rate of demand. High interest rate also contributes, but to a lesser degree.

Optimization for the Firm and Industry

Firm observes current and future process for inputs and outputs, and then determines its optimal quantity path. But to do so, the firm must also guess on the price paths of its inputs and outputs. Typical firms derive their price expectations from simplified economic models, and gather information from different sources.

To determine price paths, the firm holds expectations in the form of a time path for a demand function, where demand at any point in time is determined by the price at that point in time: PX[X(t), t]. Similarly, time paths for input supply functions are formed by taking supply of an input as determined by the price at that time only: PI[I(t), t], PL[L(t), t]

The expected path for an industry level production function is the sum of the production possibilities of all firms in the industry. This determines aggregate output at a given time as a function of aggregate capital and aggregate labor: F[K, L, t] industry = max(sum(F[K, L, t])) firm.

The firms' problem is to formulate reasonable price paths with respect to demand, supply, and other firms. The firm might determine equilibrium price paths by maximizing present value for given price paths for the industry, where price paths are constrained to lie of the demand and supply curves. Assume that the firm forms price expectations in this way.

Equilibrium is defined as a set of time paths:
{PX*, PI*, PL*, X*, I*, L*}
Where: each firm maximizes present value for expected price paths

Industry level optimization problem is equivalent to the firm's optimization problem previously described with aggregate terms. An equilibrium is the equivalent to a solution to the optimization problem, where:

- PX*(t) = PX(X*, t)
- PL*(t) = PL(L*, t)
- PI*(t) = PI(I*, t)

Firms have a picture of the market in the form of homogeneous expectations on the development of the market's output demand, input supplies, technology, and interest. For any given expected time paths for these exogenous factors, the firm determines expected price paths as the equilibrium price paths by solving an industry level optimization problem. Using these price expectations, the firm determines its quantity plans by solving the firm level optimization problem. The performance of a firm is highly dependant on the manager's ability to form proper expectations on the basis of several sources of information.

A stationary state is defined as a state where all quantities and prices remain the constant over time. The market anticipates a demand shift, and we wish to study the effects of a permanent demand shift. An upward shift in demand produces a higher marginal revenue for each level of capital stock,

demanding a greater capital stock, yielding a higher long-run equilibrium output and output price. An upward shift in demand results in strictly higher stationary state capital, investment, output, output price, and labor.

The market is in an original stationary state up to the time of information. At this point, the firm determines new investment plans. The development of prices and aggregate quantities may be described by the industry optimization problem.

1. upward demand shift causes an upward shift in the marginal revenue product
2. investment and capital increases
3. need to determine the optimal initial investment

If all exogenous factors are expected to be constant after some point of time, capital and investment converges to the stationary state position determined by these exogenous factors. As capital increases, output and output price increase as well in the short run.

Conclusions for an unexpected demand shift:

1. Output price overshoots as compared to its new long run equilibrium level.
2. Investment shifts upward and overshoots as well as compared to its long run equilibrium position. As capital increases, investment decreases towards its higher stationary state level.
3. An upward shift in investment produces and unexpected upward shift in the price of investment goods.

To examine adjustment to an expected demand shift, the industry level optimization is solved for at the time new information arises. The shift in investment at the time information arises is explained by noting that a later departure from the original stationary state results in a capital gain when the interest and depreciation costs of holding capital are equal to or less than the marginal revenue product of capital. So investment increases and then decreases.

Before the demand takes place, output increases along the original demand curve due to increases in capital. When the demand shift occurs and the demand curve shifts outward, output increases along the short run marginal cost curve until the intersection with the new demand curve. The new

stationary state is reached by moving along the new demand curve to the intersection with the long run marginal cost curve.

Conclusions for an expected demand shift:

1. capital adjustment starts immediately, involving adjustment in output toward its new state and price away from its long run equilibrium value.
2. investment shifts upward at the time of information, reaching a maximum at the time of the demand shift, and then decreasing to its long run value.
3. the investment path produces a windfall capital gain at the time new information arises, an expected capital gain as a part of the equilibrium return of capital up to the demand shift, and an expected capital loss after that.

Conclusions for any demand shift: an upward shift in the marginal revenue product function or a downward shift in the interest rate implies:

- higher capital after new information arises
- higher investment for the period after information arises and before a shift takes place
- positive windfall capital gain at the time information arises
- A temporary upward shift ending at a later time also implies lower investment for the period afterwards

An upward shift in the marginal revenue product increase the revenue from a marginal investment before the shift, despite the counteracting increases in capital. This results in higher investments before the shift. This extra investment ensures that capital subsequently remains higher. A longer information lead results in higher investment during the additional lead period. Also, an expected shift implies higher investment than an unexpected shift for the period before the shift, resulting in a higher capital stock at each point in time. This higher capital stock lowers investment during and after the original lead period, plus higher output and lower output price.

A longer information lead on an upward shift in the marginal revenue product function or a downward shift in the interest rate produces:

- Higher capital since information lead

- Higher investment up to the time of the shift
- Lower investment after the shift occurs
- Lower discounted and undiscounted windfall capital gain

A longer information lead also involves a smoother distribution of extra investment, with higher investment in the lead period. This is explained by the increasing supply price for investment goods. A longer information lead increases the capital gains for the capital owners and lowers the output price for the consumers. Conversely, a downward shift in the marginal curve for a longer information lead, capital losses decrease and output price increases.

Speed of adjustment

1. in order to predict and explain the effects of a change in an exogenous factor, we need to know how quickly the market adjusts to the new long run equilibrium position.
2. slower adjustment increases the importance of the distant future, producing more forward-looking investment.
3. Faster adjustment tends to induce stronger investment fluctuations.

We now analyze the price and quantity of investments. For a steep slope (high derivative) of change in price over quantity (P/I), we have a slower adjustment and smooth capital and investment paths because the price increases faster for a change in investment quantity as for a lower derivative.

A higher interest and depreciation rate raises the total discount factor and deviations in investment are more closely related to marginal revenue product deviations in the near future. A higher interest rate and depreciation therefore lead to faster adjustment and larger changes in investment. Also, higher depreciation implies a higher rate of change in capital stock that leads to higher replacement investment.

The determination of the optimal capital path is a compromise between the desirability of having capital close to current and near-future capital and the desirability of having smooth investment[xxiv].

1. A higher slope of the marginal revenue product of capital function strengthens the tendency for capital to be close to its current and future state and results in faster adjustment.

2. A higher slope for the Pi function reinforces the tendency to smooth the investment path
3. A higher interest and depreciation rate increases the importance of stationary state capital and increases the speed of adjustment.
4. A high depreciation rate in addition implies more investment and rapid adjustment.

There is, therefore, a mutual interdependence between investment and the marginal revenue product of capital. On the one hand, investment depends of future marginal revenue product of capital and, on the other; investment determines future capital stock and consequently the future marginal revenue product of capital. Earlier models determined investment through static optimization in the sense that current investment is independent of future investment. This arises through the assumption that future marginal revenue product of capital is independent of future capital[xxv]. Static models are inadequate for an analysis of market adjustment where prices depend on capital stock and investors recognize this dependence. Dynamic optimization models determine the entire future capital path and allows for a mutual interdependence between prices and capital stock.

Shifts in other factors

To analyze shifts in technology, the industry level production function is split into two parts, capital and labor. An upward shift in the Price of Labor reduces L for a given K, resulting in a higher marginal revenue product for a given capital. An upward shift in the Price of Labor leads to an outward shift of the investment curve (I,K). The determination of the adjustment paths for capital and investment in response to a shift in the Price of Labor is, indeed, equivalent to the case with a demand shift. An upward shift in the supply curve of investment goods produces a downward shift in the Investment Curve (I,K). This leads to a lower long-run equilibrium capital stock[xxvi].

An expected upward shift in the supply curve for investment goods implies:

- Higher capital for the period after the information and before the shift
- Higher investment for the same period
- Positive windfall capital gain at the time of information

In the general case firms hedge against an expected upward shift in the Price of Investment through higher investments before the shift.

Information on a temporary shift results in an upward shift in investment at the time information is known. Investment increases to a peak, then decreases to a level below the original investment level, and then levels off to the original investment level. Capital increases and then decreases to its original value. The decrease in investment is caused by the higher capital levels during the shift. For longer shifts, these effects increase in the upside and down side.

For any expected time path for the exogenous factors (output price, labor cost, investment cost, optimal capital and labor, and interest rates), each firm calculates the expected equilibrium price path, which they use to determine optimal quantity plans for output, investment, and labor. The industry levels are the aggregate of such plans.

Actual investment for the industry is[xxvii]:

1. increasing for upward shifts in the demand function
2. increasing for upward shifts in the supply function for labor if the substitution effect dominates the output effect
3. decreasing in upward shifts in current supply function for investment goods
4. increasing for upward shifts in the future supply function for investment goods
5. increasing for upward shifts in the marginal production function for capital
6. decreasing for upward shifts in the marginal production function for labor
7. decreasing in upward shifts in the interest rate
8. decreasing in inherited capital

Target capital is determined by the intersection between the capital and investment curves. Firms formulate expectations of the market's future development. This expected path is then used to determine the industry's optimal capital path. Specifically, inherited capital is compared to target capital for future points in time (expected future changes in exogenous factors induce capital adjustments). The optimal capital path is determined, as a partial adjustment of inherited capital towards a moving target. Optimal capital adjustment at a given point of time depends on the entire future path for target capital[xxviii].

IV. FINANCING THROUGH CAPITAL MARKETS & ATTRACTING INVESTMENT

Construction and Infrastructure projects require high capital investments, both during construction and operation. Interest rates paid on capital used during construction can add up to 10% to the capital required for operation (depending on the prevailing interest rates, financial arrangements, and fiscal conventions). There are two broad categories of financial sources: Domestic Financial Sources (national savings from households, corporate and government savings), and Foreign Financial Sources (official aid from the developed to the undeveloped country or through a multilateral institution, and private aid).

When less money is available, lending from commercial banks increases, therefore increasing the borrowing price. A higher return is demanded on prospective investments, which leads to cut back construction demand. Willingness to invest is constrained by the availability of an adequate supply of funds. For investment purposes, longer-term finance is the most important source, with short-term funds used to meet working capital requirements, instead of investment needs.

Barriers to capital flows have been placed in order to address the following concerns:

- Foreign capital represents an unstable inflow which could reverse when the economic condition deteriorates
- Foreigners will gain control over domestic corporations
- Fear that foreign investors may simply dominate the market
- Given that higher risks require above average returns, FDI is costly

Four considerations appear decisive for developing countries[xxix]:

1. Pressing need to improve the efficiency of their investments; capital markets can help by bringing attention to management through public exposure.
2. Government financing creates a severe strain on domestic credit markets in many developing countries; greater reliance on equity financing can help insulate the private sector from public sector financing.
3. Investment in domestic equities provides an alternative to investment in real estate; this encourages public savings and directs them into more productive areas.

4. Many developing countries face poor prospects of attracting net new flows of banking credit; equity markets in developing countries can attract flows of investors in major capital markets into foreign assets

Developing countries are not all alike. Due to their history, they can be categorized in the following manner:

TABLE 2 CATEGORIZATION OF DEVELOPING COUNTRIES IN TERMS OF THEIR FINANCING POSSIBILITIES[xxx]

	Group 1	Group 2	Group 3
State of Issuer	Country with liquidity problems: debt under restructuring	Country with Credit Problem: limited access to international capital markets	Country with investment-grade external resource balance sheet: able to involve broad range of instruments
Target	Keep alive the Credit Lines fro commercial trading and enacting reform policies	Cost of Financing	Optimizing Financing
Access to Capital Markets	Export-Import credit lines	Bank Loans, Project Finance, Object Finance, Credit Enhancement through guarantees	Bond Issues, Corporate Loans, Equity Country Fund, Equity Financing
Provider	Banks	Banks	Banks, Securities Investors

Source: Pierre Viellescazes, Economic Development Institute of The World Bank

Countries in Category 1, that face serious debt management problems are not able to access international bond markets. When entering the bond markets, it is important to have a medium to long term country market access strategy (who should issue and when) along with a public relations policy designed to feet the market all relevant information.

Developing countries face the following sources of financing:

- The Client: Clients, and the government, can provide either advance payments or regular payment procedures. The amount of advance payments, as a total of the bid cost, can range from 5 – 20%. A system that provides for prompt payment of contactors' invoices is the best form of financial assistance that the industry can have.

- Commercial Banks: in many developing countries, the doors of commercial banks often are practically closed to the construction industry, except when real assets back its loan applications as collateral. Even with this backing, loans issued are often for an unusually low fraction of the Worth of the collateral. This give rise to the need of non-banking sources which require a premium over commercial rates. The key is to reduce the uncertainty of cash flows to improve access to commercial bank financing.
- Development Finance Companies: provide a way for external assistance to reach the construction industry. These types of loans must be accompanied with technical assistance in order to assure long-term success.
- Special Institutions: banks especially set up to provide financing of construction works and the construction industry.

These sources fund projects according to the project's structure

Long-term Finance:

- Internal funds: a firm retains profits
- Share issues: to grow and acquire a limited liability, the firm gives up equity interest
- Bank loans: important source of finance for private sector firms, both in the short and long term
- Non-bank loans: bond issued in exchange for a long-term loan made by the public
- Government Finance: government agencies provide financial assistance to firms in the private sector
- International Sources: local companies receive aid from their foreign parent company

Short and Medium-Term Finance:

- Trade Credit: firms take longer to pay their liabilities without incurring any interest charges
- Deferred payments: provides funds for a longer period of time
- Short-term loans: the most common being a bank overdraft

In developing countries, contractors turn to domestic sources for short-term investment financing, but often encounter difficulties due to[xxxi]: insufficient financial resources of their own, unwillingness of financial institutions to extend credit, difficult meeting loan terms, poor management of financial

resources, and scarce supply of capital and foreign exchange reserves. The first step in alleviating this situation is to lessen the need to borrow working and investment capital. Where normal financial institutions are reluctant to provide finance, a number of construction enterprises have established special institutions to provide financing.

The requirements of the funds is determined by the contractor[xxxii]:

- Building Construction: intensive use of labor and materials; main requirements are for short-term working capital.
- Labor-Intensive Civil Construction: again, short-term working capital is required to cover wages and salaries.
- Equipment-Intensive Civil Construction: requires short term working capital, but capital costs for equipment becomes important, demanding medium term funding. Also, this type of construction implies a larger cash expenditure at the beginning in order to obtain the necessary equipment.

Given the importance of working capital, the following can be done to improve financing of working capital[xxxiii]:

- Reduce contactor's need for working capital
- Speeding up the payment practices of clients by reforming procedures for reviewing invoices
- Relaxing requirements for bid bonds, performance bonds, and defect guarantees
- Client purchasing and supply of materials
- Encouraging equipment pooling and equipment rental operations
- Increase the sources of working capital loans
- Improving access to traditional lending sources
- Provide incentives and risk guarantees for private banks lending to construction firms
- Incentives for contractors to save and reinvest in their firm
- Government provision of short-term credit to finance material purchases
- Establishment of non-traditional lending sources (government owned industrial development corporations)

Capital Markets

World capital markets have been growing steadily and have become more integrated; world trade has been outpacing the growth of domestic economies for decades; national borders are becoming less relevant as regulation is liberalized and tariff barriers disappear. The increasing integration of developing countries into international capital markets is reflected in the surge of private capital flows to these countries in the 1990's. The major advantage of capital markets as a financing mechanism is that, together with the derivative markets for options and futures, these markets can "split the atom" of risk, hedge those risks and distribute that risk widely.

Even the poorest countries have become increasingly integrated into the global financial system, for example, by opening to foreign banks and by attracting foreign investment. Although these countries still have difficulty borrowing on international capital markets, relative to the size of their economies they attract about the same amount of FDI as middle-income developing countries[xxxiv]. In developing countries, there is plenty of room for positive growth and access to new pools of capital. However, these countries need to first develop the legal, financial, and technological infrastructure to reap those benefits. The Capital Markets Department of the IFC has played the main role in encouraging developing countries to foster their equity markets. The IFC's current priorities in Honduras include[xxxv]:

- looking to support strengthening of the regional and local financial sector and broader access to long-term financing for small- and medium-sized companies
- assisting Honduras in extending private participation in infrastructure
- helping improve the enabling environment for the private sector in Honduras
- selectively providing direct financing.

Developing country demand for foreign capital will be rising, but it is unlikely to put much pressure on world real interest rates. Increases in domestic savings will finance the greater investment spending by these countries. Savings in developing countries will not rise automatically to support the higher investment. Domestic economic environments, policies, and institutions conducive to higher saving will be needed. This translates into macroeconomic stability, fiscal discipline, and improving the functioning of financial markets, which will all promote investment, attract needed foreign capital and increase domestic savings.

International capital market integration will continue to give developing countries improved access to private foreign capital. Which countries receive this FDI will depend on the economic policies and levels of domestic savings and investments (which both attract foreign capital). While developing countries' investment needs are large, their effective demand for foreign capital will continue to be limited by their perceived creditworthiness and viability.

A severe global capital squeeze and a big hike in world real interest rates are unlikely if fiscal consolidation in industrial countries continues[xxxvi]. If this does not occur, real interest rates could rise, hurting both industrial and developing countries. Real interest rates may also rise if demand for capital surpasses supply, as may happen due to a continued and increasing demand for capital from developing countries and a decline in private savings rate in industrial countries.

In the next five years or so demand for capital in developing countries is likely to rise faster than over the past decade, averaging $1.4-1.5 Trillion a year[xxxvii]. In Latin America investment is expected to rise as the region emerges from debt crisis and re-stabilizes, and in the next five years investments can average $250 Billion a year. Investment growth does not necessarily imply a large increase in demand for foreign capital, given that most of the investment increases is expected to be financed from higher savings. Higher savings rates can only be obtained by growing. Empirical evidence indicates a positive relationship between growth and saving – a virtuous circle whereby higher growth raises the saving rate, which helps finance the increased investment associated with higher growth[xxxviii]. In other words, savings promote investments and investments promote savings, but in order to obtain one or the other, there must first be foreign intervention to jumpstart the chain reaction. Big changes will come about in the capital markets[xxxix]. The project bond market should continue to develop rapidly; bonds are attractive to the issuer due to longer maturities, fewer covenants, and represent a deeper market. The securitization of project loans will occur with greater frequency as a means of asset management; collateralized loan obligations are diversified pools of project loans like other asset-backed securities. The combination of increased supply and greater investor demand should lead to the development of a secondary market for project debt; at the same time, there are going to be innovations in the equity capital markets.

A shift in investment toward the private sector in developing countries should also help mobilize increased domestic financing of investment. In the past, developing countries have relied heavily on

public sector and foreign funding, but they are increasingly switching infrastructure investment toward the private sector and domestic financing[xl]. Development of local capital markets is one way these countries are encouraging the mobilization of domestic resources.

The net claim developing countries make on industrial countries savings equals their current account deficit (the excess of Gross Domestic Investment over Gross National Savings)[xli]. In general, current account deficits in developing countries persistently in excess of 2-3% of GDP are inconsistent with sustainable external financing in the long run. If deficits are not reduced, international financing markets will force the necessary adjustments by not financing these deficits, such as what happened in Mexico in 1984.

World Bank projections show that current account deficits of developing countries will average about 1.5% over the next 5 years[xlii]. Given these projections, foreign capital will finance about 7% of all investment in developing countries over this period. Net capital flows to developing countries will represent around 4% of industrial countries' Gross National Savings and .8% of GDP, but gross flows will be larger due to the increasing global capital market integration. Because FDI is such a small percentage of GDP, developing countries are unlikely to face a shortage in international capital markets resulting from their demand for foreign capital. The amount each individual country will receive depends on the investors' perception of the country's policies and prospects. In the past, only 12 countries (mainly in East Asia and Latin America) have accounted for over 80% of private capital flows.

In the Capital Markets, construction investment competes with all other assets for a place in investors' portfolio. Investors will select a mix of investments based on the risk-free rate and the variance and co-variances of returns among the possible assets. As investors select their optimal portfolio mix, they will compute the required risk premium for the construction investment according to its risk profile.

Foreign investors, through venture capital, have faced difficulties in developing country markets, related with the business environment, the characteristics of the projects being generated, the size and purchasing power of the domestic markets, the supply of skills, attitudes toward sharing control, and exit mechanisms. Nonetheless, successful investments have occurred in developing countries

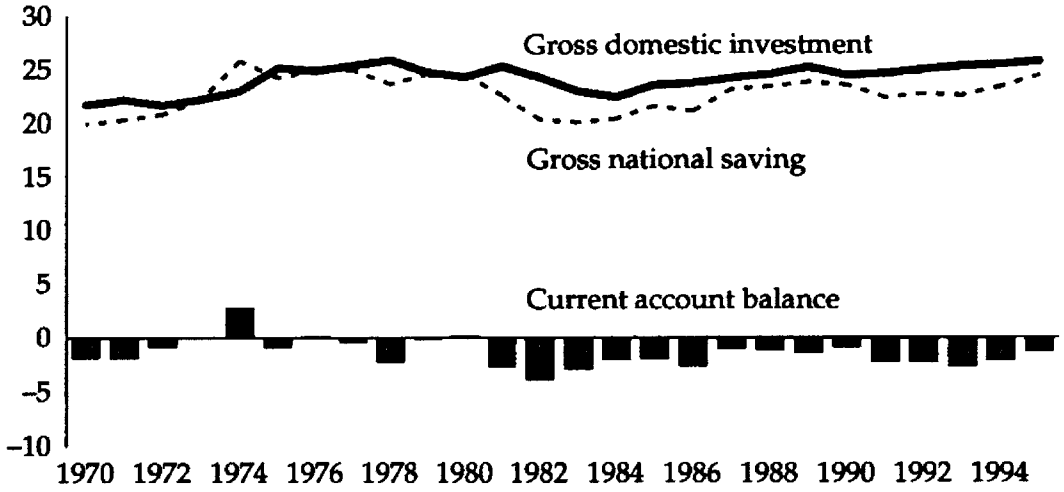
and they will continue to occur: good business opportunities are likely to emerge in deregulating industries; new market niches may also result form transfer of technologies and marketing of ideas already tested in developed countries; small enterprises based on craft can make the transition to newer technologies.

Equity Markets

Equity markets can play an important role in stimulating faster economic growth by encouraging savings, directing savings into more productive channels, and making managers more accountable for their actions. All countries need to improve the efficiency of their capital markets but developing countries have greater deficiencies. The emerging equity markets in developing countries provide an important mechanism for mobilizing domestic savings and for attracting foreign capital in non-debt creating forms. The IFC has played an important role in the developing of emerging markets, but it could expand its investments in domestic financial institutions in emerging markets through more technical assistance.

Saving in developing countries should also increase because of changes in the population, such as an increase in the percentage of the population above the working age, and from further fiscal adjustment (government deficits in developing countries have been dropping). We note that saving rates in Latin America, averaging about 15% of GDP, have been among the lowest and have declined. By achieving a stable macroeconomic framework with low inflation and low fiscal deficits, some developing countries have encouraged private savings to be used for private investment. Also, creating contractual savings vehicles helps to mobilize long-term domestic savings that can be held as infrastructure assets.

FIGURE 1 DEVELOPING COUNTRIES' SAVINGS, INVESTMENT, AND CURRENT ACCOUNT BALANCE (%GDP)[xliii]



Source: World Bank Data

The relatively low domestic saving ratios in many developing countries, in particular in Latin American countries, together with the need for long-term capital point to the continuing challenge to promote long-term savings and sustainable foreign capital inflows. Non-bank savings institutions and intermediaries such as funds need to play a larger role in attracting savings flows and channeling them to equity markets. Institutional investors such as pension funds and life insurance companies can have an important impact on capital market development and potentially on domestic saving. Following are examples from Mexico and Colombia[xliv]:

Mexico

- Private Pension Fund: A decree in February 1992 created a private pension scheme, where employees were required to contribute 2% of their wages to a new form of individual savings accounts. All the funds are invested in accounts with the Central Bank, offering a guaranteed yield of 2% over inflation.
- Insurance Industry: Since the revision of the insurance law in 1990, premiums have to be approved by the regulatory authority but can be determined freely. Foreign insurers can invest up to 49% in domestic companies but the management has to be kept in Mexican hands

Colombia

- Private Pension Fund: Privately managed pension funds became operative in 1994, and workers will be allowed to choose between the government's plan and private pension funds.
- Investment Industry: Since the implementation of the revised insurance law in 1991, conditions and tariffs can be freely determined. Insurance conditions have to be submitted to the regulatory authority that has introduced solvency prescriptions. Foreign investments into the insurance industry face no restrictions.

Potential investors in emerging markets, domestic and particularly foreign, are also limited by a shortage of suitable stock. Measures to increase the supply of stock in the short run should focus on encouraging additional issues of stock by removing discriminatory aspects of tax regimes as well as distortions in monetary regimes that favor borrowings rather than equity financing. In order to increase the long run supply of stock, privatization and the issue of stock by family owned companies have to occur.

The need to attract foreign capital in non-debt forms should motivate developing countries to foster their emerging equity markets, as they are a vital part of economic development. Capital markets encourage savings, channel those savings into productive investments, and improve the efficiency of those investments.

Taken together, emerging markets account for about 4% of the capitalization of securities markets globally[xlv]. Developing countries have had a hesitant view towards capital markets. Neglect has reflected, in part, a bias against the private sector, an association of the market with income inequalities, financial sector distortions in favor of borrowing and in some markets, a concern about foreign investors or the status of expatriate owned companies. This attitude, however, is changing.

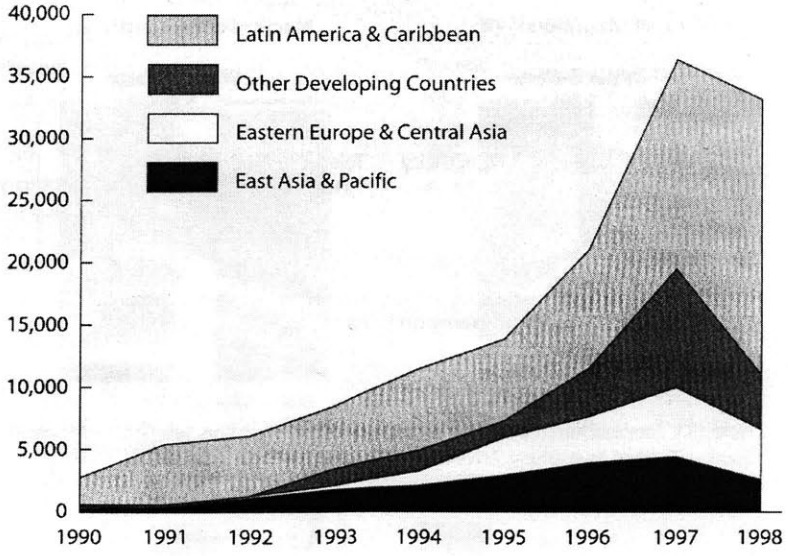
Emerging markets are not yet seen as part of normal investor diversification strategy but rather as markets where high risks (relative to developed markets) need to be offset by the possibility of above average gains[xlvi]. So, apart from wanting to diversify their portfolio, investors enter emerging markets is the possibility of long-term appreciation. There is also the fear of not having a market presence early, especially if there is a shortage of stock.

The key to success for emerging markets is the creation of a level playing field, which is only possible when, first, there is freedom from government interference, and second, there is complete transparency. Transparency means that the books and records, ownership, revenue streams, expenses, and everything related to the financial performance and ownership of companies are open and clear for all to see.

Foreign Direct Investment

Foreign direct investment in the 1980's boomed, growing faster than GDP, international trade, and domestic capital formation, but the 1990's have seen a fall in total FDI flows[xlvii]. FDI to most of the developing world, however, has been modest, much smaller than is needed for these countries' growth and development. Overall, net long-term private flows to transition and developing countries fell in 2001 for the fifth year in a row to an estimated $234 billion, $30 billion below the previous year's level and more than $100 billion less than the peak in 1997[xlviii]. Many developing countries have had less access to capital markets, due to a global decline in lending, increased uncertainty among investors, and reduced willingness to assume risk. Foreign direct investment (FDI) flows, which have been more stable than capital market flows, changed little from the previous year and, at $168 billion in 2001, remain only $15 billion below the peak level of 1999[xlix].

FIGURE 2 FDI INFLOWS TO DEVELOPING COUNTRIES FROM INFRASTRUCTURE PROJECTS (US$ MILLIONS)[1]



Source: Foreign Investment Advisory Service

In the last ten years or so developing countries, on the whole, have received a smaller share of total investment, even though the absolute investment received almost doubled in the 1980's. This reflects a preference of FDI for developed countries. Furthermore, FDI for developing countries have been concentrated on regions and countries, with a few countries getting most of the investment. Still, private capital is an important component of total resource flows to developing countries, and FDI represents a large part of private flows.

Furthermore, FDI appears to have a "crowding-in" effect on domestic investment[li]. FDI can have two potential effects on domestic investment: by competing in financial markets, it may displace domestic financial institutions, but it may also facilitate the expansion of domestic financial institutions. Foreign direct investment (FDI) has the capacity to play an important role in the transformation of a backward country into a modern and dynamic economy. The transformation potential of FDI has been demonstrated again and again, even in relatively small developing economies like Honduras. Yet small poor countries face important structural barriers in attracting the amounts of FDI that will contribute to the transformation of their economies. It is generally acknowledged that access to markets is one of the most powerful factors motivating FDI, and small countries thus start with a disadvantage. Market size is the most robust, positive FDI determinant, along with the level of infrastructure and industrialization. Lower labor costs are generally positive for FDI. Support for the establishment of a more efficient and hospitable investment regime comes from the positive impact of free trade/special zones on FDI.

Over the decade of the 1990s Honduras, one of the smallest and poorest countries in the Latin America and Caribbean (LAC) region, began the process of providing a generally more welcoming environment for foreign direct investment. The basic framework for foreign direct investment was set forth in the Investment Law of June 1992 which established the principle of free entry subject to a negative list, extended national treatment to foreign investors, gave unimpeded access to foreign exchange, called for a "one-stop" facilitation center for business establishment, and allowed for the international settlement of investment disputes.

The question then is "What needs to be done to get more FDI to developing countries?" According to the Organization for Economic Co-Operation and Development, an open investment climate has to be created through the following policies[lii]:

- Standstill: do not introduce new restrictions on foreign investment
- Rollback: reduce the restrictions already in place
- Non-discrimination: treat all foreign investors alike

More and more developing countries are considering using these principles as a basis for their FDI policies. The basic goal is progressive, non-discriminatory liberalization that leads to more direct investment inflows, more jobs, better technologies, and greater competitiveness.

Policy and institutional reforms are the starting point for FDI growth and economic growth in many developing countries. Investments will not be able to flourish without good policies and institutions. Ways in which developing countries can promote investment are to allow 100% foreign ownership and open closed sectors to foreign investors. A strengthened regulatory framework is important to build confidence of domestic and foreign investors in emerging markets. As the capital markets of developing and developed countries become more linked and as portfolio diversification continues to lead to larger capital flows, confidence can be obtained through the adoption of international regulatory standards.

To attract FDI, developing countries need to lower barriers to access their securities markets for the foreign investor[liii]:

- Restrictions which limit investment to approved country funds should be reconsidered
- Limits related to domestic ownership and control of the corporate sector need to be reviewed in order to reconcile the foreign investor interest with domestic control
- Taxation disincentives should be removed

The small and poor countries that have succeeded in attracting large amounts of FDI have built competitive policy frameworks with most of the following characteristics in common[liv]:

•The most important is that economic policy has an outward orientation. Trade and foreign exchange rate policy must not discriminate against exports but rather should have something of a bias in favor of exports. Exchange rate policy is especially important for foreign investors: they must have access to foreign exchange at market rates for importing, paying royalties and repatriating profits.

•Policies that facilitate speed in administrative decision-making are a second characteristic of the small countries that have attracted a lot of FDI. Speed in decision-making is achieved by keeping the actual administrative and regulatory decisions to a minimum and instead building a transparent legal and regulatory system that governs all investment. In such a system the rules and criteria are set out for all to see, and there is not much room for administrative determination (see box 2 – speed of decisions in Costa Rica).

•The successful countries also create policy frameworks with low transactions costs. This means, especially, systems that do not provide an opportunity for corruption. There are countries in the world where under the table payments amount to 15% or more of the capital costs of investments. Needless to say, these countries get relatively little FDI unless there is some huge economic rent that is available to offset the "transactions" costs. Such rents are generally not available in small poor countries, and are not available in Honduras.

•An effective policy framework will not discriminate between classes of investors, especially between foreign and domestic investors.

•Finally, a good policy and institutional framework will provide effective mechanisms for dispute resolution, whether the disputes involve contracts between private parties, or between private investors and the government. Thus, the successful countries have effective domestic courts that can make decisions and enforce them, and they provide for use and enforcement of international dispute resolution mechanisms.

Since nearly all developing countries are now competing for FDI, due to the lack of adequate financing, they have set up investment promotion offices to increase awareness of opportunities in their country and aid in the investment process. Incentives such as tax and grants, industrial estates, export processing zones and other infrastructure help in attracting foreigners. Programs in developing countries generally seem to have three main elements[lv]:

- Image-building to enhance the country's attractiveness: after the initial image building, companies and persons that might be interested in investment must be identified. This is generally the first task of a promotion agency.

- Techniques to generate specific investments:
- Servicing the investor once the commitment to invest has been made

FDI has helped developing countries to internationalize their business sector, increase their competitiveness, and quickly absorb new technologies and new management methods. Characteristics of developing countries that attract FDI are the following: large domestic markets, well-trained and low wage workforce, good infrastructure, and sound macroeconomic policies. Deterrents of FDI are unstable political regimes and military conflicts. There is a growing view that FDI is positively correlated with growth due to its role as a medium for transferring advanced technology to developing countries. A recurring theme appears to be the need for the host country to have achieved a certain threshold of development, and that the positive influence of FDI of growth rates seems to be confined to higher-income developing countries[lvi]. In other words, the host developing country has to be capable of absorbing the new technology evident in FDI.

There are other things to keep in mind when wanting to attract FDI. Countries have to create an environment that will lead to growth and expansion of the private sector; foreign capital is unlikely to flow to countries that are unable to attract and retain their own local private sector's capital resources. Governments cannot neglect the importance of a domestic or foreign private sector in their development strategy.

Unstable economic conditions will deter FDI, and instead of attempt to regulate the economics of the country, many developing countries have attracted FDI by offering benefits and guarantees in order to compensate for the high-risk business environment. Such FDI will not provide the sought benefits (competitive product prices and product diversity) and may even delay the country's development. FDI should not be regarded as en end in itself, but rather as in important means of contributing to a country's overall development through the provision of capital and know-how.

Banking Sector

Commercial banks reduced their role in lending to developing countries during the early 90's compared to the 1970's[lvii]. This was caused by a downturn in overall commercial bank lending, pressures arising from increased capital adequacy imposed on international banks, and the

overexposure in developing countries that also led to higher costs of borrowing from those banks. By 1990, 3% of total capital transfers to developing countries came from private loans, compared to over 30% in 1983[lviii]. Faced with this situation, developing countries faced alternative financing options and different quality of access to international bank loans and to capital markets. The following table summarizes the conditions faced by developing countries.

Sources of foreign debt have been foreign commercial banks, export credit agencies, supplier credits, international bonds, IFC loans, and other multi/bilateral; local debt has traditionally come from local commercial banks and local publicly owned banks. Source of foreign equity have been private foreign sponsors, IFC equity, and other multi/bilateral; local equity has traditionally come from private local sponsors and local publicly owned.

Mobilizing an adequate volume and maturity of commercial debt is a key constraint in many PPI (Private Participation in Infrastructure) projects due to high demand, cautious lenders, mostly foreign (because domestic financial markets cannot mobilize large volumes of long term debt, so extra hurdles such as mitigating risks), provision requirements for loans to certain developing countries, limited pool (few world-wide banks have a strong tradition of project financing in developing countries), time profile of deposits (cannot prudently lend large volumes of long-term debt, and restrictions on potential non-bank local lenders.

Local banks are providing some loans to PPI projects, concentrated in corporate loans to local utilities. In many cases, these local banks were financing their first PPI and relied on IFC for much of the necessary counsel. There is much to be done to enable more local debt to reach PPI projects, but the problems are not infrastructure-specific. Long-term debt does not exist in many developing countries due to macroeconomic instability, distortions of financial markets as a result of government ownership/regulation of financial institutions, fiscal deficits crowd out private investment, and inadequate legal frameworks make lending risky.

Shortcomings of Loan Financing[lix]:

- Debt Service Mismatch: if a developing country has excessive debt, debt requirements will magnify the volatility of national income and force an even greater reliance on international financing in order to continue to smoothen income over time; furthermore, debt service

requirements vary perversely with national income. Most private international lending to developing countries in at floating rates, and total debt service consists of interest at the short-term market rate and the scheduled reduction in principal. In recent years, increases in interest rates have tented to coincide with decreases in the incomes of developing countries, thus they have been faced with the highest debt services when they were least able to pay.

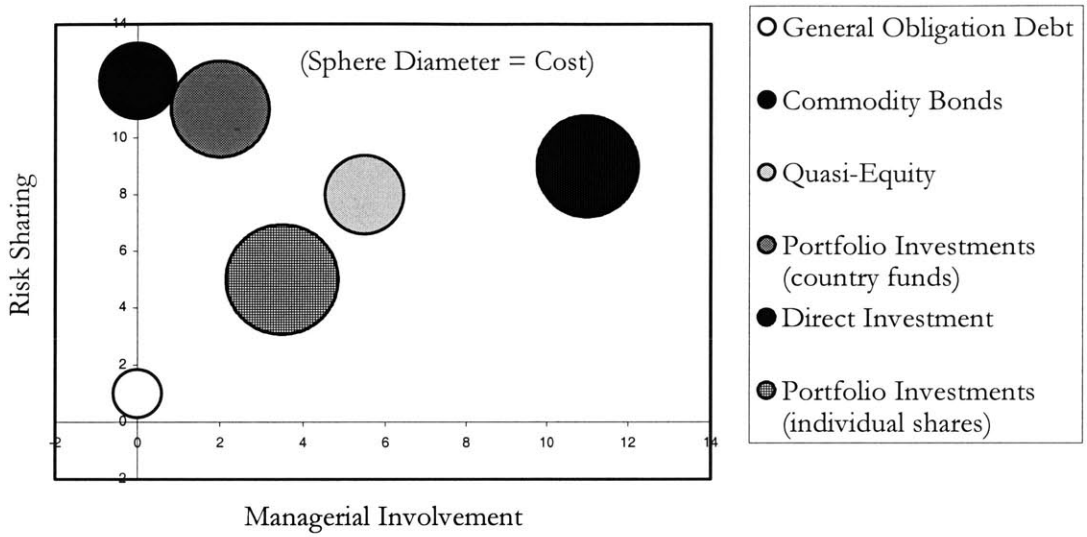
- Limited Risk Sharing: most commercial bank loans to developing countries include some sort of government guarantees that bear the risk of the project. There is therefore no distinction between good and bad projects and the soundness of the loan depends primarily on the borrowing country's overall creditworthiness and not on the economics of any project. There is little true project financing for developing countries whereby lenders have recourse only to the cash flows of the project.
- Limited Shifting of Responsibility: lenders have little or no stake in the success or failure of specific undertakings, as opposed to contingent financing, where success of the project is critical to the recovery of funds. This has the consequence that the interests of industrial countries will control critical aspects of a project's success.
- Concentration of Default Impact: claims against developing countries are concentrated in commercial banks, limiting additional credit or rolling over of existing credit.

In a number of countries, tax and monetary policies combine to favor borrowings rather than equity financing.

Financial Strategy

Since the onset of the debt crisis in the early 1980's, FDI has come to be perceived in a much more favorable light than in the past by developing country governments[lx]. The task of establishing a financial strategy for a country could be visualized as having the objective of optimizing the growth of the economy[lxi]. Intermediate objectives would be to minimize the costs of external financing, manage risks of the financing chosen, obtain and maintain access to several external capital markets, and arranging financing that enhances the micro-efficiency of certain sectors.

FIGURE 3 COMPARATIVE GRAPH - MODES OF FINANCE[lxii]



Source: Donald Lessard

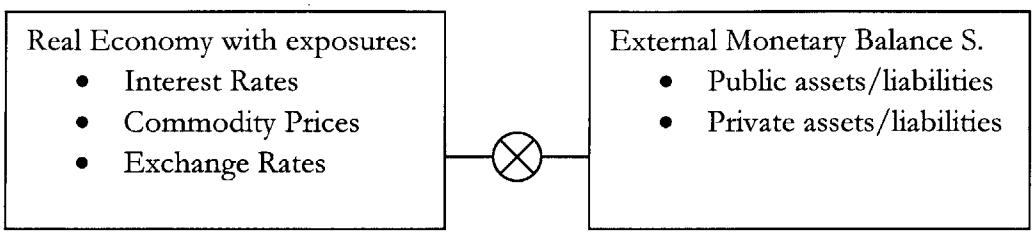
It is a central position of Donald Lessard that "most developing countries could benefit if they were to diversify more between the different finance instruments, although this needed to be done within the constraints of a country's access to capital markets"[lxiii]. In order to do so, the World Bank must look into its lending arrangements, as it lends mainly on a general obligation basis and does not offer developing countries many choices regarding the structure of borrowings.

Lessard has also suggested the concept of national balance sheet analysis in order to address the asset/liability and risk management of developing countries[lxiv]:

- Identification/quantification of key assets and liabilities of an economy (real assets, financial assets and liabilities, natural resources, human resources, and intangibles)
- Understanding of these factors in the global environment and domestically that expose the assets and liabilities to risk and variability
- Assessment of the degree of exposure due to risks
- Identification of areas where risk programs could mitigate risks
- Implementation of a program to manage the national assets and liabilities

The following figure links the previous analysis to the financial instruments.

FIGURE 4 REAL AND FINANCIAL BALANCE SHEETS[lxv]



Formulating an international finance strategy[lxvi]:

- Interdependence between sound domestic financial policies and the international financial strategy
- Developing countries should be more prepared to learn from the experiences of others
- Dismantle restrictions that discriminate against foreign investors to enhance the prospect that new investments would be efficient
- Reform of the domestic Financial Sector
- Avoid default on external obligations
- Apply an external debt ceiling

Financial closure is important because it allows investment to proceed and encourages further policy changes. Delays have resulted from difficulties in resolving issues of risk allocation among project participants, especially when they were inexperienced. For sustainable transactions to take place, policies have to meet the interests of the government, sponsors, and lenders. Delays can result from: inexperience in project financing techniques, infrastructure regulation, and country risk; required government support (guarantees) in order to approve a project and/or start the PPI process; poor coordination between different parts of government; larger projects need longer times due to more financiers and coordination; establishing mortgage claims over the physical assets of a project.

Private entry is more successful if transactions are transparent, which involves clarity (clear procedures for awarding and operating concessions), predictability (government is predictable in implementing its commitments), and competitiveness.

Private financing of infrastructure, access to international capital markets, and the development of domestic financial markets often occur in parallel[lxvii]. Infrastructure companies are often among the largest in developing countries and their relatively stable cash flows make them attractive to lenders and investors. Infrastructure privatization offers opportunities to participate in domestic stock markets and has played an important role in the expansion of these markets.

International financing for developing countries has failed to fulfill its potential not only because bankers were lending too much or countries borrowing too much, but also because of the structure of the financial agreements – general obligation credit largely in the form of floating rate bank loans. Bank debt requires debt servicing that impairs developing countries, does not shift risk to more developed capital markets, is not involved in the selection and management of investments, and concentrates risk of default in the major commercial banks. The result is too much debt and not enough financing in other forms. The solution is then a modification of bank financing and an increased role of non-bank institutions and FDI.

For developing countries, international financing is a double-edged sword: it carries tremendous potential for increased economic welfare, but it also harbors many dangers[lxviii].

Functions of International Financing for Developing Countries[lxix]:

- Enhances the potential national income over time by investing in profitable projects that could not be financed with domestic resources; borrow abroad up to the point where the marginal cost of finance (interest rate) is equal to the marginal yield (return) expected from the project.
- Accelerate or delay domestic consumption relative to anticipated national income; countries that expect high income will borrow to accelerate expenditures in anticipation of these revenues. An example at hand is Mexico, who used external financing to increase income and shift consumption; with the discovery of oil, Mexico had new investment opportunities and a sense of greater national wealth (increased current spending).
- Smoothen domestic consumption in response to sharp fluctuations in income: with balance of payments financing, developing countries use external financing to maintain national absorption in the face of shortfalls in export revenues resulting from downturns in the

economy (oil shocks, for example); borrow in the short term to offset temporary declines in net resource flows and use short term rises to repay debt or accumulate reserves.

- Shift risks to foreign investors or governments: exchange claims against risky revenue streams for more stable smaller streams through financial mechanisms such as futures contracts, equity interests, and indexed bonds or contracts; developing countries should shift risk up to the point where the marginal risk premiums demanded is equal to the cost of reducing theses risks by adopting alternative development strategies.
- Shift responsibility for the selection and/or management of investments: when foreign investors are linked to the outcomes of projects, as opposed to being backed by its general credit, they can improve the performance and reduce risks through greater control over the variables crucial to the project; in addition, this link will only be achieved if the project is financed on a stand-alone basis, with no possibility of governmental bail-out.
- Obtain concessional resource transfers: current resources are transferred without a full corresponding transfer of financial claims; obtain as much concessional financing as possible since it increases the level of expenditure without creating future claims against income.

Each of the above functions is associated with specific forms of financing:

- Debt financing involves claims with fixed payment requirements; it can transfer income over time to enhance income and smooth consumption.
- Risk Capital Financing involves claims whose repayment is contingent on specified future outcomes; shifts risk and responsibility
- Subsidy Financing involves unreturned transfers of resources such as grants, subsidies, or guarantees.

Promotion and Benefits

A number of developing country agencies are responsible not only for promoting investment into their own countries, but also for assisting their own investors in making investments outside their country. Also, some countries have made investment promotion a role of both the public and private sector, with a relatively autonomous management. More developing countries are moving towards a private sector model, with private business managing and/or controlling the agency's

assets. Some examples are Costa Rica, Mexico, and Venezuela, where the government and private businesses have a percentage ownership. Developing countries should be willing to consider this private model because of the knowledge and human capital available in the private sector needed for successful investment promotion.

The promotion agency can help in building domestic support for needed changes by providing analytical studies showing the benefits that investment can bring in terms of jobs, capital and exports. This is important in countries where there is still uncertainty about foreign investment, or for sectors that provide high returns but have been closed.

There is mounting evidence, for many countries, a well-run investment promotion effort to market a country to potential investors can be effective, and in fact may be essential. Such a promotion can be ineffective if the right policies are not conducive to foreign investment. There is no point in promoting something that is not attractive; therefore policy reform must come first. Some countries need a promotion campaign more than others, such as countries that are not well known or that have a bad reputation in the investment community, are small in size, and are far from the source of potential investors. Cost Rica, for example, a small country whose only advantage is its proximity to the USA, has managed to draw significant FDI because of its promotion programs.

An effective promotion program will choose carefully the industry, countries, and kinds of firms that it will target in the campaign. Then, an appropriate mix of image building, investment generating, and servicing must be selected. Finally, an organization must be built with structures and management able to carry out the required tasks.

Experiences elsewhere suggest some important do's and don't with respect to investment promotion in developing countries[lxx]:

DO NOT:

1. Build an investment promotion program around image-building techniques
2. Waste resources on pre-feasibility studies
3. Expect investment missions to be very successful
4. Use embassy and consulate personnel abroad

5. Rely on consultants to do your work
6. Try to use early promotion efforts to diversify the sources of investment
7. Build a program around tax holidays

DO:

1. Target carefully
2. Design an organizational structure that will enable you to hire, retain and motivate people
3. Institute a program of personal selling

The large size of PPI projects and their high political profile means that they cans serve as "credibility markers" for foreign investors. Furthermore, successful projects give policymakers experience, attract more investors, and build support for further reforms. This is shown in the expansion of existing PPI projects, more new entry and projects, continued privatization of existing assets, and extension of PPI to other sectors. The key is to obtain investor's interest in order to initiate the PPI process. In order to do so, it is helpful to understand what investors look for when making their investment decisions.

TABLE 3 COUNTRY AND PROJECT FACTORS DETERMINING INVESTOR INTEREST[lxxi]

Characteristic	PPI is easier if:	Because
Country		
Country Risk	Low	More Investor Interest
Country Size	Large	More Investor Interest
Foreign Exchange	Convertible	More Foreign Investor Interest
Legal Framework	Laws exist	More Comfort for lenders/investors
Project		
Project Market	Wholesale to a Company	Fewer issues
Chas Flow Stability	Contractually set	Comfort for lenders/investors
New or Existing	New construction	Less politically contentious
Project Size	Small = simple; Large to attract	Fewer parties = easier to finance
State-owned Buyers and Sellers	Creditworthy	Reduce risk
Project Revenue	Foreign exchange	Remove foreign exchange risk

Source: IFC

Policymakers must therefore tailor their policies to suit investor's interest in order to access the international capital markets and obtain the necessary financing for their PPI projects. Issues that might need to be addressed by developing countries' governments to stimulate interest and competition among foreign investors are[lxxii]:

- Foreign exchange convertibility: investors worry about the mismatch between local revenues and servicing of foreign debt
- Ownership requirements: requiring local ownership in infrastructure may reduce interest of foreign investors
- Asset security: lenders want collateral security over assets through mortgages
- Assurance of the necessary permits
- Tariff subsidies and adjustment mechanisms: automatic tariff adjustments that pass through certain costs
- Contract enforcement and dispute settlement: it is important to investors and lenders that contracts be enforceable under law
- Creditworthy counter-parties: government guarantees of contractual performance of state-owned utilities
- Coordination: reforms may be needed in several areas of government simultaneously

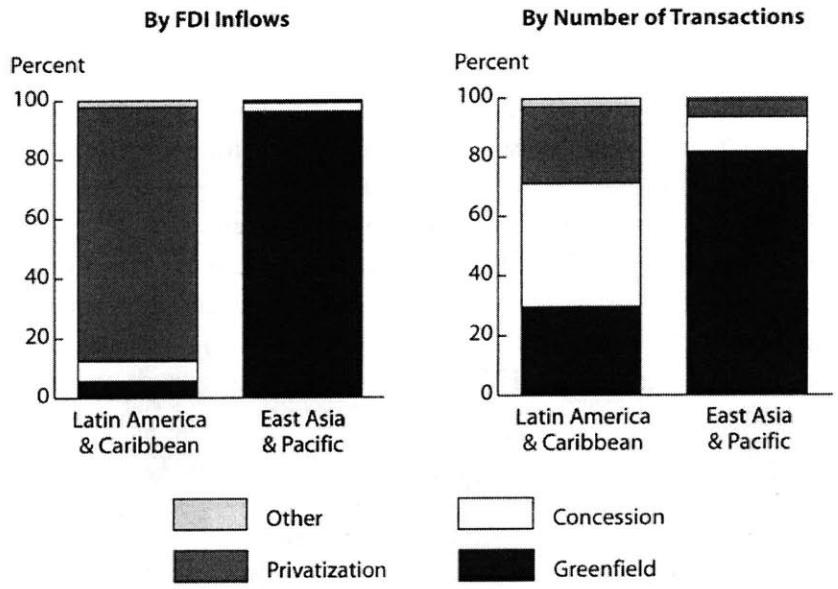
Government can play a role setting up and enabling a framework for interest investors to provide venture capital by:[lxxiii]

- Provide adequate tax incentives
- Support the establishment of sound organized markets for new companies through the development and implementation of an adequate regulatory framework and training of those in charge of it
- Ensure that the regulatory framework applicable to pension funds, insurance companies, and other institutional investors does not unduly prevent them from investing
- Supervision is required to improve the confidence of investors.

But investment by foreign firms in infrastructure sectors brings more than money. Foreign firms also provide management, which can be even more important. Improved management can bring better maintenance, fewer outages, reduced costs and user charges, and overall improved efficiency

in the provision of these infrastructure services. The participation of foreign companies in the privatization process can help countries learn how to produce, manage and market products in an internationally competitive environment. Furthermore, privatization opens numerous opportunities to foreign investors and helps countries attract badly needed funds. The following Figure depicts the different strategies used by Latin America and Asia, in terms of privatization.

FIGURE 5 DIFFERENT STRATEGIES: LATIN AMERICA AND EAST ASIA COMPARED (BASED ON US$ IN FDI AND # OF TRANSACTIONS)[lxxiv]



Source: Foreign Investment Advisory Service

Small-scale enterprise development helps countries to develop backward supply linkages that might be attractive for foreign companies. It also helps those companies capture the benefits of the foreign company. By developing the potential of small and medium sized firms, countries can increase their rang of attractive FDI opportunities.

Most of the time, developing countries' agencies work together with investors to encourage the growth and expansion of the private sector in the developing country. Investors provide support in the following areas[lxxv]:

- Macro-level policy reforms to improve macroeconomic management and develop the financial sector, and to create an enabling business environment. Such reforms should lead

to sustainable fiscal deficits and realistic exchange rates. High budget deficits use up domestic savings and foreign funds. An overvalued exchange rate (high inflation) leads to low investment and slow growth. The banking system may suffer from inadequate lending risk assessment, the burden of financing loss-making public enterprises, weak bank supervision, poor management, corruption, and growing non-performing loans. A weak banking system will prevent the creation of local capital, not facilitate commercial transactions, and will not attract foreign capital. Furthermore, developing countries must diversify their financial instruments, through the creation of capital and bond markets, because a limited choice of financial instruments slows down privatization and restricts the expansion of new private sector investments. In summary, a stable macroeconomy and a sound system of financial intermediation are critical to the promotion of domestic savings and investment and the inflow of foreign capital and investment. An enabling environment is one where government seeks to reduce the cost of doing business through the elimination of price controls and the lowering of tariffs and quotas. At the same time, government should extract itself from activities which the private sector can perform more efficiently and focus its limited financial resources on public activities.

- Micro-level technical assistance to the government agencies and companies to help them adjust to the macro level changes and improve efficiency. Developing countries need assistance

  - ensuring that the appropriate enabling business environment previously discussed is in place:
    a) advise on appropriate laws and policies dealing with investment, taxation, accounting, and labor
    b) help government prepare privatization and small-scale industry development strategies
    c) providing seed capital to set up small-scale enterprises, allocate financing for unemployment benefits and other social needs
    d) train policy-makers

  - developing a wide range of financial instruments to improve the access to funds:

a) support financial reforms and establish sound banking regulations
b) set up capital and bond markets, and establish company disclosure criteria
c) diversify financial instruments
d) train tax officials, accountants, and auditors

- providing support services to help restructure large enterprises and help small enterprises:
  a) design and implement restructuring plans
  b) help set up commercially viable business extension services
  c) train managers
  d) introduce new ideas in production, finance, and technology

- Continued support for developing and maintaining a country's basic infrastructure, particularly in transport, telecommunications and utilities, as well as schools and health care. Improvements in infrastructure are essential for the development of the private sector and a determining factor in the investment decision of foreign and domestic investors. Both governments and investors should finds ways for the private sector to help in developing and improving basic infrastructure either by selling utilities to the private sector or by contracting private sector management. In addition, grouping together smaller countries with fragmented markets into larger more homogenous markets, such as Central America, may help these countries improve their prospects for FDI.

How to increase the efficiency of International Financing for Developing Countries[lxxvi]:

Modifications in Bank Financing

- Smoothen Real Debt Service Patterns: adoption of floating rate loans resulting in roughly constant real debt service. Alternatively, a price-level index-linked loan, where the real interest rate is fixed and the principal is adjusted according to changes in a price index, would provide for even smoother real payments.
- Increasing Repayment Flexibility: limited flexibility in terms of where borrowing countries can decided to pay a lesser amount in any given year or having the timing of repayments linked to trade flows.

- Increased Risk-Shifting with General Obligation Financing: to lay off certain risks that affect the economy as a whole through commodity-priced linked securities (bonds) and trade-linked securities.
- Increased Non-Recourse Financing: gives lenders more incentive to conduct analysis and reduce borrowing errors. The World Bank might play a role here by facilitating project loans and providing completion guarantees for an increased flow of true project financing.

Increase Role of Non-Bank Institutions

- Increased Project-Specific Risk Capital: International Financing (FDI and Portfolio Investment in Equity) at the project level where foreign investors bear more risks.
- Quasi-Equity: financing arrangements such as production shares.

Changes in the Role of Multilateral Financial Institutions

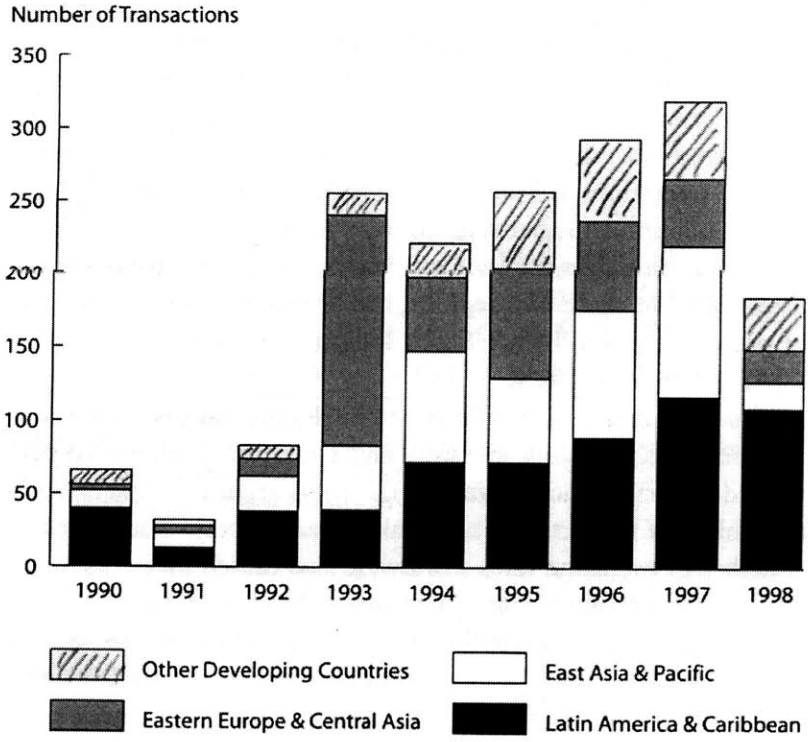
- The IMF and the World Bank currently support general obligation debt and they should shift this support towards contingent financing.
- Currently, The World Bank Group's focus in Honduras is on[lxxvii]:
    - social development (social safety net, health, education and indigenous population)
    - reviving and accelerating growth through private sector development; macro stability
    - environment.

<u>Infrastructure</u>

One thing remains clear when looking at the current state of infrastructure financing in developing countries: demand for capital investment (estimated over the next 8 years to be between US$1-US$2 Trillion) continues to outstrip supply[lxxviii]. One of the reasons that projects from developing countries continue to experience difficulties accessing the international capital markets is the fact that risk assessments of such investments have not been entirely comprehended. Domestic debt markets are not deep and adequate lending capacity has not yet developed in these countries, which leaves projects dependant almost entirely on foreign investors. Project counter-parties do not have known track records and sometimes are not creditworthy, which limits their ability to attract investors and leads us to the conclusion that information must flow before capital will.

Better quality and availability of infrastructure services is important in a small economy, such as Honduras, where most FDI comes to serve export markets, and hence must compete with firms in other countries. Easily available, good quality and reliable telecom services, electric power, water and sewage, and ports and airports, are very important parts of any country's environment for export-oriented foreign investors. More recently, however, private firms have begun to finance infrastructure development, as is evident from Figure 6. According to World Bank estimates, the demand for infrastructure investment is staggering. Most studies on economic development find that infrastructure investment is associated with one-for-one percentage increases in GDP[lxxix]. Studies of development find that absent or inadequate infrastructure severely hinders economic growth. Despite the growing demand and opportunities for private sector involvement, private firms still provide only 15% of infrastructure investment.

FIGURE 6 NUMBER OF PRIVATE INFRASTRUCTURE TRANSACTIONS IN DEVELOPING COUNTRIES[lxxx]



Source: World Bank

Three prerequisites that make large infrastructure projects suitable for private financing from the point of view of financial markets:

- Good Sponsors: local political knowledge and strength, willing to provide equity, and having financial strength
- Good Project Rationale: project makes good economic sense, is well supported by government and banks
- Good return: available for the sponsors and financing investors and higher than returns for more traditional investments

Infrastructure is one of the fastest growing sectors in the world in terms of private participation and financing. This has resulted from generally poor performance of state-owned monopolies, combined with globalization, which has made developing countries aware of the costs of inadequate infrastructure and prompted competition, private entry, and FDI in this sector. In recent years, IFC has become one of the major financiers of private infrastructure projects in the developing world and has promoted private participation in the sector (more than 115 infrastructure projects by 1996). This has been done in the following manner[lxxxi]:

- Supporting pioneer transactions: structuring potential projects so that they are financeable
- Supporting politically challenging reforms, such as utility privatization; IFC also helps governments sell infrastructure companies, including structuring, marketing, and coordinating bidding to investors.
- Promoting competition by supporting new entrants
- Mobilizing international financing via loan syndications, helping infrastructure companies to access international equity markets, and investing in infrastructure funds.
- Facilitating domestic financing, through bringing a local bank into a project, or advising on a privatization involving a local flotation.
- Communicating experience and promoting government-investor dialogue; provide input as to what is needed to attract investors.

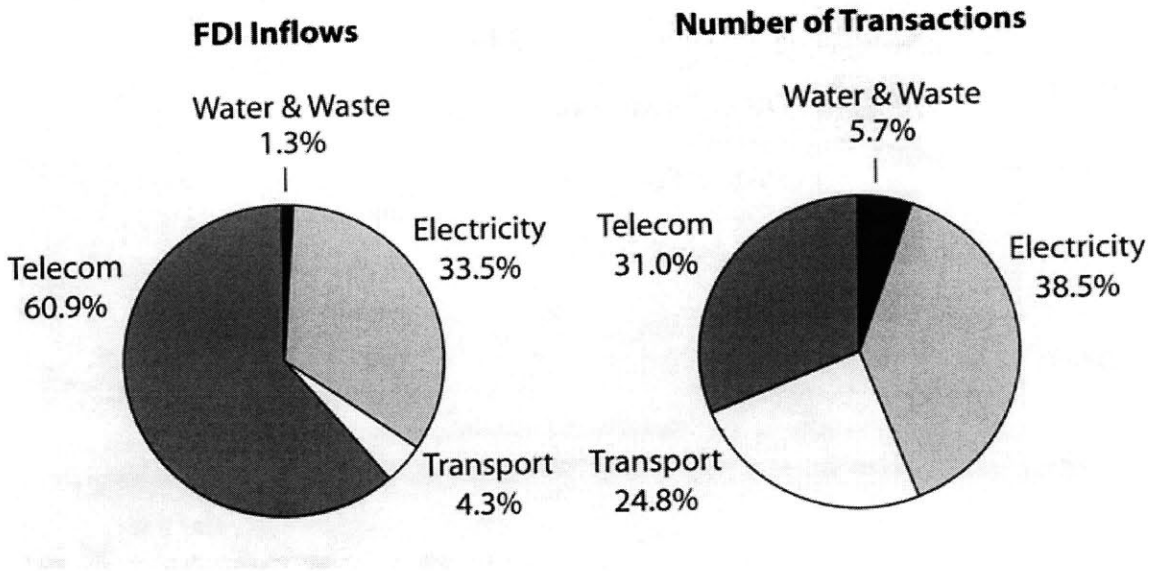
Private participation, which initially focused on power and tele-coms, has successfully extended to ports, water supply, roads, and railways. However, investors have found that project risk has been more real than might have been anticipated. The following table and figure prove this point.

TABLE 4 FDI IS KEY IN PRIVATE INFRASTRUCTURE IN THE DEVELOPING WORLD (1990-98)[lxxxii]

	# of Transactions			Cost in US $ Billion			Estimated
Sector	Total	With Foreign	% Foreign	Total	With Foreign	% Foreign	Debt/Equity
Electricity	230	208	90.4%	$102.6	$ 88.6	86.4%	74/26
Telecom	116	111	95.7%	$ 68.7	$ 61.4	89.4%	44/56
Water/Waste	52	43	82.7%	$ 20.8	$ 20.4	98.1%	77/23
Airports	13	13	100.0%	$ 8.6	$ 8.6	100.0%	70/30
Seaports	26	19	73.1%	$ 3.6	$ 2.2	61.1%	67/33
Roads	66	28	42.4%	$ 25.6	$ 9.5	37.1%	78/22
Total	503	422	83.9%	$229.9	$ 190.7	82.9%	

Source: Foreign Investment Advisory Service

FIGURE 7 FDI IN INFRASTRUCTURE, BY SECTOR (BASED ON FDI INFLOWS AND # OF TRANSACTIONS)[lxxxiii]



Source: Foreign Investment Advisory Service

In 1993, IFC helped finance a power plant innovatively structured to reduce country risk: the generators in Guatemala's first private power plant were installed on a barge, which could be towed away in the event of nonpayment. By 1996, most other Central American countries had independent private power plants.

Positive trends with private infrastructure financing in developing countries[lxxxiv]:

- More volume, countries, and sub-sectors: financing of new private infrastructure in developing countries doubled between 1993 and 1995, including first time countries such as Dominican Republic, Honduras, and Panama.
- More privatization of existing assets via divestiture or long-term operating concessions. Privatization has exceeded new construction in Latin America, reflecting the desire of governments to raise revenues, demonstrate commitment to economic reform, encourage investment, and improve efficiency of existing assets.
- New financing sources: insurance companies are starting to finance private participation in infrastructure (PPI) in developing countries, and financial agencies have set up programs to provide financing or guarantees to private infrastructure projects. Commercial Bank financing has extended, as more banks become familiar with PPI and local financing is expanding while domestically owned infrastructure companies are starting to emerge.

Much of this activity remains concentrated in countries and in the power and tele-com sectors. In 1993, 9 countries, including Argentina, Colombia, and Mexico, accounted for 99% of international private infrastructure loans. This is the case because managing private entry to infrastructure is complex, politically charged, and results in initial political costs. Private infrastructure projects differ from other private investments in that government is closely involved as regulators, buyers, or suppliers. Because of this, governments must shape the conditions that will assure successful transactions. Due to the importance of political commitment, what is feasible in terms of PPI varies tremendously between countries. There are three groups of countries that have emerged:

- Leaders: developing countries where the political commitment and institutional framework for private, competitive infrastructure services are credible enough to satisfy financiers.
- Starters: a couple of PPI investments have occurred but further political commitment and regulatory changes are needed to sustain progress across infrastructure sectors.
- Latecomers: challenge is to gather the political commitment to start the PPI process, but policy changes need to be translated into investments and improved services if they are to gather support abroad.

V. RISK IDENTIFICATION & MANAGEMENT

Risk is inherent in any project, including construction and infrastructure. Some risks can be anticipated; others are difficult to predict but emerge as turbulence sets in. Risk and uncertainty combine with indeterminacy to create ambiguous decision-making contexts. Indeterminacy means that future outcomes are not only difficult to assess but depend on exogenous events of endogenous processes that can lead to multiple possible futures. Indeterminacy is thus a risk that can be partly solved by strategic actions[lxxxv].

Following are the types of risks specifically associated with the Construction Industry.

Three types of risk that the industry can assess and manage:

1. Inherent Risk: calculations made at the time of bidding; costs, productivity, financing, and weather,
2. Insurable Risk: damage to property, labor or equipment
3. Transferable Risk: conveyed to others through a contract; subcontractors and suppliers

Types of Risks in Large Engineering Projects (LEPs):

- Costs exceed estimates due to a change in technology
- Alliance of sponsors failed
- Natural conditions differed from expected
- Demand did not materialize due to allowed substitutes
- Regulations were changed

<u>Classification of Risk</u>

Risks can be further classified into market risks, technical risks, and social and institutional risks. Different types of projects will be subjected to different types of risks, depending on the nature of the project.

In developing countries, hydroelectric-power projects tend to be difficult on the engineering side (most of the time requiring international aid) and very difficult in the social arena. Social risks can take the form of protests and other disturbances, sometimes halting the project for several weeks. Market risks are moderate, as they require large buyers with extensive needs. The buyer is usually the government who assures the energy purchase.

Urban transportation projects in developing countries pose average market, social, and institutional risks, as they must meet the real needs for segments of the population. Resistance can be encountered by landowners neighboring such projects as they see the project as a threat to their land and to their privacy. On the other hand, rural transportation projects are welcomed as they add value to the countryside and allow for farmers in developing countries to deliver their crops. There are still some technical risks, as the projects involve underground geological work.

Risks can be separated into drivers and outcomes, and each party that faces a specific type of risk can address it. In general, projects face market-related risks the most, then technical risks, and finally institutional-sovereign risks[lxxxvi].

Market risks arise from assumptions about the structure of demand (forecasts for roads, transport systems, power projects). Miscalculations car result from shortfalls in overall economic growth, as has happened for developing countries in the past. The ability to forecast demand varies with the type and specific attributes of each project. Some projects only face a specific set of customers, simplifying the forecasting job. In developing countries, for example, there aren't many user options in public transportation and predicting demand is much easier. Supply risks involve price and access uncertainties. Supply can be secured through contracts, spot purchases, or ownership. Supply risks will weigh heavily on a project when the economics of the project are highly dependant on supply of a key input.

Financial risks arise from the difficulty of drawing lenders and investors, given the specific risks and returns. They also entail the inability to restructure financial arrangements in the event of unexpected changes in cash flows. Given an adequate return on investment for a project, if the interested participants are not willing to go ahead with the project, then this is an example of financial risk. Even if a project is undertaken, and then doesn't progress as planned reducing its

value, equity capital must be obtained to continue with the project. Current equity holders will be reluctant to reinvest in the project since most of the new capital will be used to service the project's debt obligations.

Technical risks reflect engineering difficulties and novelty of each project. In some cases, the technology is well understood, but natural conditions may prevent the technology from being implemented. A classic example would be a project where digging is required and the composition of the soil is not fully known.

Construction risks are borne by the parties involved in the building of the project. Risks take the form of not delivering the project on time, not being able to work with subcontractors, and running out of cash which occurs mainly due to underbidding by the contractors in order to win the project. Operational risks deal with the fact that the machinery will not perform as it should. These risks can be reduced substantially by investing in building high-quality systems from the start and by the selection of an operator with an economic interest in enhancing revenues and controlling costs.

Regulatory risks arise because projects depend on laws that preside over contracts and property rights. In developing countries, the politicians who seek recompense for the approval of certain projects may jeopardize these laws. Institutional risks are also magnified in developing countries, where "regulations are undifferentiated and in a state of flux"[lxxxvii]. This situation obstructs the position of foreign investors who have no experience in dealing with the country's politicians. Circumstances often encountered are delays in environmental approvals and social permits. Governments need to move away from a regulatory structure and into a competitive system.

Social-acceptability risks exist due to the possibility of opposition to a project by groups or agencies. Project sponsors must practice good human relations in order to successfully convey the meaning and benefits of the project and make sure that local groups and agencies understand and agree with the project. Sovereign risks are the possibility that contracts, concessions, and rights are called back for renegotiation. These events are typically triggered by economic and political changes. Given the instability of most developing countries, these changes are more frequent and sovereign risks are a clear and present danger. In some cases, compensation by the government is provided to the project

sponsors, but in the case where an extreme administration gains power, such as in Cuba and Chile, no compensation is awarded.

A project can also be affected by political and economic decisions that do not deal with the project directly. An example might be the elimination of a certain tariff on which the project depended (Chile 1970's & Mexico 1990's). Investments in developing countries are most secure when they are made within general governments of related regulations concerning investments, tax, and competition.

Political risk refers to the possibility that political decisions or events in a particular country will cause foreign investors either to lose money or fail to capture their expected returns. Whereas economic risk arises from the inability of a country or firm to meet its financial obligations, political risk arises from the government actions: policy changes, leadership changes, nationalization of private property, expropriation of foreign holdings, civil strife, currency inconvertibility, or even war.

Conceptually, the notion of political risk is nearly as old as the practice of international trade and investment. Some of the first firms to deal with the practice of political risk were the oil multinationals, such as expropriation in Mexico and the growth of nationalism in Venezuela. They responded politically through their home governments but then began to focus on means of predicting political risk rather than just responding to it.

Political sentiment reflected the antagonism toward the developed countries and their disproportionate hold over political and economical power. Foreign investors became a focus for much of these countries' discontent, and foreign assets were repeatedly subject to confiscations and nationalizations[lxxxviii].

Firms' need for expert advice and services grew, and in order to meet these needs, the industry of political risk analysis was born, providing global rankings of countries and some level of prediction; they summarized political developments around the world, highlighted political trends and sensitivities, and evaluated the relative stability of national governments.

Two distinct modes of analysis arose: quantitative and qualitative[lxxxix].

- Quantitative analyses of political risk: assumed that political events manifest themselves in a discernible pattern; stability indexes provided measures of political stability.
- Qualitative analyses of political risk: explicit subjective assessments that relied on the perceptions and judgments of country experts; differed from quantitative in the manner in which indices and rankings are compiled.

These methods offer tangible risk assessment that the ability to predict dangerous political developments.

In addition, firms seek to share the risks of foreign markets, reduce them through contractual agreements, or insure against them. Once local partners are involved in a foreign investment, it became less foreign and more important to the local economy. With added knowledge of their home market, local partners are also a source of political leverage and information.

With project financing, companies could raise the capital required for their foreign investments from international capital markets, rather than from their own retained earnings. They could issue debt securities to cover the costs of specific investments and hedge the financial impact of political decisions through the use of forwards, futures, swaps, and other financial derivatives. By itself, project finance did little to minimize political risk, but by thrusting investment into the global finance market, project finance spread the effects of risk across a much broader spectrum of participants.

Interaction of Risks

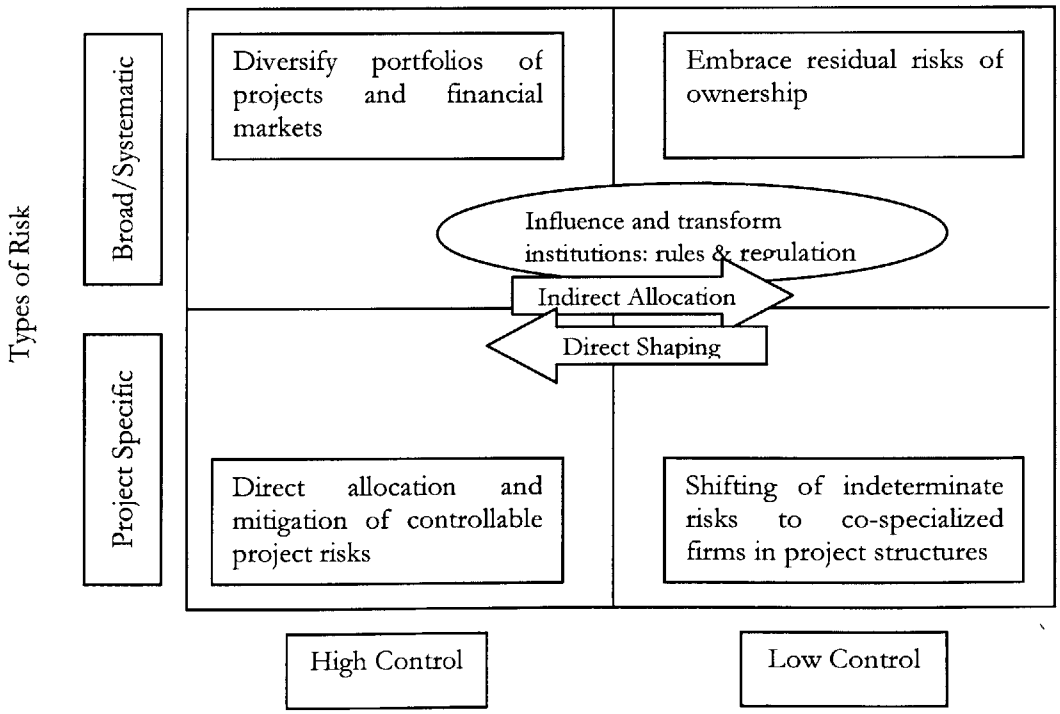
Risks are linked to the life cycle of the project. They come into play at different points in time. For example, regulatory risks are diminished once the permits are obtained. During construction, errors are identified and corrected as the project progresses. Financial risk is also a hurdle risk. Once the financial deal is closed, energy can be focused on other areas of the project. These risks are hurdle risks because they appear as obstacles, and once they have been solved, pose no immediate threat to the project. Some risks, especially market-related ones, are partly independent of project life cycle. The sources of such risks are external.

Risk Management

Two broad categories of approaches to risk management: decisioneering, which comes from management science and assumes that the future is probabilistic, and managerial approaches, which match risks with strategies but assume that the future is indeterminate[xc]. In decisioneering, decision makers focus on the most likely outcome (expected outcomes conditional on the most likely scenario). Future cash flows are discounted at a rate reflecting the risk of the project. This model neglects the options available to the project, such as the choice of abandoning the project. The discount rate can also change as the economy of developing countries fluctuates.

The managerial approach is the most appropriate in conditions of indeterminate futures[xci]. Hurdle rates, even though they are intended to reflect the risk of the project, are not adjusted, but rather responses to match risks with strategies are implemented. The responsibility of neutralizing risks is assigned to the individuals most capable at handling them. The managerial approach has four main risk-management techniques: shape and mitigate, shift and allocate, influence and transform, and diversify through portfolios.

FIGURE 8 MANAGERIAL APPROACH TO RISK MANAGEMENT[xcii]



Source: Lessard & Miller

When risks are endogenous – shape or mitigate the risks by shaping

When risks are exogenous – shift or allocate them through contracts or financial markets

When risks are poorly defined and depend on other parties – transform them through influence

When risks are broad but controllable – diversify

Strategies to face risk

Two simultaneous processes: assignment of risks for imaginable futures and infusion of governability into project structures to face unknowable risks[xciii]. Knowable risks are discovered, imagined, and assigned to a strategy. Such strategies might include the use of financial markets, institutional shaping, and project coalitions. In many developing countries, financial market tools are not readily available to manage risks. For risks that are not known in advance, sponsors must achieve control over these risks once they become present. Joint decisions must be made with the parties that are capable of handling such risks.

Comparative Advantages in Risk Taking

Project participants should display superiority in risk bearing, possibly from

- More information about particular risks and their impacts
- Different degrees of influence over outcomes
- Investors have different abilities to diversify risks

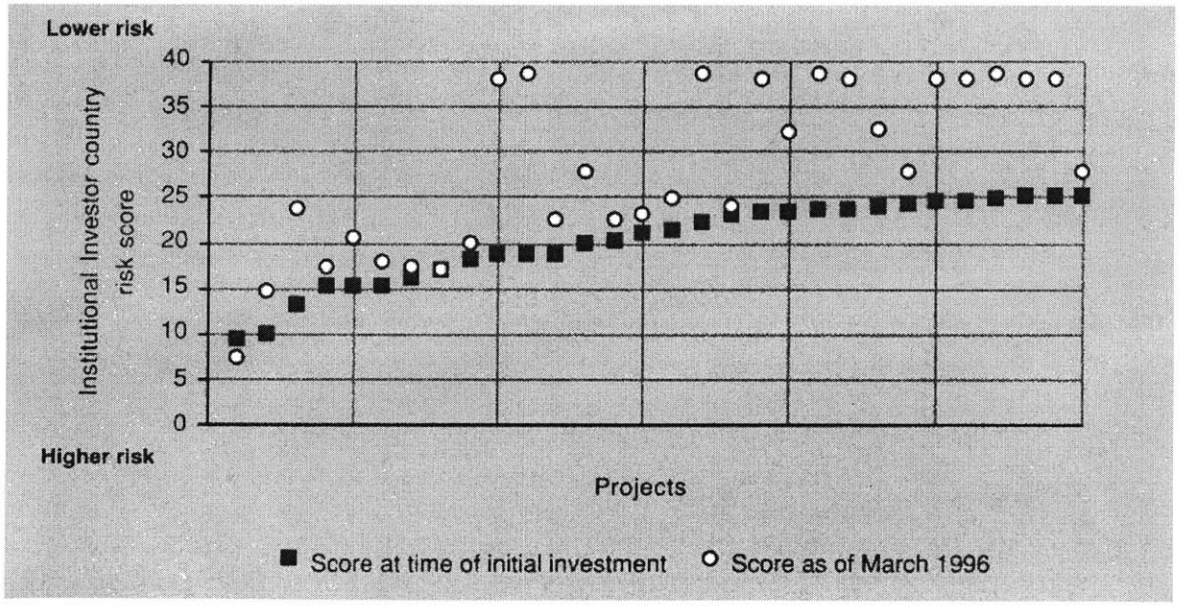
In developing countries, local investors might have more information regarding a specific project, but they might not have the ability to diversify their risks like international investors.

Effective risk management involves[xciv]:

- Determining whether potential benefits are sufficient to offset risk
- Allocating risks so that incentives and capability to bear them improve project performance and reduce the probability of disasters
- Building governability to respond to changes

Efficient risk allocation and mitigation is central to finance infrastructure projects and provide incentives during construction and operation. Efficient risk allocation occurs when risks are assumed by the party best able to manage them. Mobilizing debt is particularly sensitive to having adequate risk management mechanisms in place. For PPI to continue spreading, governments, investors and lenders will need to become more familiar with risk mitigation and management. Attracting private financing to infrastructure is determined more by risk perceptions than by income levels. Given the long-term vulnerability of infrastructure projects to major political and economical risks, investors base much of their risk assessment of a country's economic and political credibility[xcv]. Such credibility has been achieved, to some degree, through the infrastructure privatization efforts. Projects in countries with greater risk are under half the size of those in countries with better credit, as investors test the water[xcvi]. Once investors observe that PPI investments, both through privatization and new projects, are successful, a country's risk rating should improve. The following figure suggests that this effect may be most significant for countries with higher risks: PPI financings may help put such countries "on the map" for foreign investors.

FIGURE 9 CHANGES IN RISK RATINGS AFTER PPI INVESTMENTS[xcvii]



Source: IFC

The risks of financial catastrophe are manageable through revenue guarantees and government subsidies, and a high equity to value ratio. With completion risks, investors should first invest in information before committing to a project, and should not commit if information was inadequate.

With respect to market risk, investment in market research will allow for a better assessment of the potential demand and volatility. Contracts can also be used to shift this risk to the consumer.

Framework for managing risk[xcviii]:

- Obtain and frame information
- Design a process with a long "front end" and a rapid execution of the physical project
- Build coalitions that bring information and skills together
- Allocate risks to capable parties
- Transform institutional risks through the creation of long-term coalitions that incorporate strong influences on laws and rules

Investors and Lenders

In order to asses risk, most investors take into consideration general country economic and political considerations to inform their decisions. Investors must see a favorable attitude of the political sector towards the private sector plus prospects of economic growth. In terms of inflation and exchange rates, equity markets are expected to hold their value against inflation measured domestic currencies, but high inflation rates, as in the case of Latin America, can make balance sheets difficult to interpret.

Exchange rate depreciation reduces capital appreciation when measured in an external currency, but the experience has been that gains in the market have far outweighed exchange rate losses. In addition, investors believe that a depreciation currency in a developing country is actually necessary for faster economic growth. This does not suggest that exchange rate is negligible. A rapidly depreciating currency may suggest that deeper balance of payment problems exist. Furthermore, when transactions are inefficient, delays might result in losses due to exchange rate changes.

Further risks that investors in developing countries face are as follows:

- Poor accounting standards
- Difficulty in estimating the underlying worth of securities due to unreliable company information and market distortions

- Insider trading
- Transactional inefficiencies and lack of transparency

Lenders generally face 3 Risk Phases:

- Construction: the project company draws down the majority of the loan to finance construction activity, equipment purchase, and other operating costs
- Project Start-up: loan exposure may rise slightly due to working capital requirements and final payments to contractors and suppliers; initial sales from project start-up enable loan payoff to commence
- Operation: risk exposure declines as the loan is repaid

Lenders view each risk in consideration of threats to either the project's cash flow or its security arrangements by focusing on the predictability of the cash flows and on how credible and experienced the main players are. Institutional investors have a lower risk preference than Commercial banks and prefer PPI projects with existing cash flows and strong sponsors. Official financing agencies have more lending capacity and greater risk preferences. The following Table outlines the risks to lenders and the mechanisms to mitigate them.

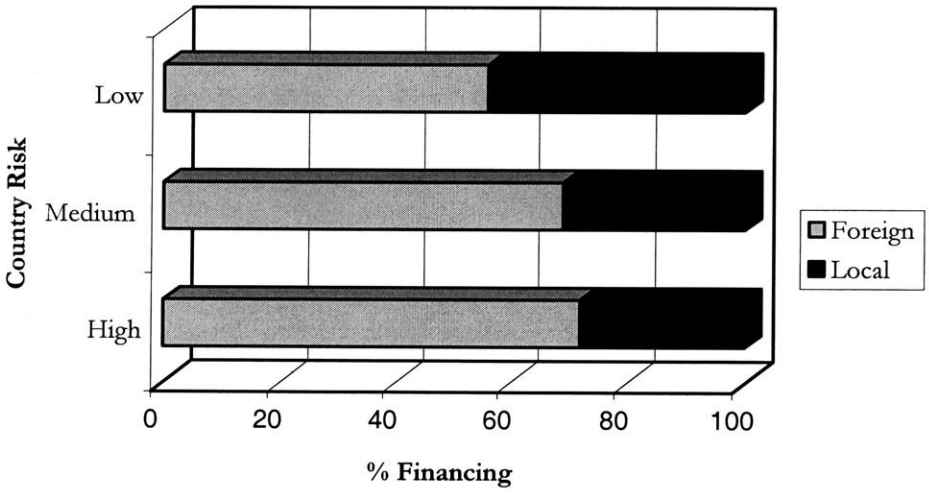
Given these risks, there is still a willingness to invest in highly indebted countries and there is a strong investor interest in low-income developing countries[xcix]. In the past, investors have been interested in the following Latin American countries: Argentina, Brazil, Chile, Mexico, and Venezuela. The particular type of risk confronting a particular country is the product of variability (of a commodity) and the country's exposure to that commodity.

Financing PPI projects is difficult in countries perceived by investors as risky. Over 25% of IFC's approvals have been in countries with little access to international private capital, including Honduras, Dominican Republic, and Panama. The result has been that investors have focused on projects with short payback periods (cellular), projects generating foreign exchange revenues (ports), or projects with strong government support (power plants).

Two Financing Patterns have been identified in IFC-financed infrastructure projects[c]:

- An Average Debt-Equity ratio of 58/42: substantial equity commitments are being made to attract debt, and/or lenders are ensuring that projects are not over-leveraged. There is more equity in sectors facing significant market risk. Financial structures are defined more by project variables, such as market risk, than by country risk (debt-equity structures in countries with different risk profiles show no significant difference[ci]).
- About 2/3 of project costs are financed from foreign sources: IFC continues to finance projects in risky countries, where access to domestic long-term finance is limited. PPI projects in countries with higher risk have more foreign financing due to underdeveloped local financial markets. Countries are perceived as risky by foreign investors because of macroeconomic instability. The result of these two factors can be appreciated in the following graph.

FIGURE 10 RISK AND LOCAL/FOREIGN FINANCING[cii]



Source: IFC

There are three main classes of financial risk that can now be covered using the available market instruments: interest rate risk, exchange rate risk, and commodity price risk. In order to make use of such instruments, it is recommended that developing countries reach an acceptable level of financial ratios, such as the ratio of floating to fixed rate borrowing, debt service to exports, currency composition of assets/liabilities, and floor for key commodity prices in dollars.

The financial instruments available are basically forward market contracts, options, and swaps. For developing countries, the transactions required might be too large for the markets where theses instruments are traded and over-the-counter market contracts may be necessary. Due to the creditworthiness of the countries in question, such a deal in the over-the-counter market may be hard to do; here is where World Bank guarantees can facilitate developing countries in making use of these instruments. As governments have chose to let previously administered rates to respond to market force, interest rates, exchange rates, inflation rates, and commodity prices have shown much greater variability than in the 1980's; the financial service sector has responded to the increase in variability by offering financial derivatives that make it possible to manage many of these risks.

TABLE 5 RISK MANAGEMENT PRODUCTS[ciii]

	Over-the-Counter (OTC)	Exchange Traded
Fix: rate/price	Interest rate swaps Forward rate arrangements Currency Swaps Currency Forwards Commodity Forwards Commodity Swaps	Interest rate futures Currency futures Commodity futures
Insurance: (option on) Rate/price	Caps-Floors Interest rate Swaptions Currency options Currency swaptions Commodity Options	Interest rate options Currency options Options on currency futures Commodity options
Features:	Tailor made No market risks Less liquid Credit risks Price includes fees Available from Financial Inst.	Standardized Market Risks Liquid No credit risk Brokerage + fees + margin call Traded on several exchanges

Source: Marcus Fedder, The World Bank

TABLE 6 RISK MANAGEMENT IN PROJECT FINANCE[civ]

Risk to Lender	Risk Mitigation
Project Performance	Experienced sponsors with significant equity share
High cost of Service	Competitive entry
Sponsors sell out	Share retention agreement
Project Completion	Sponsor support until completion
Delays	Construction/equipment contracts
Cost overruns	Contingency amounts in cost estimates
Site availability	Land Use agreement
Skilled Labor	Training provided by suppliers and advisers
Technology	Proven technologies
Nonperformance	Performance bond/guarantee
Market Risk	Independent market assessment
Payment Risk	Sell to creditworthy buyers; Govt guarantees
Financial	
Debt service coverage	Agreement until acceptable D-E levels
Security	Mortgages
On-going Concern	Staged Disbursements
Country Environment	Lower risks when governments adopt clear policy
Expropriation	IFC accepts this risk
Regulation	Contractual Agreements
Concession revoked	Transparent award process; buyout clause
Legal Framework	Change in law risk assumed by government
Environmental approval	Independent assessment
Foreign Exchange	Agreement with central bank for foreign exchange availability

Source: The World Bank

VI. STRATEGY & CONCLUSION

During the 1990's the developing world witnessed a virtual revolution in the form of a new type of investment in infrastructure. Due to insufficient investments, growing pressures on government budgets, and a concern about inefficient service, the private sector has become a key player in providing financing as well as operational expertise in infrastructure. The driving force behind this development has been FDI. Although these changes and their impact have been remarkable, it has not been a smooth process due to political challenges, social concerns, and the difficult of creating an environment acceptable to private investors.

Private Participation in infrastructure is here to stay, and as more developing countries are opening up to private financiers, the policy debate has changed from "whether to" to "how to". The unavailability of debt remains a significant constraint in many private infrastructure projects. Given the size of financing needs, particularly in relation to the size of financial sectors in developing countries, foreign lenders play a major role. The government's task is to introduce stable regulatory regimes and contractual agreements to mitigate the risks that scare off foreign investors.

The appropriate assessment and mitigation of risk is key for any successful project finance transaction. Under the right conditions, and with appropriate preparation by the government, PPI projects are possible even under difficult circumstances. Consequently, when considering the involvement of private investors in a country's infrastructure, governments are advised to build a strong policy framework that takes into consideration investor needs. In general, each government should[cv]:

1. Review the existing institutional structure responsible for PPI projects
2. Review the country's legal framework to see whether it addresses investor requirements appropriately
3. Evaluate the effectiveness of the existing regulatory environment

In many developing countries, the successful implementation of FDI in infrastructure requires a careful review of the business environment for such investments along with any necessary reforms of the policy framework. Most important, the organization of the existing service provision should be restructured to allow for effective participation and competition by private sector operators. In

short, involving the private sector in a country's infrastructure is not something that can be approached in an unplanned manner.

The privatization of infrastructure has been the subject of intense debate and analysis in Honduras since at least the mid 1990s, but with somewhat disappointing results. Using different framework laws for certain of the most important sectors, the government's approach has contributed to confusion and inefficiency, has probably strengthened the hand of interest groups who oppose or wish to slow down privatization and has made it more difficult to arrive at a supportive national consensus for the process.

With a per capita GNP of US$730 in 1998, Honduras ranks among the lowest-income countries in the Western Hemisphere. During the 1980s it faced a prolonged economic decline triggered by the debt crisis early in the decade, a large and inefficient public sector, extensive administrative controls that discouraged private investment, a trade regime biased against exports, inefficient financial intermediation, low investment in education, and insecure property rights—all of which seriously discouraged savings and investment.

Policy reforms beginning in 1990 sparked a turnaround. By 1993, the economy was growing at over 6 percent, driven by booms in manufacturing and construction. This momentum was lost, however, when the Government loosened the fiscal reins in the run up to elections in the same year, forcing the succeeding Government to take drastic contractionary policies. Four years later, the Honduran economy was once again recovering, with a GDP growth rate of 4.9 percent in 1997, coupled with falling inflation and a manageable balance of payments deficit.

Private investment in infrastructure, like investment in education, is a way to build cost advantages for investors in Honduras. The private investment not only brings capital to finance expansion of infrastructure services, but it also brings improved management and technology. This can bring efficiency gains in the form of lower rates and improved quality through better maintenance, fewer outages and reduced losses. Better quality and availability of infrastructure services is important in a small economy such as Honduras where most FDI comes to serve export markets, and hence must compete with firms in other countries. Easily available, good quality and reliable telecoms and

electricity, as well as rapid and dependable ports and airports, are crucial for any country wanting to attract export-oriented foreign investors.

In December 1994, financing closed for the first independent power project in Honduras[cvi]: the 60MW, US$70 million Elcosa Project. The project represented one of the largest private investments in Honduran history and mobilized the first commercial lending for the country in 12 years. Honduras represents one of the highest risk country environments to see a PPI come to closure; five factors enabled this:

1. The Multilateral Investor Guarantee Agency (MIGA) extended expropriation, war, and civil disturbance cover to the main sponsor, who was then allowed to transfer the coverage to two new equity investors. Separately, MIGA extended cover to two commercial banks that lent $10M each (Inter-American Development Bank and Deutsche Entwicklungs Gesellschaft). MIGA's political risk guarantees to private infrastructure companies have expanded sharply. Its multilateral status means that its participation in a project enhances confidence that the investor's rights will be respected.
2. The government guaranteed that the buyer, the state-owned national electrical utility, would meet its contractual obligations.
3. The government was motivated by severe energy shortages.
4. A strong foreign sponsor (Warstila), a company experienced in building and operating diesel engine-powered plants, participated in the transaction.
5. IFC's presence helped bring in the commercial banks, under a syndicated loan. The Netherlands Development Finance Company also provided financing.

What made this project possible was the fact that risk was eliminated, the government provided huge guarantees, and recognized and respectable institutions were behind the project. The government basically had to take this project by the hand in order to assure its completion; unfortunately, there are rumors that there was corruption behind the government approval and guarantees. The Elcosa project in Honduras was followed by bids to outsource more capacity. Countries in similar conditions can take the e

FDI has not been a more dynamic force in Honduras in part because of the poor reputation of the country in the international investment community. Action in the following areas would enable the

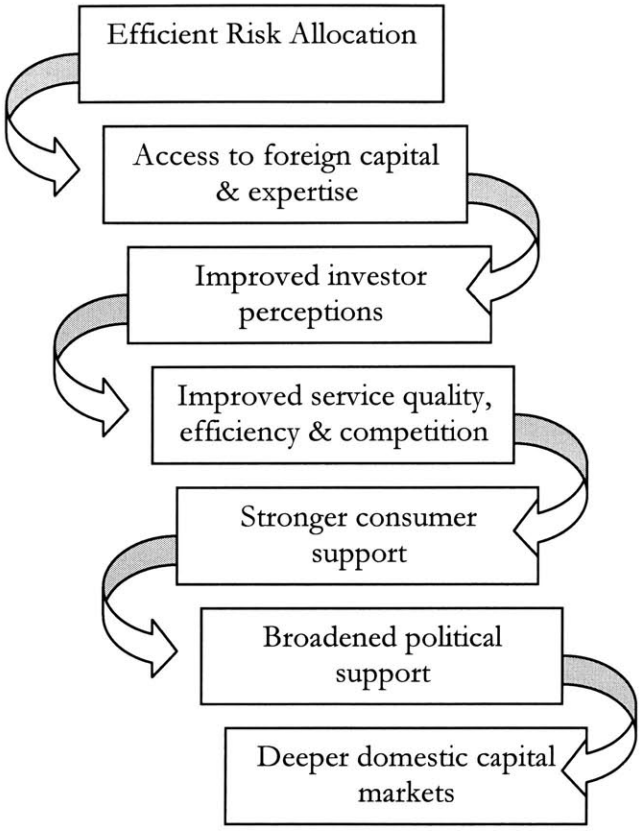
country to both markedly improve its investment environment and deal with the negative perceptions that now permeate the foreign investment community. These five areas are as follows:

- Deregulation, focusing especially on business establishment.
- Improving the legal system, including improvements in the judiciary, protection of private property, better access to legal information, and better processes drafting and implementing laws.
- Further opening of the economy to increase competition.
- Privatization of infrastructure to both attract FDI and to improve the provision of infrastructure services.
- Improving education. resolution.

It would be worthwhile for Honduras to invest in a transparent legal, regulatory and institutional framework to govern both the concession phase and the operations phase of such investments. Chile, for example, has created such a framework and has succeeded in privatizing a wide range of infrastructure services. In Central America progress has been more sporadic, but Guatemala (telecom, electric power and rail operation) and El Salvador (telecom and power) have been among the leaders.

FDI in infrastructure is a relatively recent phenomenon that presents tremendous opportunities for investors and governments alike. Investment volume in the various infrastructure sectors in developing countries grew dramatically during the 1990s. Countries that have successfully attracted such investments have generally benefited from efficiency gains, reductions in service charges, while alleviating government budgets. The benefits that result as a consequence of privatization are shown in Figure 11.

FIGURE 11 BENEFITS FROM INFRASTRUCTURE PRIVATIZATION AND COMPETITION[cvii]



Source: IFC

Foreign direct investment (FDI) has the capacity to play an important role in the transformation of a developing country into a modern and dynamic economy. Yet small poor countries such as Honduras start with a disadvantage in attracting the amounts of FDI that will contribute to the transformation of their economies. Their domestic markets are small and access to markets is one of the most powerful factors motivating FDI. What is significant about the previous figure is that it illustrates the importance of international capital in the development of domestic capital, and what has to be done in order to be able to access the international capital markets.

Successful small countries have all done three things to create their own advantages and thus overcome the barriers to FDI inherent in their size[cviii]:

- First, they created a competitive policy framework for foreign (and domestic) private investors.

•Second, they focused public and private resources to create advantages so that private investors could better compete in international markets.

•Finally, they targeted and actively promoted investment by foreign firms.

A good framework for private (especially private foreign) investment in infrastructure sectors includes several elements. First, a framework for establishing private infrastructure service providers is needed. In addition, a framework that can determine the future operating environment of any service provider in a market – private as well as public – needs to be established. This framework should be based on technical criteria independent of political interference. It should consist of the following elements[cix]:

•First, an institutional framework is needed to formulate potential investment projects, obtain alternative proposals from different private investors, and evaluate the bids. The institutional framework has to provide for inter-ministerial coordination and expertise in areas, such as private financial structuring and complicated contractual arrangements, which are not normally found in government bureaucracies.

•Second, the legal framework for private (including foreign) investment in infrastructure needs to be put in place. Sometimes this means only amendment to existing laws. In many developing countries, however, governments have decided to put in place entirely new legislation geared toward establishing the framework especially for concession-type investments across infrastructure sectors. Countries such as Brazil, Hungary, and Chile have found new concession legislation to be a useful tool in facilitating the implementation of individual projects. As a result, Chile has succeeded in financing 45 concession projects worth approximately $6.2 billion.

•Finally, private investors in infrastructure need a regulatory framework that provides transparency regarding the future operating environment and minimizes the risk of undue interference by the government during the operating phase. The regulatory framework, of course, also would protect the public interest against private monopolies in sectors where it is not possible to foster competition. To provide these benefits to both the investors and the

public, regulatory agencies need to be established with a substantial measure of independence from the political functions of the government.

Evidence suggests that IFC-financed PPI projects have yielded operational efficiencies and good construction performance[cx]:

- Construction: projects were on average 3% under budget and 5 months late.
- Good early operational performance: several power projects have exceeded performance targets
- Positive stakeholders: successfully financed PPI projects have been followed by more infrastructure deregulation and privatization, suggesting that PPI projects are meeting consumer and government expectations.
- Unexpected events have not been serious enough to derail projects: good project structuring, adjustment by investors, and flexibility by lenders and governments means that nearly all projects have remained operational.

Lessons from IFC's Projects[cxi]:

- Tariffs: lags may occur between cost increases and tariff adjustments, especially in periods of high inflation.
- Management: strong local management may prove to be a key for success.
- Competition: competitors may aggressively price down to marginal operating cost; also, waiting lists for services may give way for new competitors to arise.
- Equipment: an option might be to lease existing infrastructure to enable quick growth during market entry stage.
- Contractual agreements: governments need to promote competition in supply arrangements by liberalizing procurement restrictions and privatizing state monopolies.
- Conflicts of interest: transparency of the contractual agreement is critical.

Conclusions that have emerged from IFC's experience in financing infrastructure projects in developing countries [cxii]:

- Successful transactions help policies to evolve

- With political commitment, private infrastructure projects can be financed even in relatively difficult environments, provided that they are properly structured to match rewards to risks
- The uneven pace of private infrastructure growth is due to varying degrees of political commitment to liberalization in the sector
- Private entry and competition are producing gains in construction and operational efficiency
- There is no single PPI method; the options depend on the country's creditworthiness, extent of political commitment, and investor interest
- Well-structured PPI projects can be financed in countries with low income and/or high risk
- There is often a link between financed transactions and further policy changes
- There is some evidence of increased local financing
- Stronger competition within infrastructure markets; local investors are likely to play a larger role
- More projects will be at the sub-national level, concentrated in municipal and provincial governments
- Domestic savings are likely to play a bigger role in financing private infrastructure projects; this is important in order to broaden the participants of PPI, enlarge the pool of funding, and mitigate foreign exchange risk. If additional funding will come from the domestic capital market, this requires a strong macroeconomic framework and a solid financial infrastructure, as well as attractive investment opportunities.

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