

# ***CAPITAL MARKETS: AN ENGINE FOR ECONOMIC GROWTH***

RESEARCH  
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## SECTION 1/ INTRODUCTION

Economic growth in a modern economy hinges on an efficient financial sector that pools domestic savings and mobilizes foreign capital for productive investments. Absent an effective set of financial institutions, productive projects will remain unexploited. Inefficient financial institutions will have the effect of taxing productive investment and thus reducing scope for increasing the stock of equipment needed to compete globally. The effect is to substantially cut growth from what would have been possible given appropriate policies and market structures.

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This paper covers many of the major economic aspects of the link between growth and capital markets. Section 2 examines in detail the links between the financial sector and economic growth. One important component of a well-functioning financial system is the stock market; Section 3 of this paper reviews the latest research on this subject and presents empirical evidence indicating that stock markets are indeed important to economic development. Of paramount importance is their efficiency. This means that assets are traded at “fair” prices: the seller does not sell too cheaply, and the buyer does not pay too much for the asset. To function well, there must be a large group of traders, and information about the assets must be readily available. Finally, particular care must be paid to the structural characteristics of the market to ensure that the trading process is enhanced rather than hindered.

Underdeveloped or poorly functioning capital markets typically are illiquid and expensive, which deters foreign investors. Direct investment is adversely affected if raising local capital is difficult and costly. Illiquidity and high transaction costs also hinder the capital-raising efforts of large domestic corporations and may push them to foreign markets. In Section 4, we explore the relationship between global capital market integration and economic growth. A country that restricts its capital markets not only is less attractive to foreign investors but also imposes major economic penalties on local companies. This reduces growth rates below their full potential and specifically makes competing in world capital markets more difficult for domestic firms.

Section 5 concludes the report with some policy recommendations that would effectively open equity markets and thereby increase economic growth rates.

## SECTION 2/ THE LINKS BETWEEN FINANCIAL STRUCTURE AND GROWTH

### 2.1 OVERVIEW

The existence of a link between financial development and economic growth has long been debated by economists. In the 19th century, economic theory held that the financial structure of an economy did not affect real economic variables, including economic growth. More recently, leading economists came to believe that unregulated capital markets perform better than regulated markets. Hence, the existence of competitive financial markets should, in principle, enhance economic livelihood. Indeed, early empirical work by Goldsmith (1969), McKinnon (1973), and Shaw (1973) produced considerable evidence that liberal financial policies correlate positively with growth.

In the last few years, interest in the link between financial development and economic growth has surged. The World Bank is currently sponsoring research programs that will provide detailed empirical evidence on these links (see, e.g., Demirguc-Kunt and Levine 1993). Recent theoretical literature on financial development and growth<sup>1</sup> identifies three fundamental channels through which financial structure and growth are linked:

- Financial development increases the proportion of savings that is funneled to investments.
- Financial development may change the savings rate and hence affect investments.
- Financial development increases the efficiency of capital allocation.

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<sup>1</sup> Pagano (1993) provides a useful survey of this literature.

Efficient capital allocation means that funds are allocated to the investment projects or firms that bring the most value to the economy: the value of the marginal product of capital value is the highest. Efficient allocation is undoubtedly the primary role of financial institutions and generally is believed to be far more relevant to growth than the other factors (e.g., see Stiglitz 1989). Consequently, the capital allocation process receives considerable scrutiny in Section 2.4, after the first two channels identified above have been discussed. Additionally, Section 2.5 contains an evaluation of the different arguments presented and an assessment of the role governments might play in financial development.

The recent recognition of finance's importance to economic progress is a major advance from earlier models, which focused exclusively on technological progress as the main engine of growth. The new model of economic progress shows that growth can be self-sustaining without technological progress (see Lucas 1988). The main mechanisms of growth are the positive externalities associated with productive investments on the rest of the economy. An externality is a benefit or a cost that individuals or firms do not receive or bear. Some concrete examples appear in conjunction with the caveats offered in Section 2.5, since the idea of externalities not only explains the role of financial intermediation in achieving economic growth but also provides a potential role for government to play in the growth process.

## 2.2 EFFICIENT FINANCIAL INTERMEDIATION

The process of funneling savings to firms and entrepreneurs requires efficient financial intermediation by banks, savings and loan institutions, investment banks, mutual funds, and insurance companies. Without a formal financial system in place, informal markets will perform the same task, although less efficiently. Of course, while aggregating the household savings and turning these into effective investments, financial intermediaries absorb some resources themselves. These resources may take the form of wages for their personnel or of funds kept within the financial system (i.e., not invested) to accommodate withdrawals from savers. Such uninvested funds are called *reserves*.

Financial institutions that are not sufficiently developed will fail to perform financial intermediation efficiently. They may either fall short of receiving all potential savings

from households or divert too many of the savings away from investments. With underdeveloped financial markets, for example, individuals may allocate some of their savings to passive instruments, such as gold, which cannot be used directly for physical investment. Savers may hold gold because they are concerned about a future loss of purchasing power. This concern might arise from lack of stability in the banking sector or from the existence of government-imposed interest rate ceilings. In the latter case, individuals would be concerned that the inflation rate would exceed the ceiling and, hence, the real value of their savings would be eroded.

Thus, investment outside the financial sector, such as in gold, can be viewed as a diversification of risks caused by an underdeveloped sector. This underdevelopment can be exacerbated by ill-designed regulations, such as interest rate ceilings. Such perceived risks would disappear as financial institutions gained a reputation for stability and for providing a market-determined rate of return. Accordingly, more savings would be channeled to the financial sector. The bottom line is that the development of efficient financial institutions does increase the amount of funding funneled to investment and therefore to economic growth.

### 2.3. EFFECT ON THE SAVINGS RATE

The degree of development of the financial sector may also affect the savings rate of households. Since savings contribute to investment financing, economic growth is affected. However, evidence is ambiguous as to whether a more developed and efficient financial sector would increase the proportion of income that individuals save.<sup>2</sup> This may seem counterintuitive. As the financial sector

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<sup>2</sup> In an open economy, of course, foreign savings can be used to finance domestic investments, and such savings should be an important source of funds for developing countries (see argument below). When a country is borrowing from abroad, it is said to run a current account deficit. If the borrowed funds are channeled into productive domestic investment projects that pay for themselves with the revenue they generate, current account deficits should pose no problem.

develops, the real return on savings will likely increase. With a more competitive financial system, the profit margin that financial intermediaries charge (for example, the difference between lending and borrowing rates of banks) decreases. In addition, the competitive environment causes firms to waste less resources. Consequently, savers are offered higher returns.

A higher real return on savings, however, does not necessarily translate into higher savings. The level of savings is subject to two countervailing effects. The decision of the household on how much to save depends on its preference with regard to present versus future consumption. With a higher return on savings, consuming in the future becomes relatively cheaper. The higher return induces the household to give up current consumption for higher consumption in the future: the household's members save more. This is called the *substitution effect*. However, the higher rate of return on savings implies that the household needs to save less to obtain the same level of future consumption as before. In a sense, the higher rate makes the household wealthier, so it wants to consume more today. This is called the *income effect*, which leads to a lower savings rate. Empirical studies have not provided a conclusive answer as to which effect dominates; that may vary across the population.<sup>3</sup>

The insurance function of financial institutions also has ambiguous effects on the savings rate. Financial markets provide insurance against liquidity shocks. For example, in the absence of banks or stock markets, individuals need to put aside cash for unforeseen emergencies, such as a job layoff. They cannot invest all their savings in physical assets, such as factories, buildings, machinery, and technologies, because these assets cannot be easily liquidated. Banks pool individuals' savings and create liquidity by setting aside a certain amount of these funds to accommodate households that suddenly must use their savings. Hence, individuals who face a liquidity shock get their savings back by withdrawing deposits from the bank or selling stock. Keeping a personal cash reserve is no longer necessary. Clearly, more savings will be channeled to physical assets, but whether individuals will increase aggregate savings is not clear at all.

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<sup>3</sup> However, Giovannini (1985) finds that savings respond favorably to higher interest rates but that this positive effect is quantitatively small.

Similarly, financial development will also increase the accessibility of consumer credit and mortgage loans. The improved borrowing opportunities offered by these markets lead to reduced (or negative) savings among young households and decrease the funds available for investment. This can be detrimental to growth.

In summary, the development of financial institutions will facilitate saving and investment, but the impact on the savings rate is complicated.

## 2.4 AGGREGATION AND ALLOCATION FUNCTIONS OF THE FINANCIAL SECTOR

The primary functions of financial institutions are to aggregate household savings and allocate these funds to investment projects. The aggregation of savings is essential since the funds required for many investments are typically beyond the capabilities of any single investor. By pooling the savings of many households, financial intermediaries enable the undertaking of large-scale projects.

Allocation refers to the selection of investment projects by the financial sector. Information gathering by financial intermediaries is an essential part of their role in this (see Collier and Mayer 1989; Stiglitz 1989). Typically, the value of an investment project is not readily available to potential investors, and determining this value requires a costly analysis. Suppose an individual undertakes this analysis but additional investors are needed to raise the required capital. Each new investor in the project must incur the same cost of analysis because usually no credible way exists to disseminate this information from one investor to the next. The informed investor may have no incentive to reveal the true value of a project to other potential investors. On the contrary, he or she may try to exploit any informational advantage for personal gain. For example, to attract funding this person may want to overstate the returns other investors would garner from this investment.

*These  
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Financial institutions, on the other hand, would have already pooled the necessary capital from individuals. If information needs to be disseminated, these institutions have significant incentive to be credible with their reporting.

Thus, from an informational viewpoint, financial institutions are better suited to fund investment projects. They analyze potential projects to determine the value and then fund those projects with the highest net value. This information-gathering and selection process is usually referred to as the *screening function* of the financial sector.

Some financial institutions, such as banks, also overcome what is known as the “moral hazard” problem after a project is selected for financing. Financing a project typically involves transferring funds to the firm or entrepreneur undertaking that project. However, investors do not know that the funds will be used efficiently by the project administrator, who may use the funds for personal benefit. Clearly, small firms and entrepreneurs are more susceptible to this temptation (i.e., moral hazard). Banks overcome this problem by monitoring the firm’s progress after a loan is made. Such monitoring would be too expensive for individual investors to carry out.

Greenwood and Jovanovic’s (1990) formal model of economic growth builds on this intuition. Through screening or monitoring activities, financial intermediaries generate information that positions them better to choose the best investment projects to fund than are households, which typically possess less comprehensive information. Suppose there are a safe, low-yield technology and a risky, high-yield technology. Projects using the high-yield technology are subject to an aggregate, economywide shock (unexpected recession) and a project-specific shock (unexpected shortage of key project ingredient). When the aggregate shock lowers the return on risky projects, it is advantageous for the economy to invest temporarily in the safe technology; otherwise, funds should be directed to the high-risk sector. In the model of Greenwood and Jovanovic, intermediaries collect information on many projects, which allows them to infer the nature (good or bad) of the aggregate shock and to direct funds to the highest-return sector at the right time. Hence, allocating savings through financial intermediaries is more efficient and leads to a higher productivity of capital, resulting in higher growth. Economic growth, in turn, leads to higher levels of intermediation since intermediation is now more profitable. Hence, an efficient financial sector may lead to higher economic growth, and economic growth itself furthers financial development.

Finally, financial intermediaries ensure more efficient capital allocation by allowing firms and households to share risks. As mentioned before, households generally need to set aside cash for unforeseen future outlays; they cannot allocate their savings into illiquid, though perhaps higher-return, investments. Since not every household needs cash for emergencies at the same time, financial institutions such as banks are able to provide liquidity to many households without keeping large cash balances, by aggregating savings of many households (e.g., in the form of demand deposits). Similarly, well-developed stock markets allow households to convert part of their savings into cash by selling some of their stock holdings. A larger portion of total savings is then lent out for investment purposes and channeled to illiquid but more productive investments. This raises the productivity of capital and leads to faster growth.

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and households  
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Apart from liquidity risk in economies that lack financial markets, households also face rate-of-return risk. Without sophisticated financial markets, in particular stock markets, individual households would have difficulty investing in many different investment projects. Suppose a household has \$100 available for savings. It is approached by an entrepreneur with a project that offers an uncertain return. The investment project may pay \$125 when everything goes well, but it has an equal chance of paying only \$95. Although this project has an expected payoff of \$110 (i.e., a return of 10%),<sup>4</sup> the investor may be reluctant to invest because the return is volatile: it is either very high or low. The volatility of this investment can be computed to be \$15. That is, \$15 is the average variation of the payoff around its expected value of \$110. If the household could reduce volatility to a lower number, it might be willing to undertake the investment.

<sup>4</sup> The expected return on the investment is computed as the sum of the possible returns weighted by their probabilities. If the investor renewed an investment with the same profile (\$125 payoff when times are good and \$95 when times are bad) and the true probability of a "good time" is actually 50%, the investor should expect on average to earn \$110 on his \$100 invested.

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Now suppose that a stock market exists. The household can invest \$10 each in 10 different firms, representing 10 different investment projects. Thus, the household has diversified its portfolio. Diversification will always reduce the volatility of the total investment as long as the returns on the different projects are not perfectly correlated, that is, as long as they do not move together one-for-one.

For example, suppose all projects offer the same return profile as the one discussed above, but they are in different industries that are independent of each other.

The expected payoff on the portfolio would still be \$110 (10% return), but its volatility would drop to \$4.70. Whatever happens, the investor is virtually assured a positive return.<sup>5</sup> If one project fails, other projects may produce high returns compensating for the loss of the bad project. That is the power of diversification. Of course, it is made easier by the existence of sophisticated financial markets.

The idea of liquidity insurance through banks was incorporated by Bencivenga and Smith (1991) into a growth model. Banks increase investment efficiency by directing some of the funds to illiquid assets and by preventing early liquidation of valuable projects; the growth rate is increased by higher returns on investment. Other, related research is reported in Levine (1991), who emphasizes the liquidity created by stock markets. In Levine's model, some individuals face liquidity shocks and need cash. Absent stock markets, individuals must withdraw capital invested in firms, which may require the liquidation of assets, such as machinery and computers. The reduced capital base in firms in turn will hurt productivity by removing capital. For example, the fact that one firm devotes less resources to research and development has negative effects on the whole economy. As a consequence, investment returns will fall along with the overall rate of investment. With the creation of stock markets, individuals can, by selling their stocks to other investors, transfer ownership without affecting the capital invested in firms. In

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<sup>5</sup> From statistics, we know that the realization of the return will not likely deviate from its expected value by more than two times the volatility number.

addition, individuals can diversify firm-specific risks, thus making investment in firms more attractive.

Similarly, the possibility of financial diversification affects the nature of projects entrepreneurs undertake. The ability to diversify sectoral risks through the stock market results in increased specialization and consequently in increased productivity.

Consider the example of a firm in the textile industry. Suppose that this firm can either invest in additional production facilities or diversify into the service industry. Given the firm's existing technology and experience, the additional investment in textiles has a higher return, but it increases the firm's risks. If the firm invests more in textiles and this sector suffers a downturn, the firm may go bankrupt. Investors may not want to invest money in such an endeavor if diversifying this specific textile-sector risk is difficult or costly. Therefore, in the absence of efficient hedging opportunities for investors, the firm may forgo the higher-return investment and choose the less risky investment. On the other hand, this firm will probably choose the better project (specializing in textiles) if potential investors can diversify their risk through the financial sector.

This idea is presented in Saint-Paul (1992). In his model, firms choose between two categories of technologies, a flexible and low-return technology versus a specialized and high-return technology. As long as firm-specific risk can be diversified, firms will invest in the latter category, which leads to two possible outcomes (*equilibria* in the economist's jargon). In the high equilibrium, stock markets are developed and firms are specialized, resulting in high returns and accelerated growth. In the low equilibrium, firms choose flexible technologies leading to slower growth.

## 2.5 CAVEATS

The importance of financial markets in general should not necessarily be taken as justification of a consistent public policy of supporting free markets. Economists have shown that high-growth countries have in fact successfully "guided" economic decision making by the private sector. Japan, South Korea, and Taiwan (among others) have had stellar economic growth with tightly regulated financial institutions. Conversely, the economy of Chile almost collapsed after financial deregulation, and extensive

deregulation during 1980–1984 failed to significantly boost the Philippine economy. Whether Japan and South Korea would have been worse off under a completely liberalized financial system is not clear. However, their experience suggests the need to consider the circumstances where government intervention is required to achieve growth. Beason and Weinstein (1994) show that the Japanese government consistently subsidized low-growth industries.

Critical to this perspective is an emphasis on the concept of externalities (briefly introduced in 2.1 above)—for example, promoting investment in a computer factory where technology and skills, once developed, will have wider benefits to the economy than indicated in the market-determined return on capital. In particular, the creation of human capital (education) benefits the whole economy and might provide the impetus for a more general industrialization. Such externalities may motivate government intervention to promote investments whose economic returns are underestimated by purely financial analysis.

Institutional constraints may also make complete reliance on free markets inefficient in terms of growth. Hellmann, Murdock, and Stiglitz (1994) suggest that government interventions in financial markets may be justified at extremely low levels of development, such as those encountered in parts of sub-Saharan Africa. In such settings, deposit collection is extremely poor because of inadequate infrastructure. A network of rural branches may require large fixed costs before banks earn returns on their investments. One method of subsidizing such infrastructure would be government-fixed interest rate ceilings,<sup>6</sup> which could encourage banks to seek out new sources of deposits even in remote rural areas. This may lead to increased savings being channeled to the financial sector and ultimately into productive investments, fostering economic growth. Such a policy also runs the risk of promoting the development of extremely inefficient financial institutions that, in effect, consume any economic payoff from improved accumulation of savings deposits.

Another key problem with government intervention results from the incentive structure facing financial institution managers. Poorly capitalized banks may have an incentive to

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<sup>6</sup> Hellmann et al. also discuss controls of the lending rates.

invest in very high-risk investments. Their gamble might pay off, and they will end up being very profitable to their private owners and managers. The cost of failure, in contrast, can be shifted to the public sector through deposit insurance, given the political costs of allowing households to lose their savings as a result of imprudent bank management.<sup>7</sup>

Households may cut their savings rates in the face of frequent banking crises. Risk-averse households will only deposit their wealth with financial intermediaries if they are highly confident that their funds remain safe and can be withdrawn at will. The government's role in this situation is to create an environment in which banks create financial stability. One way to do this, according to Hellmann et al. (1994), is to make providing financial intermediation services more valuable for institutions.

For example, an interest rate ceiling on deposits will make the business of banking much more profitable, since the spread between the lending rate (the bank's revenue) and the deposit rate (the bank's cost) becomes wider.

Such a step is not without its own problems. Success for a policy of financial restraint requires limiting the competition in banking. Yet, even theoretical advocates of this approach emphasize the real-world risks: distributional distortions can result, and the costs of such policies have generally outweighed the benefits. Finally, and most important, Hellmann et al. stress that this policy should be phased out as soon as the financial sector is sufficiently developed.

Collier and Mayer (1989) argue that governments should first intervene heavily to overcome the shortcomings of the capital markets; afterward, as large and reputable firms

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<sup>7</sup> This is a classic moral hazard problem that exists in every banking sector. Many countries have in place, for the deposit holders, deposit insurance schemes, that tend to aggravate the problem. However, even without such schemes, the government would find it difficult not to rescue failing banks.

and banks emerge in the economy, the deregulation process can be commenced. The main shortcoming of financial liberalization, according to Collier and Mayer, is that competition among banks may force them to seek more liquid (low-value) investments. To see this, suppose that one bank decides to increase its interest rate above the interest rates paid by all other banks. Investors will withdraw their deposits from other banks and deposit them with the bank offering higher interest rates. This in itself does not change total savings, but banks, afraid that such deposit shifts may happen in the future, may want to hold more liquid funds to accommodate them, hence reducing funds channeled into productive investments.

However, not even the strongest advocates of financial market intervention argue that the real return on savings should be artificially kept negative. That is, the interest payment the household receives on its savings account should at least match the rate of inflation. Ample empirical evidence suggests that negative real rates of return are negatively correlated with economic growth (Fry 1988).

Also, ample empirical evidence exists to show that well-intentioned government interventions can have unintended economic consequences. Institutions created to address perceived market failures have often compounded the problems they were designed to solve. State development banks with subsidized access to capital were justified on the grounds that projects with major growth potential for the economy as a whole were not being financed through private market channels. Such institutions, economic theorists suggested, could better assess the total benefits from projects, including their externalities. As a practical matter, the majority of those institutions throughout Latin America and South Asia have proven to be failures. Even the experience in South Korea and Japan with purely governmental development banks is far from a clear-cut success. Indeed, the World Bank, which was responsible for the development of such institutions, has abandoned its previous emphasis on these banks after a careful review of their economic performance.

## 2.6 CONCLUSION

To review the main links between growth and the financial sector, consider Exhibit 1. Households are net savers, and their savings are used by entrepreneurs to invest. The rate

of growth in a particular economy directly depends on the savings rate of the households, the efficiency with which savings are channeled into investments, and the return on investments. Introducing an efficient, competitive financial sector between the dispersed households and entrepreneurs results in the following:

- Transaction costs associated with funneling savings into investments are reduced.
- Transaction costs associated with the trading or liquidation of assets are reduced, so that household savings remain highly liquid.
- Information on investment returns is efficiently gathered, enabling selection of efficient investments.
- Markets for diversification of risks by households and firms are provided.

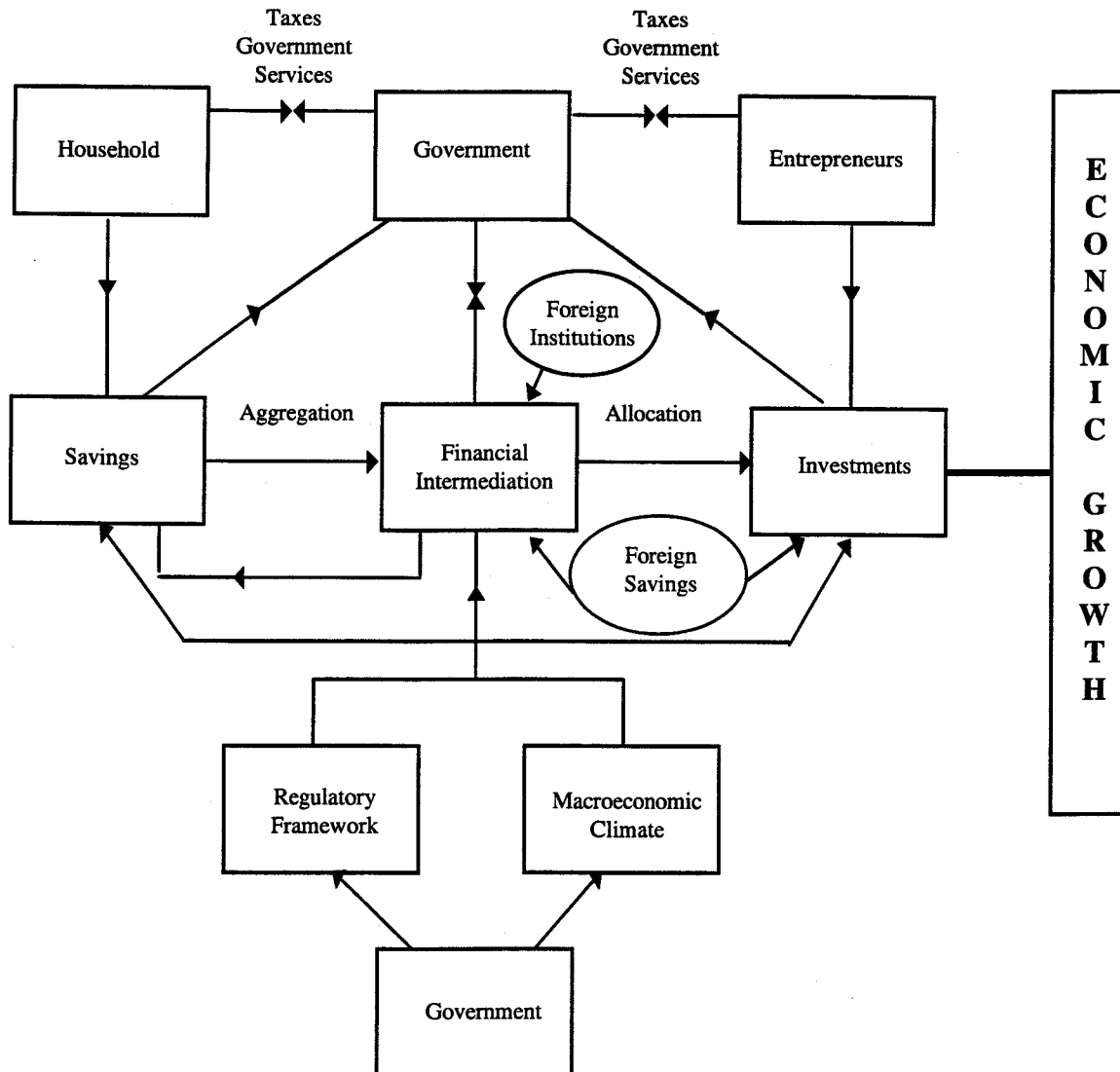
As the line emanating from the financial sector back to the savings box indicates, the higher returns for investors made possible by an efficient financial sector have ambiguous effects on the savings rate.

What is the role of the government? The government enters the diagram twice. In the upper part, the government's role as a saver and investor is depicted. The lower part depicts its role as the provider of an overall regulatory and macroeconomic climate for the economy. The government taxes households, firms, and the financial sector to fund its own expenses. If these expenses are primarily aimed at the development of infrastructure or human capital, the government may efficiently add to the capital stock of the nation and boost economic growth. Likely, some of these socially productive investments would not be undertaken by private companies. However, a wasteful government simply absorbs resources that otherwise would have been productively invested.



## EXHIBIT 1

## FINANCIAL INTERMEDIATION AND ECONOMIC GROWTH



The government may also heavily intervene in the financial sector, which is typically the case in many developing countries. Some regulations are aimed at making markets work more smoothly, such as regulations on the disclosure of accounts of firms or regulations that prevent collusion of market makers in financial markets. Other regulations may directly interfere with growth. For example, high reserve requirements on banks will increase the amount of savings that is not channeled into investments, or governments may require banks to buy government bonds at artificially low interest rates, which is sure to stifle economic growth.

As the discussion above shows, economists have reached a consensus that an inefficient, overregulated financial sector will hurt the growth prospects of a developing country. At the same time, financial markets alone cannot ensure economic growth without the availability and accessibility of valuable investment opportunities. These investment opportunities may not be equally distributed over countries at all times. The creation and initiation of such opportunities may require government involvement in developing infrastructure and even in restriction or regulation of financial markets initially. The policy implication is that governments should endeavor to create a legal and structural framework to enhance the creation of investment opportunities and encourage entrepreneurial activities. In other words, in the right institutional environment, financial markets should allocate resources efficiently to the most promising economic sectors, especially since the private sector will likely be better informed about the true growth prospects of different industries than the government will.

***...governments  
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and structural  
framework...***

Also by consensus, governments have a significant role to play in following credible noninflationary policies. High and variable inflation rates create uncertainty in the economy. This complicates investment planning, arbitrarily redistributes wealth, and may lead to negative real rates of return, which siphon off savings. Hence, an important task of the government is to provide a stable macroeconomic environment. Many failures of liberalization attempts may be attributed to the failure of the government to ensure macroeconomic and financial stability.

One part of Exhibit 1 has not been discussed yet: the foreign sector. The potential beneficial impact of foreign savings and the role of globally integrated capital markets are detailed in Section 4. Suffice it to say here that developing countries should be encouraged to import capital from abroad. In fact, from the viewpoint of world welfare, investors in developed markets should invest where the marginal product of capital is the highest. The marginal product of capital and the perceived rates of return should be the highest in developing countries. Consequently, an abundant supply of foreign savings is available when the domestic regulatory framework is right. The domestic financial sector could also benefit directly from foreign expertise in financial intermediation. Hellmann et al. (1994), for example, propose to gradually increase competition in the financial sector by allowing entry by foreign financial institutions. As development progresses, this creates both internal and external pressure for the government to evolve the financial restraint policy described above. If that is not done, bureaucrats running the system may want to uphold the financial controls long beyond any economic justification.

## SECTION 3/ STOCK MARKETS AND ECONOMIC GROWTH

### 3.1 THEORY

A number of issues link efficient stock markets to growth. Atje and Jovanovic (1989) demonstrated such a link. Their empirical result contrasts with the theoretical arguments of some economists who have suggested that the existence of stock markets has little relevance to real economic activity (see Stiglitz 1989; Mayer 1989). The following analysis shows what may be missing in this view that stock markets are not essential to growth and elaborates on empirical evidence that stock markets are in fact positively correlated to sustained economic progress.

The discussion in previous sections indicated some of the links between financial markets and growth, most notably diversification of risk exposure. Through such diversification, firms may be able to choose riskier but higher-return projects, and households may invest more of their savings. Similarly, hedging corporate or market risks may also be beneficial to economic growth. Derivative markets for managing risk cannot function, however, without efficient cash markets. The pricing of options or futures options on stocks requires constant pegging to the underlying asset price, which can only come from stock markets.

The capital structure theory helps to explain the link between cost of capital and efficient stock markets (see Harris and Raviv 1991). One important concept involved is that of unequal information between managers and outsiders in the financial markets. Because the managers typically have more information, the equity may be mispriced in the market from their point of view. Given that they have the choice of borrowing, the managers will issue new equity only if equity is overpriced, or at least priced fairly.

The issue of moral hazard is also considered in corporate finance literature. Moral hazard arises because managers gain from decisions affecting firm value only to the

***Derivative  
markets for  
managing risk  
cannot  
function...  
without  
efficient cash  
markets.***

extent of the shares they hold. Suppose a manager holds 1% of the firm's equity and his compensation (either flat rate or tied to firm earnings) produces most of his income. This manager has an incentive to take actions that maximize his compensation in ways that might have little or nothing to do with maximizing the firm's value. For example, many ways of manipulating earnings can lead to higher compensation. Because the manager's equity ownership is small, he has an incentive to take "imprudent actions."

How can the moral hazard problem be mitigated? One possibility is debt. Debt holdings decrease incentives for imprudent actions in two ways: they increase the fraction of equity ownership held by managers, and they increase the probability of bankruptcy after imprudent actions. Another possibility for mitigating the moral hazard problem is compensating managers with binding contracts that are contingent on long-term performance. Such contracts require a good measure of the long-term value of the firm, which represents the performance of the management team. For example, as mentioned earlier, current profit is not a good measure for this purpose because it can be manipulated and it reflects short-term considerations. Clearly, such a measure should be unbiased, free from manipulation by the management or outsiders, and verifiable.

Verifiability means that if arbitration of the contract is required, the value of the measure should be available directly to the judges. This point is particularly important; without verifiability, the contract cannot be enforced.

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marketplace.***

The latter argument suggests an important use of efficient stock markets. Stock markets are said to be efficient if the stock price incorporates all available information in the marketplace. Thus, the stock price in an efficient market gives us a good measure of the firm's performance and its long-term value. As argued, tying the manager's compensation to stock prices in general would reduce the incentives for imprudent actions and therefore increase the firm's value. Without an efficient market, the manager and the shareholders can still agree

on the value of the firm (which may be different from the value observed in an inefficient market), but such a value cannot be contracted upon because it is not verifiable.

This observation can be extended to the whole economy: an efficient stock market can enhance growth by mitigating moral hazard and consequently increasing productivity. The significance of this effect depends on the magnitude of the moral hazard problem and on the proportion of the economy that is represented in the stock market. Thus, one expects a positive correlation between stock market coverage (total market value as a fraction of gross domestic product [GDP]) and growth from this effect. Also, the gains from efficient stock markets may be greater if disciplining managers through other means is ineffective.

In addition to providing performance measures to be used in employment contracts, the stock market disciplines managers indirectly through change of ownership. If the managers are not doing a good job, the stock price declines below the potential value of the assets. Such firms are then takeover targets for investors, who will increase the value of the shares by replacing current managers. Clearly, managers would refrain from productivity-decreasing actions when faced with the threat of takeovers.

Another key growth contribution of an efficient stock market is its effect on entrepreneurs. An entrepreneur considers not only the profits generated in a new venture but also the possibility of a lump-sum gain through selling the venture to the public. If the stock markets are not efficient, the public offering largely disappears as a result of high transaction costs or the uncertainty of getting a fair price in the stock market. Thus, inefficient stock markets may reduce the incentive to enter new ventures, reducing overall long-term productivity of the economy.

Finally, an efficient stock market reduces the transaction costs of trading the ownership of the physical assets and thereby opens the way for the emergence of an optimal ownership structure. Certain individuals possess the entrepreneurial spirit for "new start" ventures, and such entrepreneurs should be involved in the innovation phase of a firm's development. As the firm matures, they should transfer ownership to another class of investors, one that specializes in running mature firms. The entrepreneurs can then move on to another fledgling company. This is the idea of optimal ownership. Clearly, transferring the ownership of such assets would be very difficult without stock markets.

The idea that stock markets contribute to the economy by providing rewards to innovators is an important one in the model studied by King and Levine (1993).

In the context of stock markets, liquidity is of paramount importance. The effective generation and dissemination of specific information requires easily concluded trading, which in turn implies liquidity. A market is liquid if transactions of large size can be made instantaneously and continuously without moving the price significantly. In fact, all of the benefits listed above will be substantially hindered if the market for stocks is not liquid. Indeed, illiquidity and increased transaction costs are the most important symptoms of inefficient stock markets. Such inefficiencies may be caused by the market power of brokers or other individuals, which increases the transaction costs, and by the dominance of the market by a small number of firms or individuals. The latter may result in the manipulation of stock prices, keeping them artificially low or high to suit the purposes of those in power. However, the net result is the eradication of the gains to be obtained from the stock market. Such inefficiencies can also result in the loss of public confidence in capital markets, leading to reduced participation of the public and thereby making the situation worse.

### 3.2. EMPIRICAL EVIDENCE

As mentioned above, Goldsmith (1969), McKinnon (1973), and Shaw (1973) documented a positive correlation between financial development and economic growth. However, questions remain about causality: does financial development affect growth, does economic growth lead to more financial development, or both? Recent research has not completely resolved the issue but suggests strongly that financial development is an important determinant of future economic growth. The most comprehensive of this research to date is by King and Levine (1993). They use four measures of financial development related to the development of a banking sector.<sup>8</sup> Their findings can be summarized as follows. First, using cross-country regressions, they find that all financial

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<sup>8</sup> The four measures are (1) the ratio of liquid liabilities to GDP; (2) deposit bank domestic credit divided by deposit bank domestic credit plus central bank domestic credit; (3) ratio of claims on the nonfinancial private sector to domestic credit; and (4) ratio of gross claims on the private sector to GDP.

indicators have strong positive correlation with economic growth. Second, and more important, their analysis shows that countries with higher indicators of financial development at one point subsequently had higher real GDP growth rates, more specifically in the next 10 or 30 years. King and Levine conclude, "Our findings suggest that government policies toward financial systems may have an important causal effect on long-run growth" (p. 540).

Work on the more narrow question of input to growth through stock market development has been done by Atje and Jovanovic (1989). They compare the impact of the level of stock market development and bank development on subsequent economic growth.<sup>9</sup> They find a large effect of stock market development as measured by the value traded divided by GDP on subsequent development, but they fail to find a similar effect for bank lending. In their conclusion they write, "It is even more surprising that more countries are not developing their stock markets as quickly as they can as a means of speeding up their economic development" (p. 636).

Of course, one study may not be the definitive answer to this important question, and more empirical work should be done. To complement the evidence of the Atje and Jovanovic study, the authors of this paper computed correlations, for 18 countries, between a number of stock market development indicators and growth of real GDP during the 1986–92 period. The results are presented in Table 1. Six measures of stock market development were considered: number of stocks listed, market capitalization (expressed in dollars), total value traded (again in dollars), turnover ratio (value traded divided by market capitalization), market capitalization divided by GDP, and total value traded divided by GDP. The data are averages of these variables for the period 1988–92 as reported by Demirguc-Kunt and Levine (1993). Eighteen countries were ranked according to these measures of stock market development and according to economic growth, as measured by real GDP growth during the 1986–92 period. All variables were ranked from high to low (e.g., the country with the highest GDP growth rate gets rank one). The authors then computed the rank correlation between the different stock market development measures and economic growth. If the ranks according to economic growth

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<sup>9</sup> King and Levine, and Atje and Jovanovic discuss control for other factors, such as schooling and initial income level.



were to completely correspond to the ranks according to stock market development, the rank correlation would be one. The rank correlations presented in Table 1 are all positive. This confirms that stock market development is positively associated with economic growth.

## SECTION 4/ GLOBAL CAPITAL MARKET INTEGRATION AND ECONOMIC GROWTH

### 4.1 LINKS BETWEEN MARKET INTEGRATION AND GROWTH

Transaction costs are high for foreign investors in many emerging markets. Illiquidity (difficulty in finding a buyer when you are selling and vice versa) combined with taxes (income, withholding, and transaction based) and various capital market restrictions (official registration of securities transactions and exchange controls) makes foreign market participation very costly to many investors. In a discussion of speculators, Bekaert, Garcia, and Harvey (1995) argue that a sufficient mass of foreign speculators is necessary to provide adequate liquidity and market efficiency. This section explores the impact that world market integration has on the cost of capital in developing countries.

***Illiquidity...  
taxes...[and]  
capital market  
restrictions...  
make foreign  
market  
participation  
very costly...***

Recent research by Bekaert and Harvey (1994b) suggests that the cost of capital can be reduced in many emerging markets by increasing their integration into world capital markets. This research proposes a econometric model that examines two possible regimes: segmented capital markets and integrated capital markets. Using historical data, the model reveals the evolution of many markets from closed markets to being integrated into world capital markets. Some countries, however, move in the other direction, from integrated to closed.

Being more specific about the terms *integration* and *segmentation* is helpful. Many emerging markets are segmented. This means that investors are local residents and foreign participation in the local market is limited. Segmentation has many causes; for example, foreigners may be prohibited from participating in the local market. Or the causes may be more subtle in terms of regulatory, institutional, and tax barriers to investment. Nevertheless, a market dominated solely by local investors is not likely to be integrated into global capital markets.

In a segmented market, investors' portfolios are exposed to price fluctuations induced by the state of the local economy. Even though the investor might hold many stocks, this portfolio is not fully diversified, because all of the stocks are linked to the local economy. For example, if a recession or a currency crisis occurs in the local economy, all stocks will likely lose value. How diversified a portfolio is does not matter. Since all the stocks originate within one country, they all are exposed to fluctuations emanating from the local economy. Logically, the investors in the segmented capital market require compensation for their risk. This takes the form of higher expected rates of return, which translates into higher cost of capital.

In integrated capital markets, however, compensation is different: the investor holds securities from many countries. This is a truly diversified portfolio. Whereas local economic events will influence stocks in any one country, the investor has a portfolio that reaches across many national borders. A negative shock (bad news) in one country may be offset by a positive shock (good news) in another country. As a result, the investor does not demand compensation for local market volatility. In other words, the diversified international portfolio provides a natural hedge for country-specific events. The investor, although still concerned about negative shocks in any one country, does not require a risk premium for the lack of country diversification. The expected rate of return on the local stock is determined by how it interacts with all of the stocks in the investor's worldwide portfolio.

As explained above, the expected rates of return on equity (costs of capital) differ in segmented and integrated markets. In the segmented market, the expected rate of return is linked to local market volatility. In the integrated capital market, the expected rate of return is linked to the way the security interacts with a geographically broader investment portfolio. Why then would the cost of capital be lower in integrated markets? First, in emerging capital markets, the local market volatility is very high. This high volatility will increase the cost of capital in segmented capital markets. Second, emerging markets are attractive investments for world investors because these markets serve as a hedge for such investors' portfolios (the local economies are not highly correlated with developed economies). Since the industrial structure of emerging markets is much different than that of developed markets, bad news in developed markets is often cushioned with good news in emerging markets, and vice versa. This natural hedging property is very important. It causes a high demand for the emerging market's securities by foreign investors—if the

emerging market is integrated into world capital markets. This demand raises equity prices and reduces expected rates of return.

This analysis shows that the cost of capital should be lower in integrated capital markets than in segmented capital markets. That many emerging market enterprises are raising capital in the United States through American depository receipts (ADRs) is indirect evidence of a lower cost of capital in world markets. Now attention turns to the mechanism that translates the lower cost of capital into economic growth.

A lower cost of capital has an immediate impact on corporations operating in the developing market. In an environment of high costs of capital, many investment projects are rejected because the projects' rates of return are too low. For example, suppose an investment project could yield an average return of 25% over 10 years. If prospective equity investors require a minimum 30% return, the project will not be undertaken. Lowering the cost of capital makes an additional set of investments attractive. Projects that would otherwise not be undertaken become viable, creating jobs and other benefits to the economy.

*...the cost  
of capital  
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segmented  
capital markets.*

A lower cost of capital also has an immediate impact on multinational corporations' willingness to make direct investments in the emerging market. Suppose the multinational corporation is based in the United States and its average cost of capital (in the United States) is 15%. The investment project in the emerging market promises to yield 25% over 10 years (calculated in U.S. dollars). Will this project be undertaken? Not necessarily. The 15% cost of capital only applies to projects of average risk within the United States. Projects are always evaluated with a cost of capital specific to the particular investment project. The project in the emerging market is not likely to have the same cost of capital as the average project in the United States.

Indeed, if the relevant cost of capital in the emerging market were 30%, the multinational corporation would reject the project with an expected return of 25%. A lower cost of

capital increases the extent to which multinational corporations make a long-term commitment of resources to a country. This type of investment has many benefits to the local economy. It leads to job creation, it is long term in nature, and it often is associated with international expertise being passed on to the local population (transfer of knowledge). These factors contribute positively to economic growth.

## **4.2 EMPIRICAL EVIDENCE**

This section discusses the investment barriers that segment markets from global capital markets and constructs a number of indicators of global capital market integration, examining empirically whether any positive association exists between them and economic growth.<sup>10</sup> Unfortunately, no empirical work linking market integration and economic growth exists to date. Rank correlations presented here should be seen as suggestive of the true interactions between market integration and economic growth. A more formal investigation is planned for the future.

### **4.2.1 INVESTMENT BARRIERS IN EMERGING MARKETS**

This paper distinguishes three different kinds of investment barriers: legal barriers arising from the different legal status of foreign and domestic investors (e.g., foreign ownership restrictions and taxes); indirect barriers arising from differences in available information, accounting standards, and investor protection; barriers arising from emerging market-specific risks (EMSRs) that discourage foreign investment and lead to de facto segmentation.

EMSRs include liquidity risk, political risk, and economic policy risk (macroeconomic stability). Chuhan (1992), for instance, reports that market participants in Canada, Germany, Japan, the United Kingdom, and the United States mentioned liquidity problems as one of the major impediments to investing in emerging markets. In Section 3.2,

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<sup>10</sup> Some of the material here builds on Bekaert (1995).

indicators of market liquidity, such as the turnover ratio or the value traded divided by GDP, were reported as positively correlated with economic growth.

Other EMSRs are related to the notion of country risk. Country risk indicators reflect the likelihood that companies or the government within the country will default on obligations. Credit rating agencies use country risk analysis to construct country credit ratings, which have a direct impact on the cost of funds raised in international markets. Country risk analysis not only reflects political stability assessments but also incorporates economic environment factors. In particular, unstable macroeconomic policies, leading to high and variable inflation, may jeopardize the credit rating of a country.

Needless to say, these barriers to investment are a direct function of the domestic policies pursued in the various countries. Through a number of indirect routes, countries can attempt to integrate their markets with world markets. One route is to allow foreign investment companies to set up country funds that invest solely in the local market. Another is to let domestic companies list securities on foreign stock exchanges (cross-listings), typically through ADRs. These indirect channels of access to emerging markets are covered in more detail in Bekaert et al. (1995).

Table 2 provides information on direct barriers to investment for 19 emerging markets. The first column contains information on the exchange rate regime. Many countries try to peg their exchange rates to the U.S. dollar or a basket of currencies. The second and third columns contain information on foreign ownership restrictions. They can take the form of certain sectors being closed for foreign investment or of direct equity participation limits. Some countries, such as Nigeria and Zimbabwe, are still completely closed to foreign investment. The proportion of the International Finance Corporation (IFC) Investable Index to the IFC Global Index given in the fourth column of the table will help the reader quantify the extent of direct foreign ownership restrictions. The IFC has recently launched indices that take the foreign ownership restrictions into account. The investable market capitalization of each stock is used for its weight in the index instead of the stock's total market capitalization as in the regular global indices.<sup>11</sup>

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<sup>11</sup> More details on how a variety of restrictions on foreign ownership change the weights used to construct the index are provided in *IFC Index Methodology*, issued by the IFC.

A second group of direct barriers to investment consists of exchange and capital controls that affect the repatriation of dividends and capital from emerging markets. Some countries have direct restrictions on the remittance of profits (e.g., a minimum investment period). Column (5) of Table 3 reproduces a coarse rating of 18 countries according to dividend and capital repatriation and general entry restrictions provided by the IFC *Factbook*. The paucity of available information prevents ranking of the countries more precisely according to the severity of capital and exchange restrictions. An indirect measure of these restrictions could be constructed from an analysis of black market premiums, the difference between the black market exchange rate and the official exchange rate. Unfortunately, data on black market premiums are insufficient to allow a thorough analysis. Table 3 also reports information on taxes on dividends and capital gains, a final category of direct investment barriers.

Overall, restrictions have been gradually relaxed, with an acceleration of this process occurring in the 90s. Examples of countries where restrictions have been lifted recently include Brazil, Colombia, India, South Korea, and Taiwan. The final column in Table 2 lists the dates of some recent capital market liberalizations.

The first four columns of Table 3 contain qualitative information on indirect barriers to investment involving the regulatory and accounting environment. Investors might not have adequate information on these markets and on the financial health of the companies, the settlement systems might be inefficient and slow, accounting standards might be poor, and investor protection might be minimal. These factors can play a large role in the investment decisions of international investors. In her survey of market participants in industrialized countries, Chuhan (1992) lists limited information on emerging markets as one of the key impediments to investing in emerging markets.

As to EMSRs, the focus here is on political or, more broadly, country risk. Political instability and economic mismanagement might add substantial risk premiums to investors' desired returns and deter some foreign investors. Table 4 reports a number of indicators of country risk, together with data on economic growth as measured by growth in real GDP. A direct measure of political risk is the *Institutional Investor* country credit rating, reported in the last column. A useful indicator of the soundness of economic policies is the level of inflation and, especially, the variability of inflation. For completeness, the table also reports exchange rate variability.

#### 4.2.2 CORRELATIONS BETWEEN MARKET INTEGRATION MEASURES AND GROWTH

To compute rank correlations between global market integration and economic growth, a number of variables were constructed that measure the potential degree of openness of emerging equity markets. The first measure, OPEN I, simply ranks the countries according to the severity of ownership restrictions, using the investable index/global index proportion reported in Table 2, column (4). The number of country funds and cross-listed securities are used to construct a second measure, OPEN II. The measure is imperfect, as data availability prevents weighting of the funds and companies by market capitalization and the cross-listings are restricted to the United States. Based on information provided in Table 3 on the availability of market and company information and on the quality of accounting standards and investor protection, indirect barriers are computed in a summary measure called OPEN III. The final two measures of country risk and macroeconomic stability are inflation variability (INFLAT) and the country credit rating by *Institutional Investor* (POLRI).

The rank correlations between all these different measures and real GDP growth are reported in Table 5; all but one are positive. Partly because the samples are small, most relationships statistically are not significantly different from zero. The one negative relationship, with the ranks according to ownership restrictions, may reflect a definition problem. For example, one country that ranks as the least open according to this measure is fast-growing South Korea. However, despite the ownership restrictions, the many means of indirect access, especially through numerous country funds, have effectively integrated the South Korean market with the world market. The return-based measures in both Bekaert (1995) and Bekaert and Harvey (1994b) find South Korea to be integrated rather than segmented. Interestingly, the significant relations are with POLRI and INFLAT—another indication that foreign investors value solid macroeconomic policies and a stable regulatory framework.

*...foreign  
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These measures have a number of disadvantages. First, each looks at only one particular aspect of the degree of difficulty of international access to a particular market. To examine the relation between the degree of investability and economic growth is difficult if other factors are not controlled for, such as macroeconomic stability. That is, one factor alone may not be enough to fully characterize barriers to investment. What is needed is one summary measure. Second, investment restrictions can be circumvented and need not be binding. Moreover, the existence of indirect means of access, such as country funds or ADRs, makes inferring the degree of integration from statutory investment restrictions even harder. The solution is to try to measure the degree of integration from data on equity returns. As described in Section 4.1, stocks will be priced differently in integrated markets than in segmented or partially segmented markets. Bekaert (1995), for example, postulates that in relatively well integrated markets, expected returns are likely to be highly correlated and the costs of capital similar.<sup>12</sup> We indicate this return-based measure by CORREL.<sup>13</sup> Bekaert and Harvey (1994b) develop a more sophisticated measure of integration in the context of an asset pricing model.

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<sup>12</sup> This measure has a number of disadvantages that are detailed in Bekaert (1995), but his analysis seems to be robust to the use of an alternative return-based market integration measure.

<sup>13</sup> For the countries for which data are available on black market premiums, this measure correlates very highly with an integration measure computed from black market premiums.

## SECTION 5/ POLICY RECOMMENDATIONS AND CONCLUSIONS

Strong economic arguments suggest that the cost of capital in emerging markets could be lowered if they became more integrated into world capital markets. Because emerging markets tend to be segmented, investors demand an extra premium when investing in that country. This premium increases the cost of capital, which results in good investment projects being turned down. Integration will lower the cost of capital and reduce the hurdle rate that new investments must attain. With more investment (both direct and portfolio) come additional jobs, augmentation of human capital, and economic growth.

### 5.1 POLICY INITIATIVES

Research results set forth in this paper suggest four proposals:

1. Capital market integration requires the dismantling of restrictions on both foreign investors participating in emerging markets and domestic investors participating in foreign markets. Discrimination against retail investors, for example, adds an extra premium to investing that will be reflected in the country's cost of capital.
2. Exchange rate markets must be liberalized to allow foreigners to operate freely within markets and for domestic investors to be unfettered in their international investments. For example, banks should be able to offer Eurocurrency deposits. A foreign investor's return is both the investment appreciation and the exchange rate change.
3. A perception of safety requires enforcing prudent regulations. Debt must be financed overnight in the interbank market. Prudent supervision, in terms of monitoring the banks' capitalizations and risk management procedures, is necessary.
4. Our suggestion, following Carneiro, Werneck, Garcia, and Bonomo (1993), is to establish, perhaps in conjunction with the World Bank, an insurance program for

***A  
perception  
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foreign and domestic investors. Coverage would be directed at types of risks that are difficult to insure with conventional methods (e.g., the risk of a major devaluation and major increases in short-term interest rates). This program, even if modest in size, would send a signal to the international community about commitment to macroeconomic stabilization. The insurance program would make deviation from stabilization plans very expensive for a nation. Aside from its insurance function, this policy affects the expectations of investors (both international and domestic) about the future stability of the economy. And it is investors' expectations that set the cost of capital.

## 6.2 CONCLUSIONS

Investors in developed markets increasingly are becoming convinced of the merits of investing in emerging markets. Indeed, a number of major investment banks in the United States have recommended that 5–10% of investors' portfolio be allocated to emerging markets. Notwithstanding short-term fluctuations, the long-term trend will involve portfolio investment flows to emerging markets on a large scale. There are many possible emerging markets among which investors can choose. Developing policy to ensure that an emerging nation benefits from this tide of capital inflows, rather than missing out, is critical.

Recommendations in this report focus on ways to integrate a country's capital markets into world markets. Efficiency has many implications. Fundamentally, it means that securities are traded at fair prices. This fairness may make portfolio investment, whether in bonds or stocks, more attractive to both foreign and domestic investors. Indeed, many

domestic investors in a nation may have avoided the equity market in particular because of reservations about its fairness. Domestic investment, as well as foreign investment, is a critical ingredient in fostering the right environment for economic growth.

***Efficiency  
also affects  
the allocation  
of capital.***

Efficiency also affects the allocation of capital. Research has detailed how inefficiencies may distort the investment process of the firm. Important projects may

be turned down, leading to lower economic growth, while low-return projects are implemented. Within this context, it is important to recognize that this argument is not just directed to firms that already have equity or bonds traded in the capital markets. Efficiency implies that new, smaller firms should be able to access the capital markets successfully. An efficient market creates the conditions for venture capital to work through initial public offerings. Experience in the United States suggests that such venture capital-funded company start-ups can prove to be major engines of growth.

TABLE 1  
STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH

Stock Market Development Measures	Rank Correlation
Number of stocks	.412
Market capitalization	.341
Value traded	.335
Turnover ratio	.203
Market capitalization/GDP	.249
Value traded /GDP	.360

Source: Authors' computations.

TABLE 2

EXCHANGE RATE RESTRICTIONS, OWNERSHIP RESTRICTIONS AND  
LIBERALIZATIONS IN EMERGING MARKETS

(1) Market	(2) Exchange Rate Regime, 1994	(3) Percentage Investable, 1992	(4) Percentage Investable/ Global, 1993	Liberalization	Date
Argentina	Pegged to dollar	100	88.2	All limits on foreign capital abolished	Dec. 89
Brazil	Free float	49 <sup>a</sup>	60.4	Group of foreign investment trusts approved	Mar. 87
				Interbank foreign exchange markets allowed	Mar. 90
				Foreign ownership levels increased	May 91
				Foreign portfolios without custody allowed, and minimum holding period and portfolio diversification restrictions abolished	Jul. 91
Chile	Pegged to basket	25	20.9	Noncentral bank foreign exchange market authorization	Apr. 90
Colombia	Free float	100	76.0	Made 100% investable	Feb. 91
Greece	Managed float	100	80.8	N/A <sup>b</sup>	N/A
India	Free float	24	19.1	All shares made investable	Nov. 92
				Managed exchange rate abolished	Mar. 93
Jordan	Pegged to basket	49	29.0	N/A	N/A
Malaysia	Free float	30	67.4	N/A	N/A
Mexico	Free float	100 <sup>a</sup>	87.7	Made 100% investable	May 89
				Dual exchange rate system unified	Nov. 91
Nigeria	Pegged to dollar	0 <sup>a</sup>	0.0	N/A	N/A
Pakistan	Managed float	100	29.3	Made 100% investable	Feb. 91
Philippines	Free float	40 <sup>a</sup>	47.3	All shares made investable	Nov. 91
Portugal	EMS <sup>c</sup>	100 <sup>a</sup>	54.1	N/A	N/A
South Korea	Pegged to dollar	10 <sup>a</sup>	9.6	Government announced sweeping liberalization	Dec. 88
				Investment preapproval rules softened	Jan. 90
				Market average exchange rate system introduced	Mar. 90
Taiwan	N/A	10 <sup>a</sup>	3.0	Equity market broadly opened, \$5 billion foreign holdings	Jan. 91
				Maximum foreign security holdings limit increased to \$10 billion	Mar. 93
Thailand	Pegged to basket	100 <sup>a</sup>	27.0	N/A	N/A
Turkey	Free float	100	97.3	N/A	N/A
Venezuela	Free float	100	36.3	Foreign ownership allowed with limits	Dec. 88
				All restrictions lifted	Jan. 90
Zimbabwe	Pegged to basket	a	0.0	N/A	N/A

Source: For foreign exchange policies: *Exchange Agreements and Exchange Restrictions*, 1994 annual report (IMF); for foreign ownership levels and liberalizations, *IFC Latin America Methodology* (1993); some liberalization dates from Park and Van Agtmael, ed. (1993), *World's Emerging Stock Markets*.

<sup>a</sup> Industry exceptions.

<sup>b</sup> N/A = Not applicable.

<sup>c</sup> EMS = European Monetary System.

TABLE 3

EMERGING STOCK MARKETS—INSTITUTIONAL INDICATORS

Country	(1) Regular Publication of P/E Yield	(2) Accounting Standards	(3) Investor Protection	(4) Securities Commission	(5) Restrictions			(6) Withholding Tax Rate	
					Dividend	Capital	Entry	Capital Gains	Dividend
<i>Latin America</i>									
Argentina	0	1	1	1	0	0	0	36%	17.5%
Brazil	1	2	2	1	0	0	0	25	25
Chile	1	2	2	1	0	1	0	10	10
Colombia	0	1	1	1	1	0	0	30	0
Mexico	1	2	2	1	0	0	0	0	0
Venezuela	0	1	1	1	1	1	0	0	20
<i>Asia</i>									
India	1	2	2	1	1	1	1	40	25
Indonesia	1	0	1	1	1	1	0	20	20
Malaysia	1	2	2	0	0	0	0	0	0
Pakistan	0	1	1	1	0	0	0	0	15
South Korea	1	2	2	1	0	0	1	0	25
Thailand	1	1	1	1	0	0	0	25	20
<i>Europe/Mideast/Africa</i>									
Greece	1	0	0	0	1	1	0	0	42
Jordan	0	0	1	1	0	0	0	0	0
Nigeria	0	1	1	1	1	1	2	20	15
Portugal	1	1	1	1	0	0	0	0	25
Turkey	1	1	0	1	0	0	0	0	0
Zimbabwe	0	1	1	1	1	1	1	30	20

Column (1): 0 = published, 1 = comprehensive and published internationally.

Columns (2) and (3): 0 = poor, 1 = adequate, 2 = good, of internationally acceptable quality.

Column (4): 1 = functioning securities commission or similar government agency, 0 = no agency.

Column (5): 0 = free, 1 = some restrictions, 2 = restricted.

Column (6): Withholding tax rates, given in percentages.

Source: The table is based on the information provided in the IFC's Factbook. All data are as of year-end 1991.

**TABLE 4**  
**MACROECONOMIC CLIMATE AND COUNTRY RISK IN EMERGING**  
**MARKETS**

Country	Inflation	Real GDP Growth	Inflation Variability	Rank	Exchange Rate Variability	Credit Rating
Argentina	370.10	0.97 <sup>c</sup>	>1,000	20	442.9	26.2
Brazil	624.10 <sup>a</sup>	-3.10 <sup>a</sup>	>1,000	21	173.0	27.1
Chile	20.20	5.68	10.5	12	25.1	45.9
Columbia	27.30	4.94 <sup>a</sup>	11.6	15	17.4	37.2
Greece	18.70	0.71 <sup>a</sup>	16.1	13	40.0	46.7
India	10.00	5.28 <sup>a</sup>	9.8	10	33.6	37.5
Jordan	8.16	-2.12 <sup>a</sup>	19.2	11	33.1	20.7
South Korea	6.13	10.72	6.3	6	10.0	67.6
Malaysia	2.71	6.22 <sup>b</sup>	4.1	3	13.3	64.6
Mexico	53.30	1.28 <sup>a</sup>	38.2	19	66.8	42.6
Nigeria	25.10	3.96	42.9	16.5	223.6	19.5
Pakistan	7.86	5.96	10.6	9	12.1	27.7
Philippines	9.46	2.19	9.0	8	32.2	25.2
Portugal	11.00	7.13 <sup>b</sup>	6.1	7	41.7	65.0
Taiwan	-	-	-	-	16.1	77.5
Thailand	3.96	10.82 <sup>b</sup>	5.8	4	7.9	61.3
Turkey	57.70	2.46 <sup>b</sup>	28.0	18	30.2	43.9
Venezuela	38.20	0.98 <sup>a</sup>	33.2	16.5	58.8	39.0
Zimbabwe	18.70	-0.55 <sup>c</sup>	13.0	14	45.6	26.1
Germany	2.04	3.77	3.0	1	46.0	90.8
Japan	1.67	3.74	5.77	2	43.1	89.8
United Kingdom	5.60	2.26 <sup>a</sup>	6.2	5	48.1	84.6

Sources: Inflation and GDP data are from *International Financial Statistics*; the exchange rates are from the IFC EMDB database for the emerging markets and from Citicorp Data Services for the industrialized countries. The credit rating is taken from *Institutional Investor* in 1992.

Notes:

1. For inflation, the annual compounded growth rate for the CPI between the end of 1985 and 1992, or the latest available year, is reported.
2. For real GDP, a similar computation is made. In many cases, 1992 data were not available. Final years used other than 1992 are footnoted. For most countries the GDP growth number is close to the average annual growth rate over the sample period, except for Argentina and Brazil. For those countries, hyperinflation makes some of the data difficult to interpret, and the numbers given are subject to this caveat.
3. Inflation and exchange rate variability is the standard deviation of monthly rates times 1,200.
4. Rank is based on the sum of the ranks according to the level of inflation and the variability of inflation.

<sup>a</sup> 1991; <sup>b</sup> 1990; <sup>c</sup> 1989; <sup>d</sup> 1988; <sup>e</sup> 1987.



**TABLE 5**  
**GLOBAL MARKET INTEGRATION AND ECONOMIC GROWTH**

Global Market Integration Measures	Rank Correlation
OPEN I	-.241
OPEN II	.235
OPEN III	.310
POLRI	.591
INFLAT	.777
CORREL	.393

Source: Authors' computations.

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