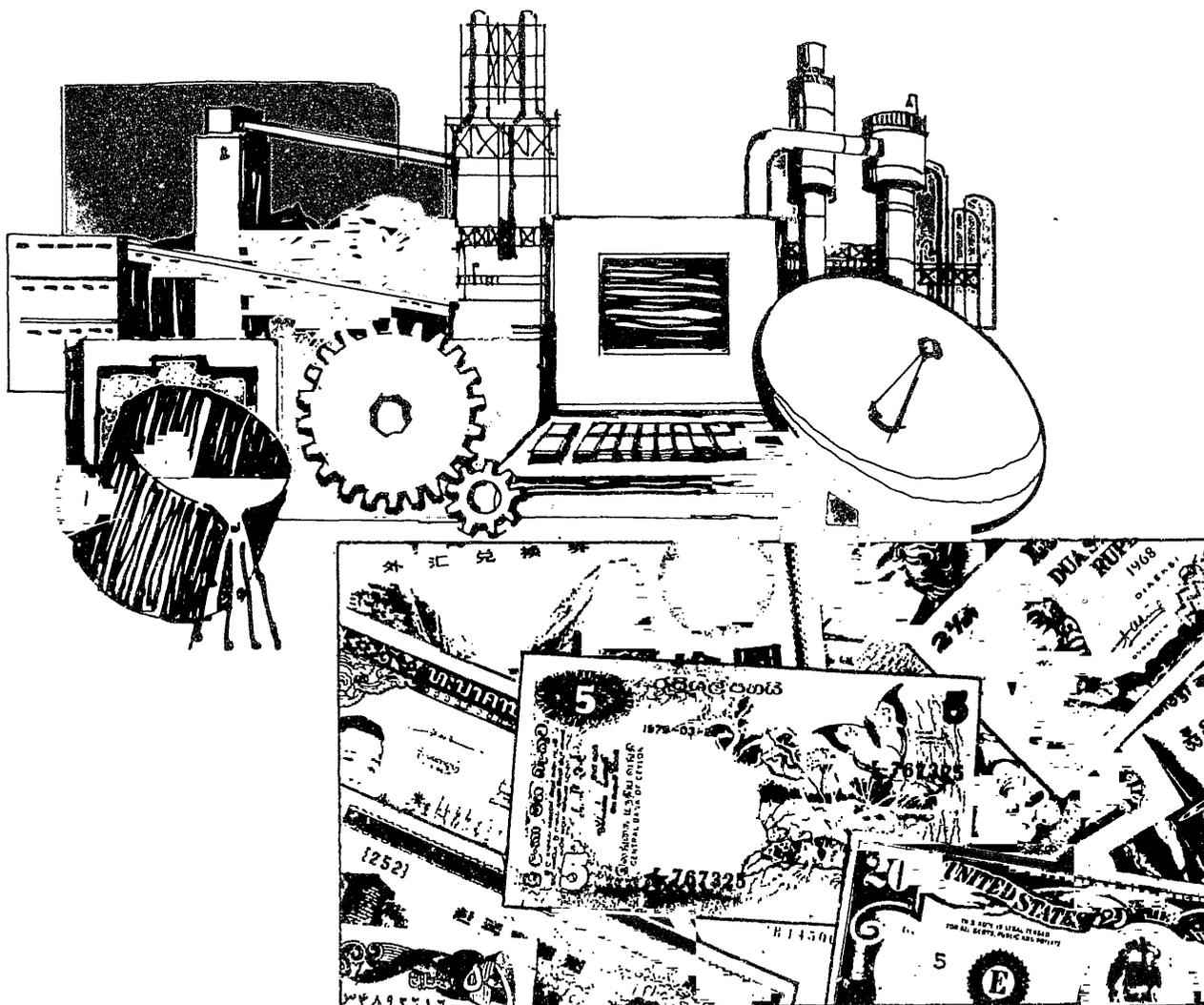


High Interest Rates, Spreads, and the Costs of Intermediation

Two Studies

James A. Hanson and Roberto de Rezende Rocha



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**High Interest Rates, Spreads,
and the Costs of Intermediation**

Two Studies

Industry and Finance Series

Volume 18

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INDUSTRY AND FINANCE SERIES VOLUME 18

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The World Bank
Washington, D.C., U.S.A.

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and Development/THE WORLD BANK
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Washington, D.C. 20433, U.S.A.

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First printing September 1986

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Library of Congress Cataloging-in-Publication Data

Hanson, James A.

High interest rates, spreads, and the costs of
intermediation.

(Industry and finance series ; v. 18)

Bibliography: p.

1. Interest rates--Developing countries.

I. Rocha, Roberto Rezende. II. Title. III. Series.

HG1623.D44H35 1986 332.8'2'091724 86-23343

ISBN 0-8213-0835-1

FOREWORD

High interest rates have become a global concern. In some developing countries they have reached real levels far above even the unprecedented rates prevailing in international capital markets. Such rates prejudice investment and clearly require attention if growth is to be resumed during adjustment.

The two papers in this volume analyze some of the causes of high real rates and suggest some policy options for bringing rates down. The first paper summarizes the Industry Department's ongoing work on high real rates. It notes that high deposit rates usually reflect fundamental macroeconomic imbalances--high and variable inflation, large government deficits, overvalued exchange rates, and non-performing loan portfolios in the financial system. As is well known, such imbalances lead to low domestic resource mobilization, external indebtedness, and capital flight, all of which are worsened if attempts are made to repress interest rates. Correction of the imbalances will gradually re-establish a stable macroeconomic environment and lead to a fall in deposit rates. Until that occurs, high deposit rates will set a floor under lending rates.

The spread between deposit and lending rates also has become an important element in high real lending rates. However, relatively few studies exist on the determinants of spreads in developing countries. Hence, much of the analysis in the two papers is devoted to filling that gap in our knowledge. The first paper summarizes the role that direct taxes, reserve requirements and forced investment requirements play in raising spreads. It also provides an introduction to the second paper's detailed analysis of bank costs and profits. Rocha's paper presents perhaps the first cross-country analysis of banking costs and profits in developing countries, using the same methodology pioneered by the well known OECD study so that cross-country comparisons can easily be made. It shows that banking costs and profits not only represent an important element in spreads in some countries, but that excessive costs of financial intermediation represent a major misallocation of resources in a much wider circle of countries. Finally, it goes on to analyze some of the fundamental determinants of banks' costs and profits, such as inflation and branching, economies of scale, and market structure.

The papers conclude that reductions in direct taxes and in reserve requirements and forced investments could reduce the gap between deposit and lending rates dramatically, and thus lower real lending rates sharply. However, large reductions can be made only as the government's need for financing declines, otherwise an inflationary spiral may ensue. To reduce costs and profits to international levels, measures must be taken to increase competition and promote efficiency in the financial sector. These include coordinated reductions in staffing and branches, greater competition in the provision of financial services, and divestiture by industrial-financial groups. Such measures will take time and must be implemented carefully, lest they disturb confidence in the financial system and force the government to assume responsibility for deposits.

Harinder S. Kohli
Assistant Director, Policy
Industry Department

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I

HIGH REAL INTEREST RATES AND SPREADS: AN INTRODUCTION

James A. Hanson

1. INTRODUCTION

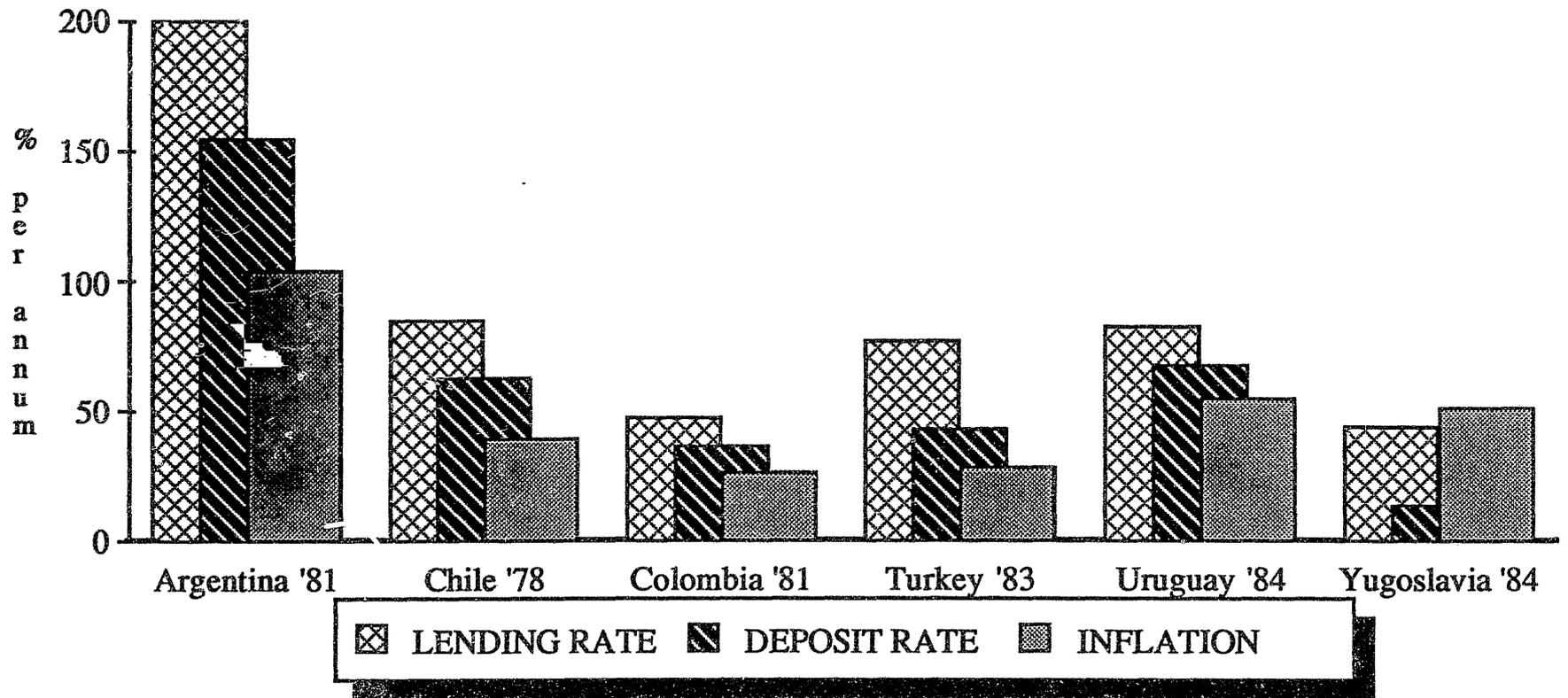
High real interest rates are a global phenomenon. In industrialized countries, real interest rates have substantially exceeded their long run averages since 1981. To take one example, ex post real interest rates on US corporate bonds (Baa) averaged nearly 10% between 1981 and 1985, and real Treasury bill rates (3 months) nearly 6%, compared to their twenty five year averages of about 4% and 1% respectively. Although real rates in world markets have declined recently, they remain substantially positive.

It is not surprising, therefore, that high real rates have appeared in many developing countries, especially considering their sharply reduced access to external capital. Those countries that have tried to prevent the spread of high international rates by repressing their domestic financial markets typically have suffered reduced domestic resource mobilization, a scarcity of credit, and capital flight.

While not much can or should be done about real rates that are in line with world markets, in some developing countries real interest rates substantially exceed even the high levels prevalent in industrial countries. Recent Bank reports have cited very high real rates in such countries as Argentina, Colombia, Chile, Turkey, and Uruguay. (See Figure 1.) Such real rates far exceed the real rate of return on capital, prejudicing investment and growth prospects.

Macroeconomic problems have been a major contributor to these high real rates. Large public sector deficits, reflecting in part the servicing of large foreign debts, have led to high and variable inflation (e.g., Argentina in the 1980s) and/or to large sales of public sector bonds that forced up their interest rates (e.g., Turkey and Mexico). Overvalued exchange rates have made foreign currency deposits attractive (e.g., Argentina, Chile, and Uruguay, particularly in the early 1980s, Mexico from time to time). All these problems have produced a loss of confidence in domestic financial assets that has been aggravated by uncertainties regarding the quality of the banking system's assets and the government's insurance of its deposits. These problems often are further compounded by an inadequate tax treatment of interest earned and interest costs during inflation. The net result often has been severe capital flight. Domestic commercial banks, to retain even a minimum of deposits, have had to offer depositors real rates above those prevailing in world markets. These high deposit rates have set a floor under lending rates.

FIGURE 1
INTEREST RATES AND INFLATION



Source: World Bank estimates based on country sources

These macroeconomic problems have been analyzed on many occasions. The standard policy package of realistic exchange rates and over fiscal deficits, combined with a clean up of the arrears problem, will establish a more stable economic environment and eventually reduce real deposit rates once confidence is restored. However, there is an additional element in the high real interest rates paid by borrowers--financial intermediaries' spreads. Large spreads have been cited as another factor in high real lending rates in all the countries mentioned above, as well as in Yugoslavia. (Again see Fig. 1.) This paper provides an introductory analysis of the factors producing large spreads and suggests some policies to reduce them.

For purposes of analysis this paper divides spreads between deposit and lending rates into three parts: (1) explicit taxes; (2) implicit taxes, such as reserve requirements and forced investments; and (3) bank costs and profits. To give some idea of the magnitudes involved, Fig. 2 illustrates the impact of these elements in Turkey in 1983. As discussed below, explicit and implicit taxes on financial intermediation can raise spreads and contribute to poor domestic resource mobilization and capital flight. Cuts in these taxes can reduce spreads dramatically. Such cuts are often limited however, by the same macroeconomic imbalances that have produced high real deposit rates. Excessive bank costs and profits typically contribute less to spreads than reserve requirements and forced investments, except in cases where inflation is relatively high or where cost structures have become bloated during protracted inflation. However, even bank costs and profits that raise lending rates only a few percentage points indicate major inefficiencies and shifts of income. Measures that increase efficiency and competition in the financial system are thus important in improving the allocation of resources, even in low inflation countries where they may not have a dramatic effect on real lending rates. Most of these measures will take some time to be fully effective.^{1/}

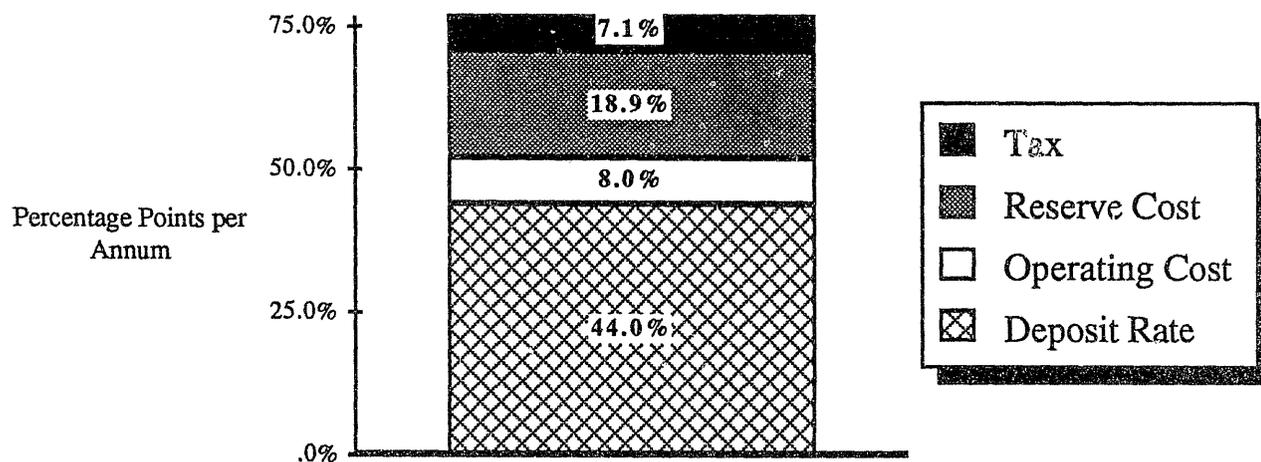
^{1/} See Rocha, this volume, for a discussion of bank costs and profits in LDCs.

2. SPREADS AND EXPLICIT TAXES

Explicit taxes on financial transactions are common, often taking the form of a tax on loan interest. For example, in Turkey this tax was ten percent of the loan rate. In other cases there are taxes on financial transactions or on value added in the financial sector. In the Turkish case, various other taxes, amounting to almost 1% of deposits, are included in the operating costs shown in Fig. 2. There was also a profits tax in Turkey.

Taxes on financial transactions drive a wedge between what borrowers pay and lenders receive and thus increase the spread.^{2/} The wedge will mainly raise the rate paid by borrowers if the demand for credit is inelastic; it will mainly lower deposit rates if the supply of deposits is inelastic. Whether the tax mainly falls on borrowers or lenders, it will reduce the total amount of resources passing through the financial system.

FIGURE 2
COMPONENTS OF THE LENDING RATE
Turkey 1983



Source: World Bank Estimate

^{2/} This paper does not analyze the impact of taxing interest income and costing interest expenses. These policies have been treated in detail in many other studies and a complete treatment of this subject is beyond the scope of this paper. In general terms, however, these measures also drive a wedge between the real rates that the borrower pays and the depositor receives, but this depends on the exact provisions of the tax law.

Taxes on the financial sector also encourage types of financial intermediation that avoid taxes. For example, intermediation often shifts to informal, less regulated parts of the market. This may increase the financial system's instability. If domestic taxes are larger than international taxes, then some intermediation also may shift overseas, since potential depositors can get more on their funds abroad and external financial intermediaries can then lend these funds back to the domestic economy at lower rates than domestic intermediaries can offer.^{3/} This suggests that in some cases the taxation of the domestic financial system contributed to the capital flight and to the build up of external debts that characterized many developing countries in the late 1970s and early 1980s.

Reductions in direct taxes can reduce spreads between borrowing and lending rates quickly and rapidly. For example, in Turkey, cutting the various taxes mentioned above could reduce the spread by about 8 percentage points. The difficulty is that such taxes are often an important source of government revenue. Finance, like international trade, is easily taxed, and thus the financial system, like the traded goods sector, is often subject to large, distortionary taxes. In Turkey, for example, these taxes amount to roughly 2% of GDP. The ability to reduce taxes on the financial system thus depends on the public sector's financial position. If there is a large deficit, then reduction of taxes on the financial sector may have to be delayed until alternative sources of revenue are developed or government spending is cut.

Taxes on domestic and foreign intermediation should be harmonized, even if tax rates cannot be lowered. The rationale is similar to the arguments for excise taxes on the real sector, rather than taxes that fall mainly on imports; the broader based tax does not discriminate against the source of supply and so is less distortionary. Moreover, since harmonization broadens the tax base, it should permit some reduction in the tax rate.

^{3/} See for example V. Tanzi, Inflation, Taxation and Interest Rates, IMF, for some evidence on this point from OECD countries. In developing countries this recycling of funds usually requires the borrower to assume the foreign exchange risk, so whether the foreign loan appears cheaper depends on expectations of devaluation. The actual cost of the loan depends on the devaluation that actually occurs.

3. SPREADS AND IMPLICIT TAXES ON FINANCIAL INTERMEDIATION

Reserve requirements drive a wedge between borrowing and lending rates and thus act as an implicit tax on financial intermediation. The wedge develops because the reserve requirement allows only a fraction of the deposits to be loaned. Therefore, the lending rate must exceed the deposit rate, in order to cover the total interest due on deposits. For example, suppose that the reserve requirement were 20%. Then only 80% of deposits can be loaned out and 20% of deposits have to be held in the form of assets specified by the central bank, which for the sake of simplicity are assumed to bear no interest (see para 14). As a consequence, interest rates on deposits can only be 80% of the rates on loans, ignoring costs and profits of financial intermediaries.

Reserve requirements thus generate a constant proportional relationship between deposit and lending rates.^{4/} This has important implications for the absolute spread as the deposit rate increases. Table 1 illustrates the potential impact of a 1/3 reserve requirement on the spread at various deposit rates and ignoring bank costs and profits. (This is roughly the requirement that existed in Turkey in 1983.) As shown there, the absolute spread rises from 5 to 25 percentage points as the deposit rate rises from 10% to 50%, although the deposit rate remains a constant 2/3 of the lending rate. Reserve requirements thus have only a small absolute impact on the spread when the deposit rate is low. However, when the deposit rate becomes high, the reserve requirement can raise the cost of loanable funds substantially. This problem has been cited in such countries as Argentina, Chile, Colombia, Turkey, and Uruguay, when the deposit rate was forced up by macroeconomic factors.

Table I-1

THE RELATIONSHIP BETWEEN DEPOSIT RATES AND COST OF LOANABLE FUNDS

(Reserve Requirement = 33.3%, No interest on Reserves)
Percentage per annum

Deposit Rate (1)	Required Loan Rate <u>a/</u> (2)	Spread= (1) - (2) (3)	(1)/(2) (4)
10	15	5	.667
20	30	10	.667
30	45	15	.667
40	60	20	.667
50	75	25	.667

a/ Required Loan Rate = Deposit Rate / 1 - Reserve Requirement (See footnote 3).

4/ To see this, recall the balance sheet identity. $R + L = D$, where L = loans, D = deposits and R = required reserves = rD . Note also the income identity $i_L L = i_D D + C(L + R)$ where i_L = the interest rate on deposits ($i = D$) or loans ($i = L$) and C = costs and profits expressed as a percent of assets. Solving yields $i_L = (i_D / 1 - r) + C / 1 - r$. The impact of reserves on the spread is thus $(i_D + C)r / 1 - r$. Neglecting costs, i.e., setting $C = 0$, yields the formula shown in the note to Table 1.

In addition, when budget deficits are larger, governments tend to seek low cost sources of finance, such as central bank credit. In these circumstances, the central bank often increases reserve requirements in order to capture at low cost more of the resources mobilized by the financial system. Some central banks also use reserve requirements as an anti-inflationary tool, raising it to limit credit growth as inflation rises. For these reasons, the spread tends to increase more than proportionately to the deposit rate when inflation rises.

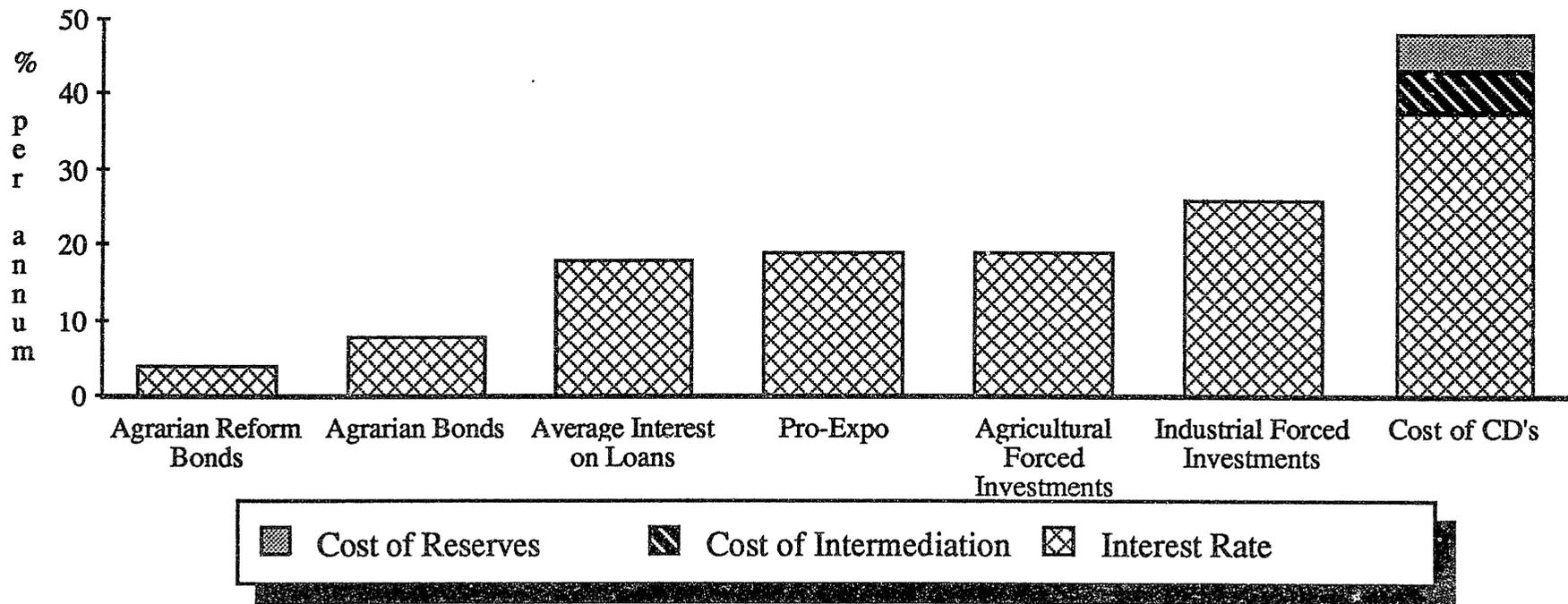
Sometimes financial intermediaries are forced to lend a certain proportion of their deposits or their portfolio to priority activities, at below-market interest rates. These arrangements seem to be more prevalent in inflationary economies, perhaps because there is greater demand for subsidized credits when the return from obtaining these credits is larger. The impact of such forced investments on spreads is similar to reserve requirements. However, the interest paid on forced investments does contribute to meeting the interest costs of deposits. Thus, forced investments do not increase the spread as much as non-interest earning reserve requirements. The higher the interest rate on the banks' forced investments, the lower the rate that must be earned on the free portion of the banks' portfolio, in order to cover a given interest cost of deposits. (The same analysis applies to liquidity requirements or reserve requirements that pay interest).^{5/} In the case of Turkey, for example, the reserve and liquidity requirements earn about 20% p.a.; this reduces their net impact on spreads by nearly 10 percentage points.

The most important distinction between reserve requirements and forced investments is that forced investments are more like an earmarked tax, whose beneficiaries are the recipients of the low interest rate, forced investments of the financial intermediaries. This distinction has important implications for the cost of credit, as well as for income distribution. Favored borrowers receive a blend of low-cost forced investment loans and high cost non-priority loans, reducing their average cost of credit below the cost of a non-priority loan. This phenomenon is illustrated in Fig. 3, which compares the estimated cost of loanable funds from certificate of deposits with the average interest rate paid by borrowers from Colombian banks and returns on some selected forced investments. As shown there, the estimated cost of loanable funds from certificates of deposits, adjusted for the cost of reserve requirements and forced investments, is about 48%. In contrast, the average interest rate earned by the banking system was 18%, a difference of 30 percentage points. Some of the banks' forced investments earn as little as 4%. Whether anyone actually pays only the cost of loanable funds CDs, or whether bank loans are always a blend of priority and non-priority credit simply cannot be answered. However, those borrowers that receive mostly "non-priority" credits are, in effect, subsidizing the low cost credit to the "priority" borrowers.

In sum, both reserve requirements and forced investments are effectively taxes on financial intermediation, in particular on depositors and on non-preferential borrowers. Both policies reduce the interest rate paid to

^{5/} Using the same notation as Footnote 4 and again neglecting costs for simplicity the income identity becomes $i_L L + i_R R = i_D D$. Solving, using the balance sheet identity, yields $i_L + (i_R / 1 - r) = (i_D / 1 - r)$.

FIGURE 3
INTEREST RATES ON SELECTED COMMERCIAL BANK ASSETS
vs.
COST OF CD'S
Colombia 1984



Source: World Bank estimates

depositors and/or raise the rate paid by non-preferential borrowers. While much work remains to be done on the macroeconomic and distributional consequences of these policies, a few general principles are clear. As with direct taxes, the incidence of implicit taxes depends on the elasticities of the demand for credit and the supply of deposits, although here account also must be taken of access to low cost, directed credits. As with the direct taxes, reserve requirements and forced investments reduce resource mobilization in the financial system, encourage financial intermediation to move to the untaxed and unregulated parts of the domestic market and contribute to capital flight and international indebtedness. World Bank reports have pointed out that in Colombia the commercial banks developed various instruments to avoid high reserve requirements and in Turkey and Yugoslavia a large commercial paper market developed in response to large bank spreads. In Ecuador, banks turned to guaranteeing foreign loans to domestic enterprises, rather than mobilizing domestic deposits that were subject to high reserve requirements and legal limits on spreads before they could be on-lent. This practice had disastrous consequences for the financial system, when a large devaluation became necessary.

The foregoing analysis suggests that spreads could be reduced dramatically by reducing reserve requirements and forced investments and/or paying of realistic interest rates on them, particularly in high inflation countries. Variants of such measures have been tried in Argentina and Turkey (interest on reserve requirements) and Peru and Uruguay (reduction or elimination of reserve requirements), among other countries. However, experience suggests that these measures cannot be undertaken without first getting the macroeconomic framework under control, in particular the public sector deficit. The balance of payments situation also is important because a reduction in reserve requirements could reduce the Central Bank's international reserves, as occurred in Uruguay in the late 1970s.

To see why this is so, it is necessary to recall that reserve requirements permit the Central Bank to capture part of the banks' deposits at low cost. These resources can then be used to either buy low interest rate government debt or to buy foreign exchange to add to the Central Bank's net international reserves. If reserve requirements are lowered, then the public sector's debt and future public sector deficits would have to be financed either by bond sales at market-related interest rates, which could lead to an exploding deficit, or by printing money, which would add to inflation and balance of payments pressures. These pressures would be aggravated by the expansionary impact of banks' lending a larger fraction of their deposits.^{6/}

There is a second argument for not reducing reserve requirements until inflation is reduced: that reserve requirements are a way of taxing the profits that otherwise would accrue to the banks during inflation. In most developing countries deposit interest rates are set by fiat, rather than market determined. This is particularly true of sight deposit rates, which customarily bear no interest. These restrictions limit competition for deposits. While lending rates are also usually fixed, there are many ways around these limits, for example by compounding the interest rate more frequently or deducting the interest from the loan's proceeds or requiring the borrower to maintain a low

^{6/} In financial terms, the multiplier of the money base increases.

interest deposit. There are also more incentives for banks to avoid the restrictions on loan rates. Thus high profits can often be earned by commercial banks during inflation, because of restrictions on interest rate competition for deposits. And, even if strict enforcement does hold down lending rates, the banks can channel their low cost loans to members of the same financial- industrial group, effectively transferring their profits on cheap deposits to a business partner. One way of taxing these profits is through high reserve requirements, which reduce the portion of low cost deposits available for bank lending and transfer it to the government.^{7/}

Even if the macroeconomic situation prevents major changes in reserve requirements, some improvements can be made at the margin. First, it is desirable to subject foreign capital inflows to reserve requirements that are comparable to domestic deposits, at the same time lowering the overall average reserve requirement. Second, many studies suggest that low interest, forced investments are an inefficient way to promote priority sectors and that they often worsen the income distribution. This suggests that governments need to take the politically difficult step of reducing the size of forced investment programs and linking rates on forced investments more closely to market rates. This would reduce the borrowing costs of the non-priority borrowers and permit an increase in the rates paid to depositors. Third, profits taxes can substitute for reserve requirements as a way of taxing the monopoly rents on fixed interest deposits, although measuring banks' profits is always a difficult problem. Fourth, it would be advisable to reduce reserve requirements on interest bearing assets, since these deposits face more competition from deposits outside the country than sight deposits and thus their supply is much more elastic than sight deposits. If necessary, reserve requirements on sight deposits could be increased as a compensatory measure. Fifth, interest can be paid on reserve requirements. This would provide a better indication of the true cost of the government's deficit and reduce the tax burden on the financial sector. However, this policy should be used cautiously, since it can become a major source of monetary growth, as occurred in Argentina. Finally, it is important to note that freeing interest rates on deposits with high reserve requirements or reducing reserve requirements on deposits with interest rate ceilings are measures that are unlikely to have much effect if done alone; both restrictions must be removed in a complementary fashion.

^{7/} While sight deposits often cannot pay interest legally, studies have shown that implicit interest often is paid to large depositors through remission of service fees or preferential access to low cost loans. In addition, banks often have used techniques such as "SWEEP" accounts (computers automatically sweeping funds from sight deposits into interest paying deposits with low reserve requirements before the business day ends) to minimize their reserve position at the Central Bank. To the extent these techniques are used, competition does exist for sight deposits and the rate of taxation should be less.

4. SPREADS, OPERATING COSTS AND PROFITS

Banks' operating costs are typically a small component of spreads in industrialized countries and non-inflationary LDCs, averaging about 2.3% of assets. (See Rocha, this volume, Tables 1 and 2 for figures on margin and operating costs in industrialized countries and a sample of developing countries.) In inflationary countries operating costs are typically higher, averaging 4.8% of assets. In some cases operating costs have been quite high, for example, 6% of assets in Peru in 1980, 8.8% of assets in Turkey in 1980, 13.5% of assets in Argentina in 1986 and 12.2% of assets in Brazil in 1981, although the last figure refers to costs of the 10 largest bank holding companies and thus is not strictly comparable to the others.

Intermediation costs are higher in inflationary economies for many reasons. First, it is often necessary to employ more personnel because of the increased volume of paperwork in inflationary economies. Inflation typically decreases the maturity of contracts, requiring more frequent interest rate transactions per unit of assets. Second, chronic inflation is often associated with an expansion of the branch network. The legal restraints on interest rate competition lead banks to compete for the low cost deposits by offering greater service and more branches. Third, evidence from a few countries suggests that although inflation cuts the real quantity of deposits and loans, total real costs tend to remain constant, or even rise. Thus costs tend to rise as a percentage of assets as the economy becomes demonetized. This behaviour of real costs during demonetization reflects: (i) a tendency for banks to hoard labor during inflation, (ii) a decrease in competition in the labor market for bank employees during rising inflation, (iii) the increased volume of transactions, and (iv) the expansion of the branch network. The experience of Turkey in the late 1970s and early 1980s and recent developments in Argentina and Brazil support the theoretical argument that increases (reductions) in inflation are likely to increase (reduce) the ratio of costs to assets, because rising (falling) inflation usually reduces (increases) real financial assets.

The experience of Turkey also suggests that liberalization of interest rates can have a major impact on the ratio of bank costs to total assets in financially repressed economies, even if inflation does not fall very much. Liberalization increases the amount of real assets and, since total real costs seem fairly stable, correspondingly reduces costs as a percentage of assets. In Turkey private banks' operating costs rose from 6% of assets to 9% of assets between 1978 and 1980, but then fell again, to 5% of assets in 1983 as the ceilings on some deposit rates were eliminated and inflation declined. These changes were almost completely a reflection of the changes in real assets; during this period real operating costs were almost constant. While bank costs in Turkey still remain above the levels of non-inflationary developing countries, they declined significantly from their 1980 levels because of the increase in real financial assets.

Even in non-inflationary countries the costs of intermediation are potentially important resource allocation and distributional issues. An excess cost of even 1% of total assets is equivalent to 0.3% of GDP if financial assets amount to 30% of GDP. As shown in Rocha's study, costs in excess of the average

for developed countries and low-inflation developing countries amount to more than 0.5% of GDP in 9 of his sample of 16 countries. Moreover, banking costs in developing countries are potentially lower than in industrialized countries, since personnel costs typically account for about 65% of total costs. This suggests that substantial benefits would result from policies that reduce costs of intermediation, even in cases where these costs are not a major factor in high real lending rates.

Reducing bank costs will take time in non-inflationary economies with relatively high costs or once an economy with a long history of inflation has reaped the benefits of remonetization. In these countries a high cost structure has been built up over time, involving extensive branch networks and excessive personnel. It may be difficult to change this structure rapidly. Closing branches and laying off excess personnel is politically difficult and, from the standpoint of individual banks, may not make commercial sense. If bankers feel inflation may rise again, then long run profit maximization would imply only a partial adjustment to lower inflation. Moreover banking is highly dependent on public confidence, which is fostered by maintaining impressive offices, and on trusted relationships with personnel, which may be disturbed by frequent layoffs and rehires. In addition, the private banking system may reduce branch networks only slowly, because of the oligopolistic structure of banking in more developing countries. Finally, from the fiscal standpoint, if the branch network were reduced rapidly, then this might provoke a loss of confidence in the financial system and, ultimately, force the government to assume some of the banks' deposit liabilities. For all these reasons, it may be necessary for the monetary authorities to coordinate generalized reductions in bank branches. In addition, costs could be reduced by encouraging greater competition in the labor market for bank employees. In practice, however, such competition is difficult to achieve because: (i) unions are often strong in the banking industry, and (ii) bank employees are a critical element in the operation of the financial system. Moreover, the computerization of banking, which could reduce labor usage, is likely to be resisted by the unions. Thus, progress in this area is likely to take time.

It is sometimes suggested that spreads can be reduced by promoting competition from new, low cost banks, especially foreign banks. However, in many cases their cost advantage is derived from the low cost of a labor force with little seniority, rather than any difference in real efficiency. Moreover, the new banks may simply choose to earn high profits but not compete vigorously, or they may compete vigorously and drive technically efficient entities out of business, perhaps even forcing the government to take over their deposits. These potential pitfalls suggest that the entry of new banks must be managed carefully to ensure that it has its desired consequences.

Banks' profit rates are generally thought to be higher in developing countries than in OECD countries and thus contribute to large spreads. While this is probably true, banks' income statements sometimes indicate lower profit rates in developing countries. However, this may reflect differences in accounting conventions, for example differences in the legal treatment of asset values and depreciation in an inflationary environment, rather than actual differences in profit rates. It may also reflect the possibility that the earnings from owning a bank in a financial repressed environment may come from

the ability to allocate low cost, directed credit, rather than from profits on banking business. In this case, the profits are transferred to favored borrowers rather than appearing on the bank's income statements. Finally, comparisons of profits across countries in a given year can be distorted by short run, country specific factors. All these complications suggest that tracing the impact of bank profits on spreads is difficult.

In inflationary economies there are additional complications. High nominal profit rates are necessary to compensate equity holders for high inflation; it is the real profit rate (taking into account an appropriate treatment of asset values and depreciation), not the nominal rate, that influences the absolute spread. However, higher average inflation may imply greater real risks for bank equity holders, and thus they may demand higher real returns as inflation increases. If this is the case, then higher profit rates may indeed contribute to the observed correlation between inflation and spreads. However, such profit rates will not be reduced by higher taxes or greater competition; they are required to induce stockholders to maintain the real value of bank equity.

The higher profit rates in LDC banking also may reflect the relative scarcity of capital in LDCs and limitations on foreign banks' entry. Other possible causes of high profit rates are the lack of competition and entry in financial intermediation and, in some cases, the lack of close substitutes for bank credit such as corporate bonds and commercial paper. High profit rates can also reflect the absence of external competition in economies with controls in international capital movements. Prudent easing of entry regulations and improvements in regulations on the commercial paper and the bond market can generate more competition in the system, putting pressure on excessive profits and, ultimately, spreads. As a suggestive example, in Uruguay intermediation spreads fell sharply after the Central Bank eased its entry policy, although ultimately the system suffered from a lack of close supervision of both the newcomers and the existing banks.

It is sometimes argued that generalized problems of non-performing loans are a source of upward pressure on banks' spreads and real lending interest rates. The usual argument is that bankers try to offset their losses on their non-performing loans by charging higher rates to their performing borrowers. However, it is very difficult to assess the extent to which problems of non-performing loans affect banks' spreads and real lending rates. Good figures on non-performing loans are not available. Moreover, bankers are often limited in the extent to which they can pass their losses on to their other borrowers. In cases of generalized financial distress, banks face the risk of increasing the share of non-performing loans in their loan portfolios if they try to charge their remaining performing borrowers high real interest rates. Competition from non-bank intermediaries, commercial paper and capital markets and foreign lenders limit what can be charged to the performing borrowers. The strategy chosen by banks to cope with problems of non-performing loans will depend on the degree of competition from external and domestic sources, bankruptcy regulation and their assessment of the monetary authorities' willingness to undertake a general bail-out of bad debts. Thus, the impact of non-performing loans on spreads depends crucially on the specific country conditions. However, in some countries (e.g., Turkey), banks' spreads were, for some periods, so high as to suggest that problems of non-performing loans were playing a role.

In sum, more competition in the banking system, as elsewhere, is to be desired in principle. However, the transition to greater competition must be carefully managed and will take time. In situations of generalized financial distress and non-performing loans, there is a clear trade-off between more financial sector competition, which may force banks into bankruptcy and leave the government responsible for their deposits, and delaying the opening of the system to more competition, thereby giving the existing institutions a breathing space to build up provisions and reestablish the quality of their portfolios.

5. CONCLUSIONS AND AN AGENDA FOR REDUCING SPREADS

Macroeconomic imbalances are the principal cause of high real interest rates. Overvalued exchange rates, high and unstable inflation, and excessive public sector deficits all contribute to poor domestic resource mobilization, external indebtedness and capital flight. Commercial banks are forced to pay high real deposit rates to maintain a minimum of deposits; these rates set a floor under lending rates.

The same macroeconomic factors contribute to the large spreads that have been observed in some countries. If the public sector budget and the balance of payments were not a constraint, then spreads could be reduced quickly and substantially by reducing the taxes on the financial system. Cuts in explicit taxes would lower spreads directly and the impact of implicit taxes--reserve requirements and forced investments--can be reduced by reducing the fraction of deposits subject to the requirements and/or by raising the interest paid on the requirements. However, experience in some of the Latin American countries suggests that reduction of these taxes on the financial sector can lead to an explosive situation when the public sector deficit remains large. For example, the costs to the banks of reserve requirements could be reduced by paying realistic interest rates on public debt but, unless the public sector's operating expenses are correspondingly controlled, the public sector deficit will become an ever increasing fraction of GDP. Alternatively, interest could be paid on reserve requirements by the Central Bank, but this can lead to explosive monetary growth unless it is matched by a corresponding rise in the Central Bank's interest income. Thus, an improved macroeconomic balance, particularly a reasonable public sector deficit are essential for more reasonable interest rates, both to lower real deposit rates and to permit the reduction of taxes on financial intermediation sharply, which in turn will bring down spreads.

During the transition to lower public sector deficits progress can be made on the structural components of spreads. Taxes on external and internal credits can be harmonized and the larger tax base should permit some reduction in the rate of taxation. Forced investments, which are an implicit, earmarked tax, can be reduced in scope and interest rates on directed credits can be made more market oriented. This would lower rates on non-priority loans without worsening the problems of public finance.

Progress can also be made on costs of intermediation and bank profits. In inflationary economies spreads can often be brought down quickly and dramatically by liberalizing interest rates. The evidence suggests that such a policy increases real deposits rapidly, but that real bank costs do not rise correspondingly, resulting in a decreased spread between deposit and lending rates. This policy is particularly effective if the branch network has not overexpanded. If excessive branching has occurred, then the government may have to coordinate a general reduction in branches following interest rate liberalization.

Once costs plus profits exceed 3% of assets, their reduction is no longer solely an interest rate issue, but an efficiency and resource allocation

issue. Excess costs of even 2% of assets is equivalent to about 0.5% or more in most developing countries, since assets are 25% to 30% of GDP. Thus, policies to reduce bank costs can be important even in non-inflationary economies. Reducing operating costs and profits requires major changes in economic structure, including (i) closing branches and laying off excess employees, (ii) encouraging greater competition in the labor market for bank employees, (iii) encouraging greater competition between banks, and (iv) inducing divestiture of banks by industrial-financial groups. Such changes are politically difficult and the impact of policies to achieve these goals is likely to be felt only in the long run. There also is a clear issue of how rapidly competition should be introduced, not only from the political standpoint but from the economic. For instance, it is often recommended that foreign banks be allowed to enter to increase competition. If this is done when the domestic banking system is suffering from high arrears and a bloated cost structure, then the foreign banks may well earn high profits while the domestic banks may have to be taken over by the government. A better remedy probably would be to encourage foreign banks to enter into partnership with existing domestic banks. This would provide fresh capital for the banking system and stimulate the adoption of new technologies for handling transactions.

II

COSTS OF INTERMEDIATION IN DEVELOPING COUNTRIES:

A Preliminary Investigation

Roberto de Rezende Rocha *

1. INTRODUCTION

There is a common perception that financial intermediation in developing countries is less efficient than in developed countries. This difference in efficiency, it is commonly argued, translates into higher margins of intermediation, higher operating costs and unusually high profits in developing countries' financial systems, relative to their developed counterparts. As a result, interest rates on deposits are lower than necessary, reducing savings incentives for depositors, and lending rates are higher than necessary, reducing investment. However, there are a few comparative studies of intermediation costs in developed and less developed countries. Thus, there are two important questions: whether costs are really higher and, if so, what are the factors that lead to differences in spreads and what are the policies that can improve efficiency.

A related question of interest to policy makers in developing countries is what market structure best serves the public needs. That is, what structure allows financial institutions to reap most of the scale economies (if they exist) and, at the same time, retains enough competitiveness to prevent or make difficult the emergence of collusions among market participants and the formation of cartels and/or price leaderships (does market structure matter?). Sensible answers to these questions depend, in turn, on the availability of critical information such as the existence and magnitude of economies of scale and cost complementarities in the financial system, the structure of financial markets and on the extent to which market structure influences market performance.

As a first, broad attempt to answer these questions, this paper presents data on the performance of commercial banks in 16 developing countries. The data are organized to permit a comparison with similar data for a group of OECD countries. Lack of additional, supporting data prevents a full examination of some of the relevant issues. However, empirical work done for some of these developing countries (for instance, on economies of scale in the banking sector) helps establish some general conclusions on the question of costs of intermediation.

In evaluating these studies, the paper also draws on related empirical work for the US. The extrapolation of empirical results obtained for the US to developing countries must be done with care, but, at a

* The author is indebted to James Hanson, Millard Long and Eustaquio Reis for their useful comments and suggestions.

minimum, the US studies provide useful insights and a perspective for the analysis. They also reveal some of the methodological problems and limitations found in existing empirical work on developing countries.

In sum, this paper provides tentative answers to some questions about intermediation costs in developing countries, leaves others unanswered and raises still others. It should be seen as a first step towards a better understanding of the issue and a helpful guide to determine the areas where empirical work is most urgently needed.

The organization of the paper is as follows: Section 2 describes the methodology used to organize the data and present an overview of the results. Section 3 discusses the links between margins and inflation. Sections 4 and 5 provide an examination of banks' costs and profits, respectively, and their relation to banks' margins. Section 6 provides an assessment of the loss in overall economic efficiency implied by the existence of high costs and profits in the financial system. Finally, section 7 summarizes the results and offers some tentative conclusions. The Annex contains an overview of the theoretical aspects of banking and of interest spread determination and the Appendix contains the data for the individual countries.

2. THE DATA

2.1 Presentation of the Data

The primary purpose of this study is to construct broad measures of bank performance for cross-country comparisons and analysis. The consolidated balance sheets and income statements of commercial banks contain the raw data for this comparison. The first task in the analysis is the reorganization of this accounting data in a homogeneous way across countries. In particular, a decision has to be made on the level of disaggregation that should be attained in organizing the accounting items.

The aggregation of the items in the income statements is the one used by Revell (1980) and later by Passacantando (1983) in their studies of costs and margins of the commercial banking systems in the OECD countries. This permits a comparison of data from developing and OECD countries. In what follows, we first describe how the data are organized and then comment on the reasons for having adopted this procedure.

The Revell type of aggregation is spelled out explicitly below:

- | | | |
|-----|---------------------------------|-----|
| 1. | Interest Received | (1) |
| (-) | 2. Interest Paid | |
| = | 3. Interest Margin | |
| (+) | 4. Other Income (net) | |
| = | 5. <u>Gross Earnings Margin</u> | |
| (-) | 6. <u>Operating Costs</u> | |
| = | 7. Net Earnings Margin | |
| (+) | 8. Other Credits (net) | |
| = | 9. Profits Before Tax | |

Items 1, 2 and 3 include only interest received and paid on loans and deposits, respectively. Interest received on investments (e.g. securities), gains or losses in foreign exchange operations and commissions and fees received and paid are all added up under the fourth item: other income. The sum of items 3 and 4 gives the broadly defined margin perceived by banks in their financial operations. This is called the gross margin or the gross earnings margin or, the more familiar terms, the banker's spread or the banker's mark-up.

By subtracting all operating costs, such as personnel, administrative, rents (net), insurance, contributions and indirect taxes from the gross margin, (5), one obtains the net earnings margin, (7). The item labeled other credits, (8), comprises all revenues which are not considered the "normal business" of a banking institution, such as the sale of a building minus all non-operating costs, such as depreciation and provisions. Actually, this item is usually dominated by provisions of all types and so enters with a negative sign. Finally, by adding up (7) and (8) one obtains the profit before income taxation, (9).

Manipulating the accounting identity above, it is easily seen that the gross margin can be obtained either by adding (3) and (4) or by adding (6), (8) (mostly provisions) and (9).

That is:

$$IR - IP + OI = GM = OC + PBT - OCR \quad (2)$$

Where: IR = Interest Received,
IP = Interest Paid
OI = Other Income (net)
GM = Gross Margin
OC = Operating Costs
PBT = Profit Before Tax
OCR = Other Credits less Provisions and Other Debits

When the gross margin is obtained by the addition of the items on the right hand side of the identity, it is commonly referred to as the costs of financial intermediation or, more generally, the costs of intermediation.

The tables in the Appendix present the results obtained, through the above aggregation, from the consolidated income statements of the banking systems of a sample of 16 developing countries. ^{1/} The results are summarized in Tables 1 through 4, which also present comparable data on the OECD countries.

For some of the developing countries data were available for several years, while for others only for a single year. Whenever possible, the sample was limited to the private commercial banking system to make the data more homogeneous across countries. In some countries the consolidated income statements presented by the supervisory authorities aggregate commercial banks with some other types of financial institutions (Chile and Mexico), making it impossible to estimate commercial bank incomes separately. For a few countries two aggregations are provided, the first usually referring to commercial banks and the other to some broader aggregate. Finally, for Brazil the data refers to the 10 largest financial conglomerates.

During the process of gathering the data and rearranging them according to the Revell (1980) type of aggregation, we encountered several difficulties in allocating specific items of the income statements. Some of these difficulties were experienced and reported by Revell himself in his empirical study on the OECD countries. Most of these difficulties relate to the problems of separating interest from fee-based operations and operating from non-operating expenses. ^{2/} In some countries the numbers were mixed in a way that prevented us from making all the desired aggregations. For some others, the aggregations were made using specific assumptions, which are detailed in the tables' footnotes.

^{1/} Brazil, Chile, Colombia, Ecuador, Republic of Korea, Liberia, Malaysia, Mexico, Pakistan, Peru, Portugal, Sri Lanka, Thailand, Tunisia, Turkey and Venezuela.

^{2/} In some countries the item labelled "other expenses" includes provisions, while in others it does not.

Before passing to the analysis of the results, a few comments on the data and the methodology are in order. First regarding to the data, it should be noted that even when the units of observation are commercial banks, their operations are not homogenous across countries. In countries where banks specialize more in, say, external trade finance, a higher share of income may originate from commissions and fees, and the structure of costs may differ, compared to domestically oriented banks. This lack of homogeneity is probably greater across developing countries than in the OECD data.

Regarding methodology, the differences in gross margins across countries reflect only differences in operating costs, provisions and profits, as is clear from the accounting identities presented above. Often, however, bank spreads or margins are cited that relate to differences between "free" or the commercial lending interest rate and the rate paid on time deposits or between the lending rate and the average cost of funds of commercial banks. These spreads are affected not only by operating costs and profits but also by the reserve and liquidity requirements and the lending guidelines set by the monetary authorities. In theory one could obtain estimates of these spreads by disaggregating further the revenue side of income statements, separating reserves from loans and decomposing total loans into preferential and non-preferential loans (see Annex).

However, there are three reasons for having adopted the methodology described in Equations (1) and (2): First, we want to focus precisely on operating costs and profits as structural causes that partially underlie the level of interest rates charged by the commercial banking system. These costs are an important part of spreads in many countries. Perhaps more importantly, they are an indicator of financial sector efficiency and, if excessive, can represent the misallocation of a substantial percentage of GDP, as discussed below. The other determinants of spreads--reserve requirements and forced investments--are of course important, but they are policy parameters that are much more susceptible to change in the short-run than the structure of costs of the banking industry or the banking market structure itself. Second, as mentioned before, we want to compare the results obtained from our sample of 16 developing countries with studies in developed countries which follow this methodology. Third, data for making the appropriate disaggregates are usually not available without detailed discussions with the Central Banks.

The Annex provides a discussion of the various definitions of margins or spreads, including the one employed here, as well as an overview of the theoretical aspects of banking activity and spread determination.

2.2 An Overview of the Results

All the key variables, expressed in terms of ratios to the average value of total assets are reproduced and summarized in Tables 1-4. These tables also reproduce the results obtained by Revell and Passacantando in their empirical studies of the banking systems of the OECD countries. These two studies, which use similar methodology, have one overlapping year

in their periods of analysis, 1977. Therefore, Tables 1-4 display two columns for 1977, reflecting the results obtained by Revell and Passacantando, respectively.

Both Revell and Passacantando construct their ratios by dividing the flow variables from the income statements by the arithmetic averages of the December values of total assets. For the developing countries' group the ratios were constructed by dividing the same flow variables by the geometric averages of the December values of total banks' assets. In non-inflationary environments it matters little whether end of year figures, arithmetic or geometric averages are used, since asset values do not vary much. However, geometric averages reduce the distortions that appear when comparing flow/stock ratios across countries with low and high inflation rates. Otherwise cost ratios in high inflation countries would be artificially reduced by the greater growth of assets between year-end figures.^{3/}

Table 1 presents the gross earnings margins as a fraction of the average value of total assets. One can see that the margins in the developing countries group are higher, on average, than those of the OECD group, but a closer inspection reveals that the differences are not so sizeable. For instance, the simple unweighted average in 1977 for the broadest OECD group (which include countries with relatively high margins, such as Norway and Denmark) was 3.96% of assets. In 1978 the average for a smaller group of OECD countries was 3.53%. By comparison, the average obtained for the developing countries in 1978 was 4.23%, hardly a noticeable difference, especially when compared with the average of the broadest OECD group.

These averages, however, conceal important differences. Overall, the numbers associated with the Latin American countries seem to be above the average for developing countries. The numbers for Brazil are particularly high, although these figures represent the costs of the 10 largest financial conglomerates in the Brazilian financial system, which constitute a very different unit of observation than the ones used for the other countries.

The margins observed for Malaysia, Portugal, Thailand, Tunisia and the Republic of Korea (the nationwide commercial banks) seem to be in line with the ones of the OECD group in the 1977-1981 period, which average about 3.5%. This number probably would have been higher, had all the OECD countries been included in the 1977-81 sample.

The figures that stand out in the developing country group, other than the ones for Brazil, are those for Peru, which begin at a relatively high level and increase steadily during the 1976-1981 period; those for Turkey, which increase from a rather high 1978 level to 1980, and

^{3/} The geometric average is the correct procedure if assets follow a constant geometric growth trend throughout the year. Although assets grow more irregularly, that is still the best procedure when there is only information on end of year values for the stock variables.

then decline in the 1981-1983 period; and for Liberia, for which there is only one year of observation (1981).

Table 2 shows the ratios of operating costs to average total assets. Here, the pattern of results across countries and also through time is broadly the same as in Table 1. In 1977, for example, the simple, non-weighted average of the operating costs ratio for the OECD group was 2.8% of assets. In the 1977-81 period, for the smaller sample reported by Passacantando, the average was 2.3% of assets. As one can see, the numbers obtained for Malaysia, Portugal, Thailand, Tunisia and Korea (nationwide commercial banks) are usually below the 2.3% level. The highest operating costs, as well as the highest gross margins, are associated with Latin American countries and Turkey, which are also the countries experiencing the highest inflation rates in the total sample.

Finally, Tables 3 and 4 show net margin ratios and profit ratios, respectively. Net margins comprise not only profits but also other credits net, which consists mostly of provisions. It is useful, then, to think of this item as the sum of profits and provisions. In some countries the balance sheets show only the sum of profits and provisions, without providing any further breakdown. In these cases the profit figures are not presented in Table 4. The results show that net margins and profits are usually a larger percentage of assets in developing countries than in the OECD. The yearly averages of net margin ratios are 1.2%-1.3% of assets for the OECD and range between 1.7% and 2.3% for the developing countries without including Brazil. Profit ratios, in turn, are typically 0.7% of assets for OECD countries and 1.3% for the developing country group, once again without including Brazil. Differences in profit ratios between two groups are usually higher than differences in net margins, suggesting that the differences in net margins between groups are more due to profits than to provisions.

While gross margins and operating costs seem to be positively correlated with inflation, in the case of profits the picture is not so clear. Some non-inflationary developing countries, which have gross margins and operating costs equal to or lower than those of the developed countries (e.g., Korea, Malaysia, Thailand) show higher profit ratios than the average of the OECD group. The effects of inflation on both costs and profits are analyzed in the next section.

Table II-1

RATIOS OF GROSS EARNINGS MARGINS TO TOTAL ASSETS IN SELECTED COUNTRIES, 1975-83
(in %)

Country	Series	1975	1976	1977	1977	1978	1979	1980	1981	1982	1983
Belgium	Commercial	3.67	3.81	3.81	-	-	-	-	-	-	-
Denmark	All Banks	5.82	5.36	5.22	-	-	-	-	-	-	-
France	Commercial	3.37	3.27	3.06	2.99	2.93	2.90	3.09	3.06	-	-
Ger., Fed. Rep.	Commercial	3.33	2.89	2.77	2.81	2.72	2.55	2.58	2.91	-	-
Italy	Commercial	4.01	3.85	3.65	3.86	3.56	3.34	4.03	4.33	-	-
Netherlands	Commercial	3.92	3.67	3.46	-	-	-	-	-	-	-
Norway	Commercial	4.87	5.13	4.72	-	-	-	-	-	-	-
Spain	Commercial	4.78	5.12	5.67	4.51	4.70	4.86	4.99	4.95	-	-
Sweden	Commercial	3.18	3.44	3.42	3.34	3.48	3.25	2.71	2.76	-	-
USA	FDIC Insured	3.43	3.63	3.84	3.63	3.80	3.89	3.98	4.07	-	-
Brazil	10 Largest Holdings	-	-	-	-	-	16.2	19.1	25.6	-	-
Chile	Financial System	-	-	-	-	-	-	-	-	6.5	4.1
Colombia	Domestic Commercial	-	-	-	-	5.6	6.1	6.2	-	5.7	-
Colombia	All Commercial	-	-	-	-	5.7	6.1	6.7	-	6.5	-
Ecuador	Commercial	-	-	-	-	-	-	6.6	6.5	6.7	-
Korea, Rep. of	Nationwide Commercial	-	-	-	-	4.5	4.7	5.3	4.3	-	-
Korea, Rep. of	Regional Commercial	-	-	-	-	6.3	6.3	6.4	5.2	-	-
Liberia	Commercial	-	-	-	-	-	-	-	9.5	-	-
Malaysia	Commercial	3.8	3.6	3.6	-	4.3	3.8	3.6	3.4	3.5	-
Mexico	Domestic Banks	-	-	-	-	-	-	6.3	7.0	6.6	6.4
Pakistan	Commercial	-	-	-	-	-	4.5	4.3	4.4	4.7	4.3
Peru	Commercial	-	5.9	6.2	-	6.5	7.3	8.2	10.6	-	-
Portugal	Commercial	-	-	-	-	4.7	3.5	3.7	3.6	3.6	3.2
Portugal	Financial System	-	-	-	-	3.8	3.5	3.7	3.8	3.6	3.1
Sri Lanka	Commercial	-	-	-	-	-	-	7.6	6.6	6.1	6.2
Thailand	Commercial	4.8	4.4	4.2	-	4.2	4.2	4.3	-	-	-
Tunisia	Commercial	-	-	-	-	-	-	-	3.6	3.9	-
Turkey	Domestic Commercial	-	-	-	-	6.3	6.4	10.1	9.3	7.3	6.6
Turkey	All Banks	-	-	-	-	6.5	7.2	10.1	9.8	7.5	5.6
Venezuela	Commercial	-	5.2	4.9	-	4.8	5.2	5.6	-	-	-

Sources: 1. OECD Countries: 1975-77, Revell, J. (1980)
1977-81, Passacantando, F. (1983)

2. Developing Countries: Appendix Tables.

Table II-2

RATIOS OF OPERATING COSTS TO TOTAL ASSETS IN SELECTED COUNTRIES, 1975-83
(in %)

Country	Series	1975	1976	1977	1977	1978	1979	1980	1981	1982	1983
Belgium	Commercial	3.03	3.13	3.18	-	-	-	-	-	-	-
Denmark	All Banks	3.67	3.45	3.43	-	-	-	-	-	-	-
France	Commercial	2.38	2.36	2.24	2.18	2.18	2.15	2.08	2.03	-	-
Ger., Fed. Rep.	Commercial	2.47	2.26	2.15	2.18	2.10	2.06	2.14	2.20	-	-
Italy	All Commercial	2.50	2.50	2.32	2.43	2.30	2.22	2.45	2.41	-	-
Netherlands	Commercial	2.81	2.57	3.41	-	-	-	-	-	-	-
Norway	Commercial	3.69	3.72	3.52	-	-	-	-	-	-	-
Spain	Commercial	2.95	3.16	3.63	3.05	3.18	3.22	3.17	3.10	-	-
Sweden	Commercial	1.94	2.07	2.12	1.97	1.90	1.79	1.65	1.50	-	-
USA	FDIC Insured	2.24	2.44	2.45	2.45	2.49	2.54	2.63	2.76	-	-
Brazil	10 Largest Holdings	-	-	-	-	-	10.2	11.0	12.2	-	-
Chile	Financial System	-	-	-	-	-	-	-	-	3.5	2.8
Colombia	Domestic Commercial	-	-	-	-	3.7	4.1	4.2	-	4.6	-
Colombia	All Commercial	-	-	-	-	4.0	4.3	4.8	-	5.3	-
Ecuador	Commercial	-	-	-	-	-	-	-	-	-	-
Korea, Rep. of	Nationwide Commercial	-	-	-	-	2.1	2.0	2.0	2.1	-	-
Korea, Rep. of	Regional Commercial	-	-	-	-	3.2	3.2	3.2	3.3	-	-
Liberia	Commercial	-	-	-	-	-	-	-	6.6	-	-
Malaysia	Commercial	1.4	2.0	1.4	-	1.3	1.3	1.2	1.2	1.2	-
Mexico	Domestic Banks	-	-	-	-	-	-	4.3	5.0	4.9	4.6
Pakistan	Commercial	-	-	-	-	-	3.1	3.0	3.0	3.1	2.8
Peru	Commercial	-	4.7	4.9	-	5.1	5.6	6.1	6.2	-	-
Portugal	Commercial	-	-	-	-	2.1	2.2	2.3	2.3	2.2	2.3
Portugal	Financial System	-	-	-	-	1.9	1.9	2.0	2.0	1.9	2.0
Sri Lanka	Commercial	-	-	-	-	-	-	3.4	3.8	3.9	3.8
Thailand	Commercial	2.7	2.6	2.4	-	2.4	2.3	2.4	-	-	-
Tunisia	Commercial	-	-	-	-	-	-	-	2.0	2.1	-
Turkey	Domestic Commercial	-	-	-	-	5.6	6.0	8.8	7.1	5.7	5.0
Turkey	All Banks	-	-	-	-	6.5	7.5	8.5	6.8	5.4	4.1
Venezuela	Commercial	-	3.0	3.0	-	3.0	3.4	4.0	-	-	-

Sources: 1. OECD Countries: 1975-77, Revell, J. (1980)
1977-81, Passacantando, F. (1983)

2. Developing Countries: Appendix Tables.

Table II-3

RATIOS OF NET EARNINGS MARGINS TO TOTAL ASSETS IN SELECTED COUNTRIES, 1975-83
(in %)

Country	Series	1975	1976	1977	1977	1978	1979	1980	1981	1982	1983
Belgium	Commercial	0.64	0.68	0.64	-	-	-	-	-	-	-
Denmark	All Banks	2.15	1.91	1.78	-	-	-	-	-	-	-
France	Commercial	0.98	0.91	0.82	0.80	0.75	0.75	1.02	1.03	-	-
Ger., Fed. Rep.	Commercial	0.86	0.63	0.62	0.63	0.61	0.49	0.45	0.71	-	-
Italy	All Commercial	1.51	1.34	1.33	1.44	1.27	1.12	1.58	1.92	-	-
Netherlands	Commercial	1.11	1.11	1.04	-	-	-	-	-	-	-
Norway	Commercial	1.17	1.41	1.19	-	-	-	-	-	-	-
Spain	Commercial	1.83	1.96	2.04	1.46	1.53	1.64	1.82	1.85	-	-
Sweden	Commercial	1.24	1.37	1.29	1.37	1.58	1.45	1.06	1.25	-	-
USA	FDIC Insured	1.19	1.19	1.39	1.18	1.30	1.35	1.35	1.31	-	-
Brazil	10 Largest Holdings	-	-	-	-	-	6.8	8.1	13.4	-	-
Chile	Financial System	-	-	-	-	-	-	-	-	3.0	1.3
Colombia	Domestic Commercial	-	-	-	-	1.9	2.0	2.0	-	1.1	-
Colombia	All Commercial	-	-	-	-	1.7	1.8	1.9	-	1.1	-
Ecuador	Commercial	-	-	-	-	-	-	-	-	-	-
Korea, Rep. of	Nationwide Commercial	-	-	-	-	2.4	2.7	3.3	2.1	-	-
Korea, Rep. of	Regional Commercial	-	-	-	-	3.1	3.1	3.2	1.8	-	-
Liberia	Commercial	-	-	-	-	-	-	-	2.2	-	-
Malaysia	Commercial	2.4	1.5	2.1	-	3.0	2.5	2.5	2.3	2.3	-
Mexico	Domestic Banks	-	-	-	-	-	-	1.9	2.0	1.7	1.8
Pakistan	Commercial	-	-	-	-	-	1.3	1.2	1.4	1.6	1.5
Peru	Commercial	-	1.2	1.3	-	1.4	1.7	2.2	4.4	-	-
Portugal	Commercial	-	-	-	-	1.6	1.4	1.4	1.3	1.4	0.9
Portugal	Financial System	-	-	-	-	1.9	1.6	1.7	1.8	1.7	1.1
Sri Lanka	Commercial	-	-	-	-	-	-	4.3	2.8	2.2	2.4
Thailand	Commercial	2.1	1.9	1.8	-	1.8	1.8	1.8	-	-	-
Tunisia	Commercial	-	-	-	-	-	-	-	1.6	1.8	-
Turkey	Domestic Commercial	-	-	-	-	0.8	0.4	1.3	2.2	1.6	1.6
Turkey	All Banks	-	-	-	-	0.1	-0.4	-1.4	3.0	2.1	1.5
Venezuela	Commercial	-	2.1	1.9	-	1.8	1.8	1.6	-	-	-

Sources: 1. OECD Countries: 1975-77, Revell, J. (1980)
1977-81, Passacantando, F. (1983)

2. Developing Countries: Appendix Tables.

Table II-4

RATIOS OF PROFITS BEFORE TAX TO TOTAL ASSETS IN SELECTED COUNTRIES, 1975-83
(in %)

Country	Series	1975	1976	1977	1977	1978	1979	1980	1981	1982	1983
Belgium	Commercial	0.30	0.33	0.32	-	-	-	-	-	-	-
Denmark	All Banks	3.70	0.28	1.58	-	-	-	-	-	-	-
France	Commercial	0.52	0.50	0.43	0.42	0.43	0.41	0.47	0.43	-	-
Ger., Rep. of	Commercial	0.77	0.68	0.69	0.70	0.66	0.48	0.48	0.49	-	-
Italy	All Commercial	0.47	0.41	0.46	0.51	0.49	0.46	0.58	0.70	-	-
Netherlands	Commercial	0.79	0.87	0.84	-	-	-	-	-	-	-
Norway	Commercial	0.42	0.83	0.66	-	-	-	-	-	-	-
Spain	Commercial	1.63	1.66	1.46	1.00	0.84	0.81	0.73	0.76	-	-
Sweden	Commercial	0.52	0.56	0.45	1.23	1.48	1.37	1.02	1.22	-	-
USA	FDIC Insured	0.69	0.64	0.90	0.69	0.78	0.84	-	-	-	-
Brazil	10 Largest Holdings	-	-	-	-	-	3.1	3.8	8.5	-	-
Chile	Financial System	-	-	-	-	-	-	-	-	-	-
Colombia	Domestic Commercial	-	-	-	-	1.3	1.3	1.3	-	0.7	-
Colombia	All Commercial	-	-	-	-	1.1	1.1	1.2	-	0.7	-
Ecuador	Commercial	-	-	-	-	-	-	-	-	-	-
Korea, Rep. of	Nationwide Commercial	-	-	-	-	1.2	1.0	1.1	0.9	-	-
Korea, Rep. of	Regional Commercial	-	-	-	-	1.6	1.5	1.5	1.1	-	-
Liberia	Commercial	-	-	-	-	-	-	-	-	-	-
Malaysia	Commercial	1.7	1.4	1.4	-	2.3	1.7	1.6	1.5	1.6	-
Mexico	Domestic Banks	-	-	-	-	-	-	1.6	1.6	1.1	1.0
Pakistan	Commercial	-	-	-	-	-	-	-	-	-	-
Peru	Commercial	-	-	-	-	-	-	-	2.1	-	-
Portugal	Commercial	-	-	-	-	0.3	0.2	0.3	0.3	0.3	0.2
Portugal	Financial System	-	-	-	-	0.5	0.6	0.4	0.6	0.6	0.3
Sri Lanka	Commercial	-	-	-	-	-	-	-	-	-	-
Thailand	Commercial	2.1	1.6	1.5	-	1.6	1.5	1.5	-	-	-
Tunisia	Commercial	-	-	-	-	-	-	-	-	-	-
Turkey	Domestic Commercial	-	-	-	-	0.7	0.4	1.3	1.2	0.6	1.1
Turkey	All Banks	-	-	-	-	-0.4	-0.4	1.5	1.9	1.1	1.1
Venezue...	Commercial	-	1.9	1.5	-	1.4	1.1	1.1	-	-	-

Sources: 1. OECD Countries: 1975-77, Revell, J. (1980)
1977-81, Passacantando, F. (1983)

2. Developing Countries: Appendix Tables.

3. INFLATION AND MARGINS

The potential importance of inflation in explaining differences in gross margins across countries suggests the need for a more detailed analysis of its impact on margins through, respectively, costs and profits. In the next two sections the analysis is extended to other factors which, through costs and profits, also influence the level of bank margins.

Table 5 shows the annual average rates of inflation, as measured by the variations in the yearly averages of the consumer price index, for all countries in the 1976-83 period, while Table 6 presents simple correlation coefficients between the average inflation rates reported in Table 5 and the gross margins and costs reported in Tables 1 and 2. These are cross-section correlations and were obtained with and without including Brazil in the sample, since the Brazilian data refer to a much broader unit of observation than commercial banks.^{4/}

The results reported in Table 6 suggest a close association between inflation and margins across countries, though this is admittedly a crude way of investigating the impact of inflation on costs and margins. The correlations between margins, costs and inflation in 1981 (excluding Brazil) are lower, partly because of the inclusion of Liberia, a country with low inflation rates and relatively high margins and costs. Excluding Liberia, these numbers rise to 0.85 and 0.77, respectively.^{5/}

Why do gross margins and costs as a proportion of total assets tend to rise together with inflation? In fact, this question is a particular subset of a much broader question: What are the real costs of inflation?

It has often been suggested that among the several possible real costs of inflation, one should include the so-called "menu costs", which reflect the need to change prices more frequently, and the costs caused by an increase in the number of financial transactions per period of time.^{6/} The latter can be particularly important when there is a high degree of uncertainty regarding the level of future inflation. This uncertainty

^{4/} For countries with more than one series, we used the numbers associated with the broadest aggregate (with the exception of Turkey, the reason being that some of the largest state-owned banks included in the broadest sample experienced unusually large losses in 1978 and 1979).

^{5/} Excluding Liberia and including Brazil the correlations between gross margins, and inflation and costs and inflation in 1981 rise to 0.93 and 0.92 respectively.

^{6/} Fisher and Modigliani (1978) provide an exhaustive list of all the possible real costs generated by inflation and inflation uncertainty.

Table II-5

AVERAGE RATES OF INFLATION IN SELECTED COUNTRIES, 1976-83
(in %)

Country	1976	1977	1978	1979	1980	1981	1982	1983
Belgium	9.1	7.1	4.5	4.4	6.6	7.6	8.7	7.7
Denmark	9.0	11.1	10.0	9.6	12.3	11.7	10.1	6.9
France	9.7	9.3	9.1	10.7	13.8	13.4	11.8	9.6
Ger., Fed.Rep.	4.4	3.6	2.7	4.2	5.4	6.3	5.3	3.3
Italy	16.8	17.0	12.2	14.7	21.2	17.8	16.5	14.6
Netherlands	9.0	6.5	4.2	4.2	6.5	6.7	5.9	2.8
Norway	9.1	9.2	8.0	4.9	10.7	13.7	11.3	8.4
Spain	15.1	24.5	19.7	15.6	15.6	14.6	14.4	12.1
Sweden	10.2	11.5	9.6	7.2	13.8	12.1	8.5	8.9
USA	5.8	6.5	7.6	11.2	13.5	10.4	6.1	3.2
Brazil	41.7	43.3	38.7	52.8	82.8	105.6	97.9	142.0
Chile	212.1	92.2	40.1	33.3	35.1	19.7	9.9	27.2
Colombia	20.2	33.1	17.8	24.6	26.6	24.0	24.5	19.8
Ecuador	10.8	13.0	11.5	10.3	13.0	13.0	16.2	48.5
Korea, Rep. of	15.3	10.2	14.4	18.3	28.7	21.3	7.2	3.4
Liberia	5.7	6.1	7.3	11.6	14.7	7.6	5.9	2.8
Malaysia	2.6	4.7	5.0	3.5	6.7	9.7	5.8	3.7
Mexico	15.7	28.9	17.5	18.1	26.4	27.9	58.9	101.9
Pakistan	7.3	10.1	6.1	8.3	11.5	11.5	5.9	7.4
Peru	33.0	38.1	57.8	66.6	59.2	75.4	64.4	111.2
Portugal	19.0	27.0	22.6	23.7	16.7	20.0	22.7	25.1
Sri Lanka	1.2	1.2	12.1	10.8	26.2	17.9	10.8	14.0
Thailand	4.1	7.5	7.9	9.9	19.8	12.7	5.2	3.7
Tunisia	5.3	6.8	5.2	7.8	10.0	8.9	13.7	9.0
Turkey	17.4	27.2	45.6	58.7	110.1	36.5	30.8	29.1
Venezuela	7.6	7.9	7.0	12.4	21.5	16.0	9.7	6.3

Sources: International Financial Statistics Yearbook, 1984.

Notes: Average rates of inflation measured by variations in the average yearly levels of the Consumer Price Index.

factor triggers a progressive shortening of nominal contracts which, in turn, generates higher costs due to the need for more frequent transactions (contracts) per period of time and due to the loss of planning ability. For the banking system, these costs appear through the need for more personnel to process the greater volume of paperwork and roll over short term contracts, etc.

Table II-6

SIMPLE CORRELATION COEFFICIENTS BETWEEN MARGINS, COSTS AND INFLATION
ACROSS COUNTRIES IN SELECTED YEARS

Year	Excluding Brazil		Including Brazil	
	Corr (GM, Inf) ^a /	Corr (OC, Inf) ^a /	Corr (GM, Inf) ^a /	Corr (OC, Inf) ^a /
1978	0.80	0.86	-	-
1979	0.81	0.87	0.68	0.81
1980	0.82	0.91	0.79	0.91
1981	0.67	0.58	0.89	0.83

Notes: ^a/ GM = Gross Earnings Margins
 Inf = Average Inflation Rates
 OC = Operating Costs

It has also been argued that high inflation rates are to blame for the excessive bank branching (and consequent higher personnel costs) which originates mostly from non-price competition for deposits when interest ceilings on deposits are not adjusted to reflect inflation. We will have more to say about this issue in the next section.

Another possible explanation of the link between inflation and margins could be a link between inflation and profits. The possible links between inflation and profits can be highlighted by defining profits in terms of the identity (2) shown above, restated in terms of percentages of total assets, A, and then differentiating with respect to the inflation rate, p:

$$\frac{d(\text{PBT}/A)}{dp} = \frac{d(\text{IR}/A)}{dp} - \frac{d(\text{IP}/A)}{dp} - \frac{d(\text{OC}/A)}{dp} + \frac{d(\text{OI}/A)}{dp} + \frac{d(\text{OCR}/A)}{dp}$$

This yields the changes in profits as the sum of the changes in the interest margin, less the changes in operating costs, plus the changes in other income and other credits.

Profits as a fraction of total assets increase, for given operating costs, OC/A , as long as the change in interest margins, $d(IR/A)/dp - d(IP/A)/dp$, is positive (disregarding other income, OI/A , and other credits, OCR/A). Interest margins will increase with inflation if the nominal lending rate, as well as the nominal rates on time and savings deposits all increase in line with inflation but the average cost of funds (the weighted average of the rates paid on demand deposits and time and savings deposits) increases less than inflation. The latter will be true if demand deposits pay zero interest and their interest elasticity is low, conditions which hold in most countries. Put another way, increases in inflation usually increase the inflation tax revenue collected from money holders and part of such increase in the inflation tax is collected by the commercial banks, provided that the government does not tax away all these inflation gains or entry does not compete away all the profits.

Another link between inflation and profits could be the interactions between inflation and risk. It has been already argued in the finance literature that the volatility of interest rates introduces substantial risk into the banking activity and that, accordingly, bankers charge a higher risk premium when faced with volatile interest rates.^{7/} If the variance of inflation increases as inflation rises, as is usually the case, the variance of interest rates should also rise. If bank managers are generally risk averse, then we should observe, everything else being constant, higher margins in higher inflationary countries. In consolidated income statements, this risk premium would translate into higher profits per unit of assets.

Table 7 shows simple correlation coefficients between the ratios of profits before tax to total assets, ratios and the yearly average inflation rates of each country. One notes that, contrary to the results in Table 6, the correlation between profits per unit of assets and inflation depends substantially on the inclusion or exclusion of Brazil in the sample. Thus the evidence of a link between inflation and profits is mixed.

One explanation of these poor results may be the lack of comparability of profit ratios across countries. It is obviously difficult to obtain a sensible measure of banks' profits from their income statements. Differences in accounting procedures (nominal versus inflation-adjusted accounting) may also distort profit comparisons. Legislation concerning provisions varies across countries and, as a consequence, banking institutions vary in their ability to understate their profits. Banks also may not show high profits on their own books during inflation, but may transfer them to other members of an industrial-financial conglomerate in the form of cheap loans. Finally, equity requirements also may differ across countries; this will reduce the correlation, particularly if leverage increases with inflation.

^{7/} This risk appears whenever the bank holds an unmatched portfolio of deposits and loans and the short-term interest rate changes. See Ho and Saunders (1981).

Table II-7

SIMPLE CORRELATION COEFFICIENTS BETWEEN PROFITS AND
INFLATION ACROSS COUNTRIES IN SELECTED YEARS

	Excluding Brazil	Including Brazil
Year	Corr (PBT, Inf) <u>a/</u>	Corr (PBT, Inf) <u>a/</u>
1978	- 0.35	-
1979	- 0.42	0.27
1980	0.28	0.57

Notes: a/ PBT = Profits before Tax
Inf = Average Inflation Rates

Measurement problems aside, there is another factor that may help explain the apparent lack of correlation between inflation and profit ratios. Operating costs per unit of assets also increase with inflation, as shown in Table 6, and this increase absorbs at least part of the rise in interest margins induced by inflation. The impact of inflation on profits ratios would differ in the short and long runs. Profit ratios would increase sharply in the short run, and decrease gradually again, as banks started competing for demand deposits by opening up additional branches and thereby experienced higher operational costs. Another cost factor that may restrain the growth in banks' profits in an inflationary environment is the influence of labor unions. Strong unions may be able to capture part of the inflation tax and transfer it to banks' employees through higher wages, benefits, seniority bonuses, etc.

4. COSTS AND MARGINS

The previous section indicated several channels through which inflation may exert an impact on operating costs of banks. This section investigates in more detail the cost component of banks' margins, starting with a discussion of the issue of scale economies in banking. Next, we address the question of excessive branching and its effect on banks' costs. Finally, we discuss the likely impact of financial repression on the evolution of cost ratios through time.

4.1 Size and Costs: Are There Economies of Scale in Banking?

A question of interest in the analysis of bank costs is the existence of economies of scale in banking. The answer to this question has practical implications for the regulation of financial systems. If economies of scale are present and significant, then mergers will generate an overall reduction of the operating costs incurred by the banking system and a corresponding reduction in gross margins, provided the mergers do not reduce competition significantly.

Economies of scale in the banking sector, as elsewhere, can originate from indivisibilities of productive factors, and specialization of labor--both real economies--and from the reduction of the prices of inputs demanded by the firm--pecuniary economies.

In addition, there may be factors specific to banking that also generate economies of scale. Baltensperger (1972) has suggested that economies of scale might occur in banking as a result of the interactions between risk and operating costs. Banks face risk of several types, related to the uncertainty about the timing of deposit withdrawals and demand for loans and to the risk of default and capital losses. Banks can trade-off risk, and the costs associated with it, for more operating costs (for instance, hiring additional portfolio managers and/or additional credit analysts, etc.) and will do so as long as it can reap net gains at the margin. The essence of Baltensperger's argument is that, to the extent that different debtors and creditors are independent, an increase in the number of customers reduces uncertainty and the associated adjustment costs. In other words, there would be gains from diversification and a large bank would have a cost advantage over smaller ones, from the possibilities of extra diversification.

It is important to note, however, that the theoretical arguments for economies of scale in banking are not so strong as to render empirical investigation unnecessary. For example, it appears that most of the gains from diversification can be reaped by relatively small banks.^{8/} Capital indivisibilities in banking also may not be a very important factor--one thinks immediately of the massive appearance of microcomputers with their

^{8/} Wagner and Lau (1971) show that most of risk reduction from diversification is obtained with a low number of securities.

off-the-shelf programs and of the rental of computer time and accounting services.^{9/}

There are numerous empirical studies on economies of scale on developing countries. Before reviewing them it is useful to examine briefly the empirical work on banking costs done for the U.S., since there have been major changes in methodology in the recent years. The most cited works on US banking costs are those of Benston (1965), Bell and Murphy (1968), Benston (1972), Benston Hanweck and Humphrey (1982), Gilligan, Smirlock and Marshall (1984) and Benston, Berger, Hanweck and Humphrey (1983). These studies, and others, are well surveyed in Gilbert (1984). There are many technical details in this literature and we will limit ourselves to describing the main methodological issues and the main conclusions reached by these studies.

Benston (1965) and Bell and Murphy (1968), the initial papers in this literature, used a generalized Cobb-Douglas to estimate bank cost functions. At this stage of the literature separate cost functions were estimated for each measure of bank output (the number of loans, time deposits, demand deposits, etc.). The main conclusion that emerged at this stage, which remained unchallenged until the early 1980s, was that there were continuous economies of scale for most categories of bank output, although in most cases these were not dramatic.

A new stage of the literature was initiated in Benston, Hanweck and Humphrey (1982) and further developed in Gilligan Smirlock and Marshall (1984) and Benston, Berger, Hanweck and Humphrey (1983). The major difference from previous studies was the use of a translog functional form, which is a more general specification than the Cobb-Douglas. The translog permits the estimation of a long run average cost curve that can be either upward sloping (continuous diseconomies of scale), downward sloping (continuous economies) or U-shaped. In this way it is possible to test whether there is some size at which economies of scale disappeared, rather than force the data into the Cobb-Douglas functional form, that requires continuous economies or diseconomies of scale.

Perhaps more important, these studies argue that a bank is typically a multiproduct firm which may benefit from cost complementarities and unless this is taken into account, one can obtain biased estimates of the

^{9/} There also seems to exist a confusion between: (1) Economies of scale of the banking system as a whole versus a hypothetical situation where financial intermediation is done by individuals and (2) economies of scale of bank size. In the first case, a financial system can realize enormous economies of information and transaction costs by eliminating the need for individuals to search and evaluate savings - investment opportunities, as well as a reduction in risk through the law of large numbers. In the second case, assuming credit information is exchanged between intermediaries and markets exists for surplus intermediaries to lend to deficit intermediaries the gains from greater scale are less obvious. In this respect, some useful insights can be extracted from Benston and Smith (1976).

impact of output on costs, which will lead to the incorrect inference that economies of scale are present. As an example, consider the production of loans and deposits. Assume that the production of loans and capturing of deposits are characterized by constant returns to scale, but that there are complementarities between loans and deposits, because of savings in information gathering and transactions costs. When the amount of deposits and loans increases, the average cost of producing loans decreases as a result of cost complementarities, while the researcher may be fooled, interpreting the fact as the existence of economies of scale in the production of loans.

Accordingly, these studies test for the significance of the interaction between the several categories of bank output on operating costs, through a translog specification. The general conclusion is that joint costs are significant for at least some of the categories of bank output and that economies of scale are present only over a limited range of bank output.^{10/}

Turning to economies of scale in banking in developing countries, studies have been undertaken by Feldman (1978), Mendez (1981), Skarmeta (1982), Bernal and Herrera (1983) and Rocha (1985), respectively for the cases of Argentina, Mexico, Chile, Colombia and Turkey. Carvalho et. al. (1976) comment on bank cost studies done for Brazil up to 1976. All of these studies conclude that there are economies of scale in their respective countries. The studies done for Argentina, Chile and Mexico also conclude that average costs of a bank are increased by the number of branches which the banks operate. Numerous branches tend to offset potential scale economies.

These studies of bank costs in LDCs face severe data limitations. For example, the number of the various deposit accounts and the number of loans, the preferred measures of banks' output, are not always available, so researchers have to resort to other measures of output, such as the money value of deposits, loans or even total assets, often without making explicit the problems of interpretation that might result from such changes. In addition most of these studies suffer from a methodological problems, they follow the early U.S. work and adopt the Cobb-Douglas as the functional form. As mentioned above, this eliminates the possibilities of a U-shaped cost curve and the separation of the effects of economies of scale and cost complementarities. In their critical review of the studies done for Brazil, Carvalho et. al. (1976) conclude that the problems of data and specification are so serious that their results must be judged inconclusive. It should also be noted, that the number of observations (banks) in many of LDCs is so small as to prevent the estimation of a multiproduct cost function, like the translog.^{11/} This problem of reduced statistical information also hinders attempts to split the sample and test for diffe-

^{10/} Benston, Hanweck and Humphrey (1982) and Gilligan, Smirlock and Marshall (1984) all report a U-shaped cost curve.

^{11/} Rocha (1985) estimated both a Cobb-Douglas and a translog for the Turkish banking system but reported difficulties in the estimation of a translog with reduced statistical information.

rences in the regression coefficients in the Cobb-Douglas specification, which would allow a better estimate of scale economies.

In any case, for most of LDCs scale economies or cost complementarities are probably not a factor that can be relied upon to reduce interest margins,^{12/} even overlooking the specification and measurement problems of these studies. If economies of scale are continuous, then there is probably more scope for reducing bank costs and interest margins through a policy of mergers, provided the number of institutions is also large. However, in most countries the number of institutions is too small and/or most of economies of scale can be reaped with a relatively small size of bank. In these cases, a policy of mergers might reduce the average cost of the smaller institutions while leaving the costs of the bigger institutions unchanged, but it is unrealistic to think that this would reduce interest spreads decisively. The final outcome might simply be a banking system with few institutions, constant or higher interest spreads because of less competition, and higher profits for the merged institutions.

An interesting illustration of these problems is the case of Brazil in the 1960s. In this period the Brazilian government promoted a wave of bank mergers with the intention of taking advantage of economies of scale in banking and, accordingly, reducing intermediation costs and interest rates. A quick glance at the numbers for Brazil in table 2 makes one ask what went wrong. Moreover, high banking costs in Brazil are not a phenomenon specific to the period covered in the table. Carvalho et. al. (1976) report a 1972 study of the Brazilian Banks' Association (FENABAN) where commercial banks' costs per unit of deposits were estimated to be seven times higher than those of commercial banks in the US. The FENABAN study attributed these high costs mainly to the great number of accounts with negligible average balances (employees' salaries deposited by corporations), an abundance of idle accounts, and excess capacity of branches.

It might also be that scale economies existed and were being exploited, but regulators overlooked other factors which were pressing up bank's costs and profits in the same period and which turned out to be more important in magnitude. Among these factors, one that is often stressed is the rapid expansion of bank branches that occurred in the 1960s and in the 1970s. Since the phenomenon of rapid branch expansion has been observed in other countries as well, we turn next to the examination of this issue.

4.2 Branching and Costs

In section 3 it was pointed out that inflation could exert an impact on banks' costs by inducing the banking system to open and maintain an excessive number of branches. In fact, this is a common explanation for

^{12/} The distinction of economies of scale and cost complementarities has been stressed in the recent literature of bank costs but there are situations where this distinction may not be too important. For instance, if cost reduction is the primary objective of a policy of mergers, it does not make much difference if such reduction is brought about by economies of scale or cost complementarities.

high banking costs in inflationary economies (Daly (1967) and MacKinnon (1970)). In particular, Daly (1967) concludes that the overexpansion of branches in the Uruguayan banking system during the 1950s and the 1960s was induced by the possibility of attaining profits from real estate speculation and from negative real interest rates on deposits and liberal rediscounting by the Uruguayan Central Bank, while the effective loan rates remained above the rate of inflation. Those two reasons, according to Daly, enabled commercial banks to maintain their high profitability, in spite of higher operating costs.

The Uruguayan example is probably representative, for in most inflationary economies the payment of interest on demand deposits is forbidden or set at ceilings well below the rate of inflation. Nominal ceilings on the lending side can be circumvented by commercial banks through several devices, such as the charge of fees, taxes, the imposition of compensating balances, etc. In this case, branching becomes an effective way of competing for more low-cost deposits and getting a larger share of the inflation tax.

If inflation does provide an incentive for banks to expand their network of branches we should observe, *ceteris paribus*, a relatively higher number of bank branches in countries with higher inflation rates. As a first attempt to examine this proposition we looked at data on population, number of bank branches, income per capita and inflation for the countries included in our sample. Table 8 displays the available information on these variables. For some countries there is no available data on branches, while for others there is more than one series, since in these countries the state-owned banks perform several functions typical of commercial banks, competing with the latter through a large network of branches. Thus, for some countries three types of information are presented on the number of branches, one referring to the private commercial banks, the second to the sum of private commercial banks and the commercial banks in which the state has some participation and, finally, the total number of bank branches, including branches of state banks that are not classified as commercial, but that compete with the commercial banks in a number of ways, either by lending to specific sectors of the economy or even by competing for demand deposits. The inflation variable is represented by the yearly geometric averages of the accumulated variation of the Consumer Price Index in the fifteen years prior to the reported year. The purpose of constructing this variable is to capture the effect that long-run inflation has on the expansion of bank branches.

Income per capita serves as a general proxy for the demand for banking services provided by bank branches. Since there is not a well established theory of the demand for bank branches what we simply assume that the demand for branches is generally associated with the demand for financial assets (including the transactions demand for sight deposits), which rises with per capita income. Besides, the demand for branches

Table II-8

NUMBER OF BANK BRANCHES, EMPLOYEES PER BRANCH, POPULATION PER BRANCH
AND INCOME PER CAPITA IN SELECTED COUNTRIES

Country	Year	Series	Number of Branches	Population Branch	Inflation (Yearly geometric average of the variation in the CPI in the previous 15 years) (in %)	Income per Capita (in US\$)
Belgium	1977	All Commercial	3,579	2,750	5.72	8,280
Denmark	1977	All Banks	2,078	2,442	7.60	9,160
France	1977	All Banks	9,946	5,331	6.38	7,500
Ger., Rep.of	1977	All Banks	37,764	1,626	3.93	8,620
Italy	1977	All Banks	11,720	4,818	8.13	3,530
Netherlands	1977	All Commercial	2,322	5,971	6.51	7,710
Norway	1977	All Commercial	540	7,470	6.47	8,570
Sweden	1977	All Commercial	1,544	5,352	6.31	9,340
Argentina	1983	All Commercial	4,336	6,833	111.56	2,070
Argentina	1983	Private Commercial	2,581	11,480	"	"
Brazil	1981	All Commercial	10,681	11,283	36.03	2,220
Brazil	1981	Private Commercial	6,922	17,409	"	"
Colombia	1980	All Banks	2,619	9,886	17.29	1,260
Colombia	1980	All Commercial	1,771	14,620	"	"
Colombia	1980	Private Commercial	1,209	21,416	"	"
Ecuador	1981	Private Commercial	285	30,193	10.51	1,180
Malaysia	1983	Private Commercial	664	22,382	5.02	1,840
Peru	1981	All Banks	1,485	11,468	26.93	1,170
Peru	1981	All Commercial	896	19,008	"	"
Peru	1981	Private Commercial	449	37,929	"	"
Thailand	1980	Private Commercial	1,493	31,445	6.30	670
Tunisia	1981	Private Commercial	298	21,906	5.37	1,420
Turkey	1981	All Banks	6,265	7,267	24.36	1,540
Turkey	1981	Private Commercial	3,668	12,412	"	"
Venezuela	1981	Private Commercial	1,234	12,498	6.43	4,220

Sources: 1. OECD Countries: Revell, J. (1980) and World Bank, Atlas, several issues.

2. Developing Countries: Anuario Estadístico do Brasil, 1982, Argentina Economic Memorandum, World Bank, 1983, World Bank, Atlas, several issues and the sources listed in the Appendix Tables.

is also influenced by the cost of time, which should increase with income per capita.^{13/}

To perform the analysis, two alternative measures of the population per branch ratio (a general indicator of the extension of the branching system) were regressed (by OLS) against past inflation and income per capita. In the first regression, the population per branch ratio was constructed using the broadest measure of branches. In countries where the state banks, either classified as commercial or not, have a large network of branches, these branches were added to those of private commercial banks. In the second regression, the inclusion of state bank branches depends on whether these banks are classified as commercial. This procedure was adopted because the degree of competition between the non-commercial state banks and the commercial banks is not clear.^{14/}

The two regressions explain reasonably well the cross-country variations of the population per branch ratio (60% in the first regression and 68% in the second). The coefficients of average past inflation and income per capita appear with the expected sign and are both significant. These results thus show that the network of branches, relative to the population, tends to be higher the higher past inflation and the higher the overall demand for banking services, as measured by the income per capita.

While these results clearly indicate that inflation is an important determinant of branching behavior, they do not provide a safe guide to the assessment of excessive branching in any particular country. As mentioned above, there is neither a well developed theory of optimal branching nor an absolute threshold from which "excessive" or "deficient" branching can be unambiguously detected.

From the point of view of the individual bank, the opening of additional branches may be consistent with profit maximizing behavior if that is one of the few ways left for banks to compete for demand deposits. It may pay to open a new branch in areas where the number of branches is already sufficient to meet the demand for banking services, but inflation and wide interest margins assure that the high costs of operating that branch can be covered even with a low volume of business.

Besides, as suggested by Rosas (1972), the expansion of bank branches may create a social benefit, since a more developed banking system generates a decline in barter trade and an increase in the demand for sight deposits (and for banking services in general), particularly in the earlier stages of economic development. In other words, a larger network of

^{13/} This is related to the "convenience argument" suggested by Benston in several papers. For customers it is certainly more convenient to have an extra branch near by in order to economize on time spent in making transactions. If the cost of time rises with per capita income the "demand" for bank branches should be higher, ceteris paribus, in higher income countries.

^{14/} This is particularly the case in Colombia and Peru. The sample used for the second regression excludes the 848 branches of the Colombian Caja de Credito Agrario, Industrial y Minero as well as the 406 branches of the Peruvian Banco de la Nacion.

branches may develop the "banking habit" in underdeveloped economies, as people gradually switch from barter trade to monetized transactions.^{15/}

Table II-9

THE POPULATION/BRANCH RATIO AS A FUNCTION OF INFLATION AND INCOME PER CAPITA:

CROSS-COUNTRY REGRESSION RESULTS

Series		Coefficient of			R ²	\bar{R}^2	SER	F	N
		Constant	Inflation	Income per Capita					
I. All Banks	Coefficient	23279**	-141.0*	-2.188**	0.60	0.54	6216	11.11	18
	t-statistic	7.708	-2.234	-4.658					
	Beta	-	-0.388	-0.809					
II. All Commercial	Coefficient	24921**	-142.9*	-2.396**	0.68	0.64	5672	15.84	18
	t-statistic	9.044	-2.483	-5.590					
	Beta	-	-0.385	-0.867					

- Notes: 1. (**) Statistically significant at the 1% level.
 2. (*) Statistically significant at the 5% level.
 3. $F_{2,15}$ (5%) = 3.68; $F_{2,15}$ (1%) = 6.36

Analogously, branching by providing depositors more service can be viewed as one of the system's responses to offsetting the burden of the inflation tax. If more branches also increase the total demand for financial assets, holding inflation constant, as Rosas finds is the case for five Latin American countries, then the evaluation of branching must involve an estimate of their social benefits, as well as their costs.

These arguments suggest that there is more to branching than the obvious, high operating costs of maintaining a large network of branches that are reflected in the numbers shown in Table 2.^{16/} There are also

^{15/} If Rosas' argument is empirically important, the results reported in table 10 will be affected by a simultaneity bias, but we did not investigate this problem further.

^{16/} In some of the studies on economies of scale in LDCs mentioned in the previous sector, there was an attempt to measure the impact of branch expansion on banks' costs. Their usual conclusion is that, everything else constant, banks with more branches tend to have higher average costs. This result is consistent with our findings that everything else constant (here, income per capita), higher inflation is associated with more branches and higher bank operating costs (see Section 2.2).

other, less visible costs. For instance, depositors might prefer receiving explicit interest payments on their deposits, instead of implicit payments through the services offered by more bank branches. In other words, the advantages offered by banks through non-price competition--more bank branches--may not fully offset the gains that depositors would realize by receiving explicit interests on their demand deposits.^{17/}

An expanded branching system can also be a problem if a large network of branches require a high rate of inflation to operate profitably. In this situation, a sharp decline in inflation rates would make many branches unprofitable, provoking a drastic drop in banks' reported profit rates in the short run and risking a loss of confidence and bank runs. In countries where this is the case, the permission to pay interest on demand deposits, perhaps through a gradual scheme, may be one solution to the problem of excessive branching. If such a solution were adopted in a country with high inflation, we would observe an increase in banks' interest costs and a decrease in operating costs, as many unprofitable branches would be closed. The increase in interest costs would decrease gross margins, but the final effect of such measures on net margins and profits is unclear and would depend on how banks adjust to the new situation. If banks adjusted promptly, there could be even an increase in reported profits brought by the realization of capital gains on the sale of their branches (if the book value of their real estate is less than the market value).

Bankers may resist making a full adjustment to the new situation, however. First, there is the question of the long run versus the short run--banks may be reluctant to adjust rapidly if they expect inflation to start up again. Second, bankers may fear that closing branches will provoke a disruption of public confidence and a run on their banks. They also may fear that closing some of their branches will lead some of their clients to transfer their operations to the branches of their competitors (this increase in the volume of business could make some of their competitors' branches more profitable!). In such a situation, the coordinating role of regulators could prove crucial in the period of adjustment and would serve a twofold purpose: First, prevent the disruption of public confidence and bank runs and, second, ensure a fair distribution of branch closings among banks and an adequate supply of branches across areas.^{18/}

^{17/} There is also an equity issue involved here. Higher income depositors tend to benefit relatively more from implicit banking services offered at zero cost for the fact that they make a more intensive use of such services. Thus, a switch towards more explicit interest payments and less zero cost banking services would imply a distributional gain to the group of small, low-income depositors.

^{18/} In game-theoretic language, coordination by the regulators would bring a Pareto-improvement over a previous non-cooperative equilibrium.

4.3 Financial Repression and Costs

Bank performance indicators are usually stated in terms of ratios between variables. In this and other studies, variables selected from the consolidated income statements are measured as a proportion of total banks' assets.^{19/} Thus far we have concentrated on factors that exert an impact on the numerator of these ratios; in particular, we have examined the channels through which inflation, economies of scale and bank mergers can influence costs in banking systems countries.

It is also important to examine the behavior of cost ratios over time and for such intertemporal comparisons the analysis of changes in the denominator, that is, in total banks' assets, may also be important. This is so because real costs are fairly constant in the financial system, while the real stock of financial assets may respond significantly to expected inflation and the interest rate regime.

The Turkish case provides an excellent example of the impact of intertemporal changes in banks' real assets on cost ratios. The late 1970s were a period of increasingly negative real interest rates in Turkey. This financial repression caused a substantial decline in real financial assets until July 1980, when the government reversed the policy of interest controls, allowing positive real rates to prevail. Inflation also fell sharply. As a result of this policy shift, real financial assets grew rapidly.

Table II-10

AVERAGE INFLATION AND AVERAGE GROWTH OF ASSETS AND PERSONNEL EXPENDITURES IN THE TURKISH BANKING SYSTEM, 1978-83

Period	Rates of Growth (yearly averages in the period)		
	Prices	Total Assets	Personnel Expenditures
1978-80	82.6	50.4	73.4
1980-83	32.1	62.2	26.7

Source: Table II-5 and Appendix Table 17.

Table 10 shows the average rates of growth of total banks' assets and personnel expenditures as well as the average inflation, in both periods. It can be seen that the period of financial repression was a

^{19/} The geometric average of year end assets is used in this study, for reasons discussed in Section 2.2.

period of low asset mobilization, while personnel expenditures almost kept pace with inflation. The sharp decline in real assets combined with the only moderate decrease in real personnel expenditure generated a steady increase in cost ratios and gross margins as shown in the Appendix Table 17 and Table 1. In contrast, real assets grew substantially after 1980, triggered by interest rate deregulation and falling inflation while personnel expenditures again moved roughly in line with inflation. As a result, cost ratios and gross margins fell sharply (see again Appendix Table 17 and Table 1).

If one takes the real value of assets as a measure of output in banking--as is implicit in deflating costs by assets--then what happened in Turkey in the 1978-83 period is explained by cyclical output variations, together with quasi-fixed labor costs, rather than a more efficient structural use of resources in the banking sector after 1980. This example illustrates how the interest rate regime can affect spreads and also how quickly spreads can change in periods of financial repression and liberalization. Although periods of financial repression were also observed in other economies, the Turkish case is the only one for which data was available for a full cycle of financial repression and liberalization.

5. PROFITS AND MARGINS: DOES MARKET STRUCTURE MATTER?

The ratios of profits (before tax) to total assets are considerably higher in developing countries than in the OECD, with the exception of Portugal (see Table 4 above). Once again the numbers for Brazil stand out.^{20/ 21/}

As discussed previously, inflation could, in principle, play a role in explaining differences in profit ratios across countries. However, it was also shown in section 3 that there is only weak evidence of links between inflation and profit ratios in our sample of countries. As discussed there, it is not clear how much of the lack of statistical correlation is due to different legal and accounting procedures and the consequent difficulty of obtaining an uniform measure of banks' profits across countries, or to differences in equity : deposit ratios. However, assuming measurement problems are not present in a significant way, then the causes of the differences in profit ratios lie elsewhere. One possibility is that differences in profit rates reflect differences in market structure and/or also in the degree of capital scarcity across countries.

There is a fairly large empirical literature on the structure-performance relationship applied to the U.S. case. This literature is surveyed in Heggstad (1977), Rhoades (1977 and 1982) and Gilbert (1984) and an overview of it will prove useful for the discussion that follows.

The rationale behind structure- conduct-performance studies is that a structure with few firms and high barriers to entry "facilitates pricing conduct that is aimed at achieving joint profit maximization through collusion, price leadership or other tacit pricing arrangements. This type of price conduct should in turn yield profits and prices that are greater than the competitive norm."^{22/} However, researchers in this area have been puzzled by the fact that the structure-performance link in financial markets seems weaker in the industrial markets. Accordingly, the reviewers of this literature tend to conclude that, although market structure affects market performance, the quantitative dimension of this influence is rather small. In other words, in a regression with some measure of performance such as the lending or the profit rate on the left hand side of the equation, and one of the alternative concentration ratios on the right hand side as a measure of structure, the estimated coefficient

^{20/} The numbers for Spain and Sweden reported by Revell and Passacantardo differ significantly (see two columns for 1977), but we did not investigate the causes of such differences.

^{21/} For Tunisia the ratios of profits after tax were obtained (averaged 0.6%) and are reported in the Appendix Table 15. For Ecuador, the estimated profit ratio is 1.3%, but from the income statements, it is not clear if this includes income taxes or provisions. See the Appendix Tables' footnotes.

^{22/} Rhodes (1977), p. 6.

of the structure variable tends to be smaller and less significant in a statistical sense,^{23/} when compared to estimates usually obtained for industrial markets.

In explaining the apparent lack of a strong relationship between structure and performance, Rhoades (1977) and Heggstad (1977) pointed out several difficulties in estimating the structure-performance relationship in banking markets. First, the effect of inter-institutional competition is not well understood. Although commercial banks may be few, they may suffer from competition from savings banks or other financial institutions, both domestic and foreign, or from competition from the commercial paper and bond market. Second, compared to concentration ratios in industry, the ratios in the banking sector are higher but vary much less. This may reduce to insignificance the relation between observed profits and structure across countries, because of the greater importance of omitted variables. Third, there might be a critical level of concentration, in the sense that a reduction in the number of firms below this critical level leads the participants to collusion and to form a cartel. Thus, beyond that point the degree of concentration increases and the measures of performance do not react any longer: the monopolistic solution has already been attained; Fourth, banking is a very regulated activity. In particular, entry is highly regulated. The behavior of established firms in a non-competitive market may change in reaction to a higher or lower threat of entry (the limit-pricing theory). Spreads may be set high enough to make excess profits but not so high as to attract new entrants. Thus, differences in entry regulation may influence market performance significantly for a given concentration ratios.^{24/}

Two additional caveats could be added to the above four: financial conglomeration and interlocking ownership. It is not yet clear how the formation of financial conglomerates affects the observed structure-performance relationship as reported in Curry and Rose (1982). If conglomeration does increase market power and brings an increase in spreads and profits, then differences in profits may not be captured by the usual concentration ratios. Interlocking ownership (joint control of a bank and an industrial company by the same economic group) allows for transfer pricing within the financial-industrial conglomerate. Banks may lend to parties at lower interest rates, reducing the banks' stated profits compared to levels that they would otherwise be, if such price transfer did not occur. In this case effective bank profit rates are underestimated, also disturbing the structure-performance relationship.

^{23/} Usually, the regressions with the lending rate instead of the profit rate tend to produce better results, which is viewed with some uneasiness since, in principle, profits should be a better measure of performance. As to the alternative measures of structure, the Herfindahl index tends to perform best.

^{24/} Hannan (1979) and Marlow (1983) provide suggestive positive evidence of the limit pricing theory in the case of the U.S. In both studies, banks were charged lower interest rates (than in other, more protected markets) when faced with higher threat of entry.

Finally, when analyzing the structure performance relationship internationally, one has to take still some additional factors into account, like differences in capital scarcity. For example, in analyzing the relation between bank profits and banking concentration in Canada, Western Europe and Japan, Short (1979) concludes that differences in profit ratios are explained primarily by differences in capital scarcity, although this variable is proxied by the long term government bond rate and the central bank discount rate, a procedure which may be open to criticism.

In Table 11 we present a list of concentration ratios for a group of OECD countries, as reported in Honohan and Kinsela (1982), together with figures for a subset of our sample of developing countries. All the ratios are the three-bank concentration ratios (the share of either deposits or total assets held by the three largest banks in the total).^{25/} ^{26/} We have not performed any formal statistical experiment with these numbers, but a brief inspection of Table 11 reveals that the observed differences in profit ratios between the OECD and the developing country group are unlikely to be explained by differences in concentration ratios, since the numbers are roughly comparable across groups.

Capital scarcity may explain the higher profit ratios reported for developing countries in table 4. These higher ratios would, then, partly reflect also the higher rates of profit in the other sectors of the developing countries' economies. A second cause of the higher bank profits in developing countries may be the typical lack of well-developed private bond and commercial bill markets, which implies less competition for bank credit. In principle, financial markets in economies with capital controls also would be less competitive and domestic banks would have more possibilities for earning monopoly rents. However, in practice it is difficult to assess the degree of substitutability between foreign and domestic bank credit, since conditions of risk (exchange rate and other risks) variations in foreign credit availability, and informational gaps may generate large differences between foreign and domestic interest rates. Finally, other institutional and regulatory aspects should obviously be taken into account and these factors cannot be captured in simple concentration ratios like the ones presented in Table 11.

Some suggestive evidence on the impact of entry regulation is provided by Spiller and Favaro's study (1984) of the Uruguayan banking sector in the period 1976-80. Financial liberalization in the late 1970s introduced new rules of the game for commercial banks. After the Central Bank of Uruguay changed its entry policy in 1977 from one where entry was

25/ The Herfindahl index is a preferred measure of concentration, but its correlation with the three bank concentration ratio is also known to be usually very high, so the choice of either ratio does not make a crucial difference.

26/ In countries where state-owned banks are important, two series are presented; one limited to the private banks and the second comprising all banks.

barred to one where entry was allowed, average price-cost margins declined. Favaro and Spiller argued that this decline was a consequence of reduced coordination among dominant banks, faced with a higher threat of entry. In other words, the incumbents changed their behavior as a consequence of the relaxation of entry barriers.

Table II-11

THREE BANK CONCENTRATION RATIOS FOR SELECTED COUNTRIES

Country	Year	Type of Asset	Series ^{a/}	Ratio
Austria	1973	Deposits	Commercial	0.46
Belgium	1973	Deposits	Commercial	0.62
Canada	1973	Deposits	Commercial	0.51
Denmark	1973	Deposits	Commercial	0.56
France	1975	Deposits	Commercial	0.43
Ger., Rep. of	1973	Deposits	Commercial	0.26
Italy	1973	Deposits	Commercial	0.44
Netherlands	1973	Deposits	Commercial	0.78
Sweden	1973	Deposits	Commercial	0.74
Switzerland	1973	Deposits	Commercial	0.42
Brazil	1980	Capital	Conglomerates	0.35
Chile	1983	Total Assets	Commercial	0.42
Colombia	1982	Total Assets	Private Commercial	0.52
Colombia	1982	Total Assets	All Commercial	0.40
Ecuador	1983	Total Assets	Private Commercial	0.32
Malaysia	1983	Deposits	Commercial	0.42
Peru	1981	Total Assets	Private Commercial	0.64
Peru	1982	Total Assets	All Commercial	0.51
Tunisia	1982	Total Assets	Commercial	0.69
Turkey	1983	Total Assets	Private Commercial	0.72
Turkey	1983	Total Assets	All Commercial	0.50
Venezuela	1981	Deposits	Commercial	0.31
Liberia	1982	Total Assets	Commercial	0.73

Sources: 1. OECD Countries: Honohan and Kinsella (1982).
 2. Developing Countries: Sources listed in the Appendix Tables.

Notes: ^{a/} The series related to the OECD countries were extracted from Honohan and Kinsella which does not indicate the type of commercial banking institution.

6. MARGINS AND EFFICIENCY

Up to this point margins have been considered solely as an interest rate issue. However, high intermediation costs represent a waste of scarce resources that could be better employed in other sectors of the economy, and/or a transfer of monopoly rents to the banking industry. Thus, gross margins, operating costs and profits are a resource allocation and distributional issue, as well as an interest rate issue. Moreover, the magnitudes involved can be large. Excess costs of only 1% of assets represent 0.3% of GDP in an economy where financial assets are 30% of GDP.

To give a rough estimate of the potential misallocation one can compare the gross margin and operating cost ratios of the developing countries with the ratios for the OECD countries--3.9% and 2.3% of assets, respectively. Multiplying the differences by the ratio of assets to GDP yields an estimate of the excessive costs of intermediation as a percentage of GDP. The results are presented in Table 12. These results show a loss from resource misallocation which amounts in some cases to 1%-2% of GDP. In 9 out of 16 cases excess operating costs amount to over 0.5% of GDP. Excess profits and provisions, the difference between gross margins and costs are usually a much smaller percentage of GDP, but nonetheless could be a major distributional issue.

It is obvious that this exercise is only illustrative. The primary objective is to provide an idea of orders of magnitude of the loss in efficiency, which, according to Table 12, can be substantial. In fact, these results may actually underestimate the overall loss in efficiency since they are restricted to the banking system. If the rest of the LDC's financial systems also have higher intermediation costs than their developed countries' counterparts, the output loss would be more severe than that shown in Table 12. Moreover, operating costs are potentially less in developing countries than the OECD, because of the wage differential.

Measures that increase efficiency and competition in the financial system would then be thus important in improving resource allocation and income distribution, on both inflationary countries and in low inflation countries, where those measures may not have a dramatic impact on spreads. As discussed above, excess costs often can be brought down in inflationary economies, by reducing inflation and liberalizing interest rates. Reducing costs and profits is more difficult in non-inflationary economies, or in economies with a longer history of inflation, since these cases usually involve a structural weakness that has built up over time. The needed policy measures in these cases include: (i) closing branches and laying off employees; (ii) encouraging greater competition between banks and in the labor market for bank employees; and (iii) encouraging the separation of industrial and financial groups. As discussed in section 4, the first set of measures may be difficult to undertake without coordination; in addition they may be politically difficult to implement. Greater competition is desirable in principle, but again there is likely to be a political issue. Moreover, there is often a problem from the economic standpoint. For example, it is often recommended that foreign banks should

Table II-12

ASSESSMENT OF THE EFFICIENCY OF THE FINANCIAL SYSTEMS
OF DEVELOPING COUNTRIES

Country	Series	Year	Total Assets/ GDP	Deviations from OECD average values as a % of GDP	
				Gross Margin	Operating Costs
Brazil	1981	10 largest holdings	0.134	2.9	1.3
Colombia	1982	All commer- cial	0.247	0.7	0.7
Ecuador	1982	All commer- cial	0.329	1.0	-
Korea, Rep.of	1981	Nationwide commercial	0.293	0.2	0.0
Liberia	1981	All commer- cial	0.279	1.6	1.2
Malaysia	1982	All commer- cial	0.729	0.0	0.0
Mexico	1983	Domestic banks	0.233	0.6	0.5
Pakistan	1983	All commer- cial	0.464	0.2	0.2
Peru	1981	All commer- cial	0.202	1.4	0.8
Portugal	1982	Financial system	1.369	0.0	0.0
Sri Lanka	1983	All commer- cial	0.369	0.8	0.6
Thailand	1980	All commer- cial	0.408	0.3	0.0
Tunisia	1982	All commer- cial	0.524	0.1	0.0
Turkey	1980	All commer- cial	0.281	1.8	1.7
Turkey	1983	All commer- cial	0.452	0.9	0.8
Venezuela	1980	All commer- cial	0.377	0.7	0.6

Sources: Table 1 and 2, Appendix Tables, and International Financial
Statistics Yearbook (1984).

be allowed to enter domestic financial markets, in order to increase competition. But, if this is done when the domestic banks are suffering from high arrears and bloated cost structures, then the results may be simply high profits for the foreign banks, while the government is forced to bail out domestic banks. This suggests that the transition to a more competitive environment must be managed carefully and is likely to take some time.

7. SUMMARY AND CONCLUSION

The common perception that financial intermediation in developing countries is much more costly than in industrial countries, is not supported by the data from our sample of 16 developing countries. Clearly, one must be careful in making international comparisons, since the banks of one country may be engaged in a very different business than those of another. Nonetheless, margins and operating costs of the commercial banking systems in some developing countries are similar to those in the OECD countries. However, the Latin American countries and Turkey, the higher inflation countries in the sample, costs and margins are 2 to 5 percentage points higher than in the OECD.

That banks' costs should be positively affected by inflation is suggested by economic theory and supported by simple statistical correlations between both variables across countries for several years. There are many channels through which inflation can raise bank costs. One important channel is the expansion of the branching network and the available data supports the notion that inflationary economies have ceteris paribus, more expanded branch networks. However, before a judgment can be made on excessive branching, social benefits and costs must be analyzed. More branches can be socially beneficial because they increase the demand for financial assets, in substitution for barter trade, and because they reduce the burden of the inflation tax. Regarding costs, the maintenance of a large network of branches generates obvious direct costs, but it also creates social costs. Depositors might prefer receiving explicit interest payments instead of zero cost banking services. Finally, if a large network of branches requires a high level of inflation to operate profitably, then financial instability may develop when inflation falls. In countries where this is the case, the introduction of interest payments on demand deposits coupled with a coordinated reduction of branches is one possible solution.

Regarding economies of scale in banking, it should always be seen as an empirical issue. The theoretical arguments for economies of scale in the banking sector are not so strong as to render empirical investigation unnecessary. The available studies on bank costs done for Latin-America and Turkey all conclude that there are economies of scale, but this conclusion is highly tentative, since there are important methodological problems and data limitations. Besides, even if one accepts this conclusion, it does not follow that a policy of merging the smaller banks would reduce dramatically interest rate margins. In cases where economies of scale are indeed continuous and the number of banks is large, there is potential for reducing costs and margins, but many LDC banking systems do not have these characteristics. In many developing countries most of economies of scale can be reaped with a relatively small size of bank, so few banks would benefit from lower costs and/or the number of institutions is small, so the further reduction of the number of banks would create problems of competition.

Bank profit ratios in developing countries are higher than all but one country of the OECD group. There are, of course, measurement problems in comparing profit ratios across countries. Nonetheless, the difference is striking. One factor explaining this difference may be differences in capital scarcity, that is, the higher prevailing nominal and real rates of return on real assets in developing countries. The absence of close substitutes for bank credit like commercial bills and private bonds may be a second factor. The overall pattern of banking concentration does not seem to differ between the OECD and the group of developing countries but there are other institutional and regulatory aspects (for instance, entry regulation), not captured in concentration ratios, which might also explain the differences in profit ratios between the two groups of countries.

High intermediation costs are often an efficiency and distributional issue, as well as an interest rate issue. In some cases excessive costs of intermediation amount to 1.5%-2% of GDP, and in a out of the 16 cases analyzed, they amounted to over 0.5% of GDP. Improvements in efficiency and competition may liberate important amounts of scarce resources that could be better employed in other sectors of the economy and/or lower possible monopoly rents earned by the banking industry. However, the transition towards a more efficient and competitive environment has to be carefully evaluated on a case by case basis, since it often involves the dismantling of bloated cost structures that have developed over time, and the exposure of banks with high arrears to even greater pressures.

ANNEX

ALTERNATIVE DEFINITIONS OF SPREADS

1. A BASIC FRAMEWORK

This annex provides a simple framework for decomposing the observed intermediation spread into several components. After analyzing briefly each of these components we examine alternative definitions of spreads or margins and identify the one which is employed in the text.

From the income statements of commercial banks one can write the following revenue-cost accounting identity:

$$(1) \quad i_{np} L_{np} + i_p L_p + i_r R_r + i_s R_s + fD = i_d D + cD + pD$$

Where:

- i_{np} = interest rate on non-priority loans
- i_p = interest rate on priority loans
- i_r = interest rate on required reserves
- i_s = interest rate on liquid assets (short-term securities)
- i_d = interest rate on deposits
- c = operating costs per unit of deposits
- f = other income net of other expenses per unit of deposits
- p = profits (provisions included) before tax per unit of deposits
- L_{np} = non-priority loans
- L_p = priority loans (loans directed to sectors considered priority by the government)
- R_r = Required Reserves
- R_s = Liquidity Reserves
- D = Total deposits (demand, time and savings) ^{1/}

Equation (1) is nothing but the consolidated income statement of the banking system in any period of time (say, one year). The variables above should then be seen as yearly averages (we are in fact mixing different maturities and risks in a single equation).

^{1/} Banks' borrowing from the discount window of the Central Bank could also be included here.

From the consolidated balance sheet we have that:

$$(2) \quad L + R = D \quad \underline{2/}$$

$$(3) \quad L = L_{np} + L_p \quad (L = \text{total loans})$$

$$(4) \quad R = R_r + R_s \quad (R = \text{total reserves})$$

Both reserves and priority loans are set as proportions of the level of deposits:

$$(5) \quad R_r = rD \quad 0 < r < 1$$

$$(6) \quad R_s = sD \quad 0 < s < 1$$

$$(7) \quad L_p = aD \quad 0 < a < 1 \quad ; \quad r + s + a < 1$$

The stock of non-priority loans can then be written as:

$$(8) \quad L_{np} = D (1 - r - s - a)$$

Substituting from (5) to (8) into (1) we obtain an expression for the spread between the interest rate on priority loans and the average cost of deposits, i_d :

$$(9) \quad i_{np} - i_d = \frac{a (i_d - i_p) + r (i_d - i_r) + s (i_d - i_s) + c + p - y}{(1 - r - s - a)}$$

Equation (9) shows that the spread, $i_{np} - i_d$, will be higher the higher a , r and s , the lower i_p , i_r , i_s and, of course, the higher c and p . That is, the banking system, faced with an average cost of deposits, i_d , tries to adjust the interest rate on non-priority loans, i_{np} , such as to make up for relative losses in revenue due to portfolio restrictions and to cover its operating costs, c .^{3/} It is also assumed that this level of the spread is obtained through profit maximizing behavior.

Of course, accounting identities such as (1) and (9) do not tell us if there is equilibrium in the economic sense nor what type of market structure generates it. The theoretical analysis of bank behavior and of interest spread determination is beyond the scope of this paper.^{4/} However, some examples of the relation between these accounting identities and economic equilibrium may be useful.

^{2/} We do not consider the value of equity explicitly here. It can be assumed for simplicity that deposits and equity are perfect substitutes.

^{3/} And also taking into account the revenue obtained through fee-based operations less other expenses, y .

^{4/} See Baltensperger (1980) and Santomero (1984) for an extensive review of this literature.

Take for instance the case of a competitive market structure. In this case each bank is a price-taker in i_{np} and i_d and the banking industry as a whole sets the level of these two rates.^{5/} The parameters a , r and s are fixed by the monetary authorities. The rates i_p and i_r are also influenced by the monetary authorities (who may actually fix their levels). For simplicity, i_s may be seen as the rate on short-term liquid assets (T-bills). Under competition, the level of profits, p , is a "normal" one in the sense that stockholders receive a "fair" return (adjusted for risk) from holding bank equity and the industry plows back into business the amounts necessary for further investment. Finally, under competition banks adjust their fixed factors so as to produce their equilibrium level of output (L and D) in the cheapest way, thus c is the minimum attainable under the existing technology.^{6/}

Suppose, on the other hand, that we have a collusive cartel and the whole industry acts as a monopolist. In this case banks will be earning a monopoly rent. Profits per unit of deposits, p , would be higher, as a consequence of price setting behaviour in i_{np} and i_d . That is, i_{np} and i_d would be respectively higher and lower than under competition. Also, the levels of L and D would be lower than under competition.^{7/} The rate of return on equity may not be affected, however, since the monopoly position could be reflected in the price of equity.

2. OTHER DEFINITIONS OF MARGINS

We have been referring to interest margins or spreads as the difference between i_{np} and i_d in equation (9), but there are several other definitions of spread. Next, follows a discussion of some of these alternative measures, where it is pointed out the one which is used in the text.

Perhaps the most popular definition of interest rate spread is the difference between active and passive rates of assets of the same maturity. For instance, the rate charged by the bank on a six-month loan and the rate paid on a six-month certificate of deposit. These are sometimes called the marginal revenue and the marginal cost of funds, respectively, and are obtained through market quotations, not from income accounts.

^{5/} Together with the demand for loans and for deposits.

^{6/} The exact description of a long-run competitive equilibrium would depend not only on the degree of entry but also on information about the cost structure of the industry (that is, if long-run average costs are constant, decreasing, increasing or U-shaped). This issue will not be pursued further on here. For a standard analysis of the subject see, for instance, Varian (1984).

^{7/} An early attempt to analyze the money supply process under different market structures is found in Pesek (1970).

The information contained in income accounts permits us to build several other measures of spread. All these measures are averages in a very rough sense, since we are mixing up different maturities and degrees of risk, but different measures can be obtained depending on the aggregation used on the left and right hand sides of the income statements.

For instance, the average rate on non-priority loans may be obtained from income statements and balance sheets by dividing the interest income from this type of loan by the average value of the stock of non priority loans in the same period. A similar procedure would be followed to obtain an average rate on time deposits. Subtracting one rate from the other one would get the spread between the average rates on non priority loans and time deposits, a measure related to the one discussed above.

If, instead of calculating the average rate on time deposits one calculated the average rate paid on all sources of funds (demand deposits, time deposits, savings deposits, borrowing from other banks and from the government) and subtracted this rate from the average rate on non-priority loans, the definition of spread in equation (8) would be obtained:
 $i_{np} - i_d$.

Sometimes more aggregation on the revenue side of the income statement is desired. One could then add up all types of loans, priority and non-priority, and obtain an average rate on loans. Subtracting the average rate on all types of deposits from it one obtains another measure of interest rate margin. What is obviously missed with this aggregation is the effect of earmarked credit or lending guidelines on the rate charged on non-priority loans, but the effect of reserve requirements on this measure of spread could still be analyzed.

Finally, the last level of aggregation could be reached adding up loans and reserves on the left-hand side of the balance sheet and calculating the average rate received by the banking system on its total earning assets. Equations (1) and (9) would then be reduced to:

$$(1') \quad i_A A + fD = i_d D + cD + pD$$

$$\text{where: } A = L + R = D$$

and:

$$(9') \quad i_A - i_d + f = c + p.$$

What is missed with an aggregation like the one underlying equation (9') is the effect of lending guidelines and reserve and liquidity requirements on the rates charged on non priority loans. In fact, equation (9') focuses simply on two elements determining the overall spread between the average rate charged by banks on their earning assets and the average rate paid on total deposits: operating costs and profits (again here broadly defined to include important items such as provisions).

The left-hand side of equation (8') is commonly referred to as the gross margin, the gross earnings margin, the banker's spread or the banker's mark-up.^{8/} The right-hand side is often referred to as the costs of intermediation. The Revell (1980) type of aggregation, used in the text, is quite similar to the one depicted in equation (9'). The only differences are: First, that income from securities are included in the term f instead of in i_A as in equation (9') and, second, that the parameters are stated as percentages of total assets, instead of total deposits.

^{8/} Although many other empirical studies define the banker's mark up or spread as the difference between the average rates on loans and deposits.

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STATISTICAL APPENDIX

Appendix Table 1

BRAZIL: CONSOLIDATED INCOME ACCOUNTS OF THE TEN LARGEST
FINANCIAL CONGLOMERATES, 1979-1981

(in millions of cruzeiros and as a fraction of the average
value of total assets in the reported year)

	1979	1980	1981
1. Interest Received	207,101	381,345	1,018,756
	(20.9)	(22.4)	(29.7)
2. Interest Paid	136,844	250,384	718,419
	(13.8)	(14.7)	(20.9)
3. Interest Margin (1 - 2)	70,257	130,961	300,337
	(7.1)	(7.7)	(8.7)
4. Other Income (net)	97,803	194,510	579,956
	(9.9)	(11.4)	(16.9)
4.1 Commissions, Fees, Investments, Foreign Exchange	65,306	119,669	343,283
	(6.6)	(7.0)	(10.0)
4.2 Other	32,497	74,841	236,673
	(3.3)	(4.4)	(6.9)
5. Gross Margin (3 + 4)	168,060	325,471	880,293
	(16.2)	(19.1)	(25.6)
6. Operating Costs	100,757	187,803	418,964
	(10.2)	(11.0)	(12.2)
6.1 Personnel	-	-	-
6.2 Insurance, Contrib.	-	-	-
6.3 Other	-	-	-
7. Net Margin (5 - 6)	67,303	137,668	461,329
	(6.8)	(8.1)	(13.4)
8. Other Credits (net)	-36,368	-72,063	-16,889
	(-3.7)	(-4.2)	(-4.9)
9. Profits Before Tax (7 + 8)	30,935	65,605	292,640
	(3.1)	(3.8)	(8.5)
10. Profits After Tax	20,932	45,538	187,060
	(2.1)	(2.7)	(5.4)
TOTAL ASSETS (End of Year)	1,287,023	2,246,640	5,241,771

Source: Perdigo, L.A. "Conglomerados Financeiros: Analise do seu Desempenho no Brazil no Periodo 1978/1981. Unpublished PhD Dissertation, Vargas Foundation, 1983.

Notes:

1. The financial conglomerates are usually composed of a commercial bank, investment bank, finance house (sociedade de credito, financiamento e investimento), broker house, insurance company and leasing company.
2. The numbers for operating costs include the item commissions and insurance, which is presented as an aggregate. Commissions expenses should be included as a negative item in the fourth row (net other income), so the fractions reported on the sixth row (operating costs) overestimate the true values. Subtracting the whole item (commissions and insurance) from the operating costs, the fractions for each reported year become, respectively: 8.1%, 8.8% and 9.9%. On the other hand, if the item labeled as "other expenses" in the income statement is included, the fractions become, respectively, 13.6%, 15.1% and 19.8%, although this is clearly an exaggeration, since this item probably consists mostly of provisions.
3. The numbers in parentheses are fractions (in %) of the average values of total assets in the reported year.
4. The average values of total assets are the geometric means of total assets at the beginning and end of each year.

(C-20a)

Appendix Table 2

CHILE: CONSOLIDATED INCOME ACCOUNTS OF THE FINANCIAL SYSTEM, 1982-83

(in millions of pesos and as a fraction of the average value of total assets in the reported year)

	1982		1983	
1. Interest Received	225,901		165,251	
	(18.2)	(20.8)	(8.8)	(11.1)
2. Interest Paid	190,571		167,971	
	(15.3)	(17.5)	(8.9)	(11.3)
3. Interest Margin (1 - 2)	35,330		-2,720	
	(2.8)	(3.3)	(-0.1)	(-0.2)
4. Other Income (net)	35,349		63,852	
	(2.8)	(3.2)	(3.4)	(4.3)
4.1 Commissions, Fees, Investments, Foreign Exchange	35,349		63,852	
	(2.8)	(3.2)	(3.4)	(4.3)
4.2 Other	-	-	-	-
5. Gross Margin (3 + 4)	70,679		61,132	
	(5.7)	(6.5)	(3.0)	(4.1)
6. Operating Costs	37,915		41,526	
	(3.0)	(3.5)	(2.2)	(2.8)
6.1 Personnel	24,304		26,773	
	(2.0)	(2.2)	(1.4)	(1.8)
6.2 Insurance, Contrib. Indirect Taxes	2,634		2,380	
	(0.2)	(.02)	(0.1)	(0.2)
6.3 Other	10,977		12,373	
	(0.9)	(1.0)	(0.6)	(0.8)
7. Net Margin (5 - 6)	32,764		19,606	
	(2.6)	(3.0)	(1.0)	(1.3)
8. Other Credits (net)	-35,637		-50,567	
	(-2.9)	(-3.2)	(-2.7)	(-3.4)
8.1 Depreciation	-1,868		-2,449	
	(-0.1)	(-0.2)	(-0.1)	(-0.2)
9. Profits Before Tax (7 + 8)	-	-	-	-
10. Profits After Tax	-2,873		-30,961	
	(-0.2)	(-0.3)	(-1.6)	(-2.0)
TOTAL ASSETS (End of Year)	1,555,736		2,289,193	
TOTAL ASSETS - OTHER ASSETS (End of Year)	1,278,708		1,726,761	

Source: Superintendencia de Bancos e Instituciones Financieras. Informacion Financiera.
Several Issues.

- Notes: 1. The Financial System here defined comprises the commercial banks and financing institutions (sociedades financieras). The share of commercial banks in total assets was higher than 97% in the two reported years.
2. The average values of total assets are the geometric means of total assets at the beginning and end of each year.
3. The numbers in parentheses are fractions (in %) with respect to average total assets a average total assets less the item "other assets". The second measure should be more relevant for comparisons with other countries.

Appendix Table 3

COLOMBIA: CONSOLIDATED INCOME ACCOUNTS OF DOMESTIC COMMERCIAL BANKS, 1978-82

(in thousands of pesos and as a fraction of the average value of total assets in the reported year)

	1978	1979	1980	1982
1. Interest Received	8,614,125 (6.9)	12,447,006 (7.6)	18,589,952 (8.1)	32,571,049 (8.3)
2. Interest Paid	5,678,023 (4.5)	8,288,078 (5.1)	13,366,078 (5.8)	24,804,680 (6.3)
3. Interest Margin (1 - 2)	2,936,102 (2.4)	4,188,928 (2.5)	5,192,873 (2.3)	7,766,369 (2.0)
4. Other Income (net)	4,091,372 (3.3)	5,812,279 (3.6)	8,969,523 (3.9)	14,714,297 (3.7)
4.1 Commissions, Fees, Investments, Foreign Exchange	3,516,572 (2.8)	4,939,777 (3.0)	7,198,337 (3.1)	11,826,564 (3.0)
4.2 Other	574,800 (0.5)	872,502 (0.5)	1,771,186 (0.8)	2,887,734 (0.7)
5. Gross Margin (3 + 4)	7,027,474 (5.6)	10,001,207 (6.1)	14,162,396 (6.2)	22,480,667 (5.7)
6. Operating Costs	4,629,832 (3.7)	6,719,632 (4.1)	9,539,257 (4.2)	18,025,584 (4.6)
6.1 Personnel	3,075,327 (2.5)	4,174,821 (2.6)	5,681,127 (2.5)	9,818,624 (2.5)
6.2 Insurance, Contrib. Indirect Taxes	237,862 (0.2)	345,812 (0.2)	452,654 (0.2)	888,230 (0.2)
6.3 Other	1,316,643 (1.0)	2,198,999 (1.3)	3,405,476 (1.5)	7,318,731 (1.9)
7. Net Margin (5 - 6)	2,397,642 (1.9)	3,281,575 (2.0)	4,623,139 (2.0)	4,455,082 (1.1)
8. Other Credits (net)	-763,805 (-0.6)	-1,205,107 (-0.7)	-1,730,222 (-0.7)	-1,695,151 (-0.4)
9. Profits Before Tax (7 + 8)	1,633,837 (1.3)	2,076,468 (1.3)	2,892,917 (1.3)	2,759,932 (0.7)
10. Profits After Tax				
TOTAL ASSETS (End of Year)	141,644,955	187,665,595	279,526,843	414,000,557

Source: Superintendencia Bancaria. Revista Trimestral. Several Issues.

Notes: 1. The numbers in parentheses are fractions (in %) of the average value of total assets of locally-owned commercial banks (comerciales nacionales) in the reported years.

2. The average values of total assets are the geometric means of total assets at the beginning and end of each year.

Appendix Table 4

COLOMBIA: CONSOLIDATED INCOME ACCOUNTS OF ALL COMMERCIAL BANKS, 1978-82

(in thousands of pesos and as a fraction of the average value of total assets in the reported year)

	1978	1979	1980	1982
1. Interest Received	13,230,343	18,914,669	29,652,968	56,378,311
	(6.8)	(7.5)	(8.5)	(9.2)
2. Interest Paid	8,032,752	11,737,672	19,318,608	39,981,821
	(4.1)	(4.6)	(5.5)	(6.5)
3. Interest Margin (1 - 2)	5,197,591	7,176,997	10,334,360	17,396,489
	(2.7)	(2.8)	(3.0)	(2.8)
4. Other Income (net)	5,902,398	8,324,578	13,208,277	22,536,298
	(3.0)	(3.3)	(3.8)	(3.7)
4.1 Commissions, Fees, Investments, Foreign Exchange	4,884,157	6,860,668	10,524,122	18,228,264
	(2.5)	(2.7)	(3.0)	(3.0)
4.2 Other	1,018,239	1,463,850	2,684,155	4,308,034
	(0.5)	(0.6)	(0.8)	(0.7)
5. Gross Margin (3 + 4)	11,099,987	15,501,515	23,542,638	39,932,787
	(5.7)	(6.1)	(6.7)	(6.5)
6. Operating Costs	7,768,008	10,969,461	16,753,835	32,977,837
	(4.0)	(4.3)	(4.8)	(5.3)
6.1 Personnel	5,344,381	7,293,770	10,427,758	17,945,997
	(2.7)	(2.9)	(3.0)	(2.9)
6.2 Insurance, Contrib. Indirect Taxes	335,600	492,744	709,103	1,314,109
	(0.2)	(0.2)	(0.2)	(0.2)
6.3 Other	2,088,027	3,182,947	5,436,975	13,717,731
	(1.1)	(1.3)	(1.6)	(2.2)
7. Net Margin (5 - 6)	3,331,979	4,532,054	6,788,802	6,954,950
	(1.7)	(1.8)	(1.9)	(1.1)
8. Other Credits (net)	-1,124,031	-1,652,994	-2,513,570	-2,860,643
	(-0.6)	(-0.6)	(-0.7)	(-0.5)
9. Profits Before Tax (7 + 8)	2,210,948	2,879,060	4,275,232	4,094,307
	(1.1)	(1.1)	(1.2)	(0.7)
10. Profits After Tax				
TOTAL ASSETS (End of Year)	220,819,413	288,604,260	423,631,502	665,013,797

Source: Superintendencia Bancaria. Revista Trimestral. Several Issues.

Notes: 1. The numbers in parentheses are fractions (in %) of the average value of total assets of all commercial banks (comerciales nacionales, comerciales mixtos and bancos oficiales) in the reported year.

2. The average values of total assets are the geometric means of total assets at the beginning and end of each year.

Appendix Table 5

ECUADOR: INCOME ACCOUNTS OF COMMERCIAL BANKS, 1980-82

(in millions of sucres and as a fraction of the average value of total assets in the reported year)

	1980	1981	1982	1983
1. Interest Received	4,069 (4.7)	5,062 (4.6)	7,710 (5.6)	13,648 (7.0)
2. Interest Paid	1,421 (1.6)	1,879 (1.7)	3,947 (2.9)	8,147 (4.2)
3. Interest Margin (1 - 2)	2,648 (3.1)	3,184 (2.9)	3,763 (2.7)	5,501 (2.8)
4. Other Income (net)	2,980 (3.5)	3,877 (3.5)	5,442 (4.0)	6,307 (3.2)
4.1 Commissions, Fees, Investments, Foreign Exchange	2,712 (3.2)	3,640 (3.3)	5,044 (3.7)	5,337 (2.7)
4.2 Other	268 (0.3)	237 (0.2)	398 (0.3)	970 (0.5)
5. Gross Margin (3 + 4)	5,628 (6.6)	7,061 (6.5)	9,205 (6.7)	11,808 (6.1)
6. Operating Costs	3,823 (4.4)	4,930 (4.5)	6,616 (4.8)	8,121 (4.2)
6.1 Personnel	-	-	-	-
6.2 Insurance, Contrib. Indirect Taxes	-	-	-	-
6.3 Other	-	-	-	-
7. Net Margin (5 - 6)	-	-	-	-
8. Other Credits (net)	-	-	-	-
9. Profits Before Tax (7 + 8)	-	-	-	-
10. Profits After Tax	-	-	-	-
TOTAL ASSETS (End of Year)	98,920	120,365	156,518	239,734

Source: Superintendencia de Bancos. Memoria, 1981 and 1982.

Notes: (1) The original consolidated income statements show only the numbers for total current costs (gastos generales); permitting no further breakdown. The for operating costs should be seen with care since they may include the income tax. We were unable to separate the figures for provisions.

(2) The numbers in parentheses are fractions (in %) of the average value of total assets of in the reported year.

(3) The average values are the geometric means of total assets at the beginning and end of each year.

Appendix Table 6

REPUBLIC OF KOREA: INCOME ACCOUNTS OF NATIONWIDE COMMERCIAL BANKS, 1978-81

(in millions of won and as a fraction of the average value of total assets in the reported year)

	1978	1979	1980	1981
1. Interest Received	536,667 (5.8) (9.0)	826,374 (6.4) (10.2)	1,253,876 (7.1) (11.9)	1,563,271 (6.6) (11.7)
2. Interest Paid	478,257 (5.1) (8.1)	770,397 (6.0) (9.5)	1,177,850 (6.7) (11.2)	1,529,048 (6.5) (11.4)
3. Interest Margin (1 - 2)	58,410 (0.6) (0.9)	55,977 (0.4) (0.7)	76,026 (0.4) (0.7)	34,223 (0.1) (0.3)
4. Other Income (net)	211,700 (2.3) (3.6)	323,743 (2.5) (4.0)	482,949 (2.7) (4.6)	536,672 (2.3) (4.0)
4.1 Commissions, Fees, Investments, Foreign Exchange	164,910 (1.8) (2.8)	244,928 (1.9) (3.0)	386,735 (2.2) (3.7)	499,878 (2.1) (3.7)
4.2 Other	46,790 (0.5) (0.8)	78,815 (0.6) (1.0)	96,214 (0.5) (0.9)	36,794 (0.2) (0.3)
5. Gross Margin (3 + 4)	270,110 (2.9) (4.5)	379,720 (3.0) (4.7)	558,975 (3.2) (5.3)	570,895 (2.4) (4.3)
6. Operating Costs	125,312 (1.3) (2.1)	159,136 (1.2) (2.0)	207,945 (1.2) (2.0)	283,436 (1.2) (2.1)
6.1 Personnel	-	-	-	-
6.2 Insurance, Contrib. Indirect Taxes	-	-	-	-
6.3 Other	-	-	-	-
7. Net Margin (5 - 6)	144,798 (1.6) (2.4)	220,584 (1.7) (2.7)	351,030 (2.0) (3.3)	287,459 (1.2) (2.1)
8. Other Credits (net)	-75,606 (-0.8) (-1.3)	-141,858 (-1.1) (-1.7)	-231,053 (-1.3) (-2.2)	-160,470 (-0.7) (-1.2)
9. Profits Before Tax (7 + 8)	69,192 (0.7) (1.2)	78,726 (0.6) (1.0)	119,977 (0.7) (1.1)	126,989 (0.5) (0.9)
10. Profits After Tax	48,002 (0.5) (0.8)	55,087 (0.4) (0.7)	82,251 (0.5) (0.8)	85,040 (0.4) (0.6)
TOTAL ASSETS (End of Year)	11,120,900	14,722,600	20,891,500	26,458,200
TOTAL ASSETS - (Acceptances (End of Year) & Guarantees)	7,064,600	9,297,900	11,938,100	15,753,400

Source: Financial Sector Review. Manuscript. INDFD/World Bank, 1983 and Monthly Statistical Bulletin of the Bank of Korea, April 1983 and December 1984.

1. The numbers in parentheses are fractions (in %) of the average values of total assets and total assets minus acceptances and guarantees, respectively. The latter should be more relevant for comparisons with other countries.
2. The average values of total assets are the geometric means of total assets and the beginning and end of each year.

Appendix Table 7

REPUBLIC OF KOREA: CONSOLIDATED INCOME ACCOUNTS OF REGIONAL COMMERCIAL BANKS, 1978-81

(in millions of won and as a fraction of the average value of total assets in the reported year)

	1978	1979	1980	1981
1. Interest Received	100,295 (7.6) (9.8)	136,963 (8.0) (10.3)	190,629 (8.9) (11.4)	233,975 (8.6) (10.9)
2. Interest Paid	71,465 (5.4) (7.0)	109,645 (6.4) (8.3)	172,317 (8.1) (10.3)	221,154 (8.1) (10.3)
3. Interest Margin (1 - 2)	28,830 (2.2) (2.8)	27,318 (1.6) (2.1)	18,312 (0.9) (1.1)	12,821 (0.5) (0.6)
4. Other Income (net)	35,842 (2.7) (3.5)	56,039 (3.3) (4.2)	89,241 (4.2) (5.3)	97,928 (3.6) (4.6)
4.1 Commissions, Fees, Investments, Foreign Exchange	27,769 (2.1) (2.7)	43,202 (2.5) (3.3)	75,532 (3.5) (4.5)	93,956 (3.4) (4.4)
4.2 Other	8,073 (0.6) (0.8)	12,837 (0.8) (1.0)	13,709 (0.6) (0.8)	3,972 (0.1) (0.2)
5. Gross Margin (3 + 4)	64,672 (4.9) (6.3)	83,357 (4.9) (6.3)	107,553 (5.0) (6.4)	110,749 (4.1) (5.2)
6. Operating Costs	32,949 (2.5) (3.2)	42,421 (2.5) (3.2)	54,541 (2.5) (3.2)	71,808 (2.6) (3.3)
6.1 Personnel	-	-	-	-
6.2 Insurance, Contrib. Indirect Taxes	-	-	-	-
6.3 Other	-	-	-	-
7. Net Margin (5 - 6)	31,723 (2.4) (3.1)	40,936 (2.4) (3.1)	53,012 (2.5) (3.2)	38,941 (1.4) (1.8)
8. Other Credits (net)	-15,254 (-1.2) (-1.5)	-21,365 (-1.2) (-1.6)	-27,787 (-1.3) (-1.6)	-14,664 (-0.5) (-0.7)
9. Profits Before Tax (7 + 8)	16,459 (1.2) (1.6)	19,571 (1.1) (1.5)	25,225 (1.2) (1.5)	24,277 (0.9) (1.1)
10. Profits After Tax	13,868 (1.0) (1.3)	16,359 (1.0) (1.2)	21,765 (1.0) (1.3)	17,769 (0.6) (0.8)
TOTAL ASSETS (End of Year)	1,524,000	1,917,400	2,378,600	3,128,100
TOTAL ASSETS - (Acceptances (End of Year) & Guarantees)	1,176,900	1,491,700	1,883,000	2,456,100

Source: Financial Sector Review. Manuscript. INFD/World Bank, 1983 and Monthly Statistical Bulletin of the Bank of Korea, April 1983 and December 1984.

1. The numbers in parentheses are fractions (in %) of the average values of total assets and total assets minus acceptances and guarantees, respectively. The latter should be more relevant for comparisons with other countries.
2. The average values of total assets are the geometric means of total assets and the beginning and end of each year.

Appendix Table 8

LIBERIA: CONSOLIDATED INCOME ACCOUNTS OF COMMERCIAL BANKS, 1981

(in millions of dollars and as a fraction of average value of total assets in the reported year)

	1981
1. Interest Received	23.48 (10.0)
2. Interest Paid	12.59 (5.3)
3. Interest Margin (1-2)	10.89 (4.6)
4. Other Income	11.55 (4.9)
4.1 Commissions, Fees, Investments, Foreign Exchange	-
4.2 Other	-
5. Gross Margin (3 + 4)	22.44 (9.5)
6. Operating Costs	15.55 (6.6)
6.1 Personnel	5.14 (2.2)
6.2 Insurance, Contrib. Indirect taxes	-
6.3 Other	-
7. Net Margin (5 - 6)	6.89 (2.9)
8. Other Credits	-
9. Profits Before Tax (7 + 8)	-
10. Profits After Tax	-
<hr/>	
TOTAL ASSETS (End of Year)	233.7

Source: Mehran, H; Leite, S, Ogoola, J and Vaez-Zadeh, R. "Liberia: Savings Mobilization and the Financial System", Central Banking Department, IMF, January 1983.

- Notes:
1. The numbers in parentheses are fractions (in %) of the average value of total assets in the reported year.
 2. The average value of total assets is the geometric means of total assets at the end of 1980 and 1981.

Appendix Table 9

MALAYSIA: CONSOLIDATED INCOME ACCOUNTS OF COMMERCIAL BANKS, 1975-1982

(in billions of ringgit and as a fraction of the average value of
total assets in the reported year)

	1975	1976	1977	1978	1979	1980	1981	1982
1. Interest Received								
2. Interest Paid								
3. Interest Margin								
4. Other Income (net)								
4.1 Commissions, Fees, Investments, Foreign Exchange								
4.2 Other								
5. Gross Margin	387.6	445.2	535.5	764.5	836.3	1,039.4	1,246.6	1,568.2
(3 + 4)	(3.8)	(3.6)	(3.6)	(4.3)	(3.8)	(3.6)	(3.4)	(3.5)
6. Operating Costs	145.2	248.3	211.3	235.9	291.0	330.7	424.7	522.3
(1.4)	(1.4)	(2.0)	(1.4)	(1.3)	(1.3)	(1.2)	(1.2)	(1.2)
6.1 Personnel	135.6	155.2	192.4	205.7	263.1	299.8	387.6	475.4
6.2 Insurance, Contrib. Indirect taxes	(1.3)	(1.3)	(1.3)	(1.2)	(1.2)	(1.0)	(1.1)	(1.1)
6.3 Other	-	-	-	-	-	-	-	-
7. Net Margin	242.4	186.9	324.2	528.6	545.3	708.7	821.9	1045.9
(5 - 6)	(2.4)	(1.5)	(2.1)	(3.0)	(2.5)	(2.5)	(2.3)	(2.3)
8. Other Credits (net)								
9. Profits Before Tax	175.9	176.4	218.6	404.6	368.5	466.7	556.2	720.3
(7 + 8)	(1.7)	(1.4)	(1.4)	(2.3)	(1.7)	(1.6)	(1.5)	(1.6)
10. Profits After Tax	124.2	116.8	144.2	319.2	256.2	283.7	344.2	460.8
(1.2)	(1.2)	(0.9)	(1.0)	(1.8)	(1.2)	(1.0)	(1.0)	(1.0)
TOTAL ASSETS (End of Year)	10,811	14,017	16,193	19,117	25,198	32,186	40,728	48,946

Source: Sundararajan, V. Vaez-Zadeh, R and Kim, In-su. "A Study of Interest Rates in Malaysia: Deregulation, Its Consequences and Policy Options". Unpublished Manuscript, IMF, February 1985.

Notes: 1. The numbers in parentheses are fractions (in %) of the average values of total assets in the reported year.
2. The average values of total assets are the geometric means of total assets at the beginning and end of each year.

Appendix Table 10

MEXICO: CONSOLIDATED INCOME ACCOUNTS OF DOMESTIC CREDIT INSTITUTIONS, 1980-83
(in millions of pesos and as a fraction of the average value of total assets at the beginning and end of each reported year)

	1980	1981	1982	1983
1. Interest Received	171,321 (16.6)	321,507 (21.7)	707,879 (30.0)	1,698,909 (41.8)
2. Interest Paid	129,784 (12.4)	261,245 (17.6)	618,499 (26.2)	1,543,159 (38.0)
3. Interest Margin (1 - 2)	41,537 (4.0)	60,862 (4.1)	89,380 (3.8)	155,750 (3.8)
4. Other Income (net)	23,750 (2.3)	43,891 (2.9)	67,073 (2.8)	105,913 (2.6)
4.1 Commissions, Fees, Investments, Foreign Exchange	18,223 (1.7)	23,924 (1.6)	45,376 (1.9)	77,568 (1.9)
4.2 Other	5,527 (0.5)	19,367 (1.3)	21,697 (0.9)	28,345 (0.7)
5. Gross Margin (3 + 4)	65,287 (6.3)	103,553 (7.0)	156,453 (6.6)	261,663 (6.4)
6. Operating Costs	45,031 (4.3)	74,574 (5.0)	115,632 (4.9)	188,156 (4.6)
6.1 Personnel	28,455 (2.7)	42,437 (2.9)	74,100 (3.1)	113,963 (2.8)
6.2 Insurance, Contrib. Indirect Taxes	6,211 (0.6)	9,372 (0.6)	17,253 (0.7)	31,668 (0.8)
6.3 Other	10,365 (1.0)	22,765 (1.5)	24,279 (1.0)	42,525 (1.0)
7. Net Margin (5 - 6)	20,256 (1.9)	28,979 (2.0)	40,821 (1.7)	73,507 (1.8)
8. Other Credits (net)	-3,943 (-0.4)	-4,815 (-0.3)	-15,053 (-0.6)	-31,208 (-0.8)
9. Profits Before Tax (7 + 8)	16,313 (1.6)	24,164 (1.6)	25,768 (1.1)	42,299 (1.0)
10. Profits After Tax	10,416 (1.0)	14,372 (1.0)	11,545 (0.5)	15,742 (0.4)
TOTAL ASSETS (End of Year)	1,236,779	1,770,839	3,144,423	5,240,686

Source: Commission Nacional Bancaria y de Seguros. Boletin Estadistico, Several Issues.

- Notes: 1. The numbers in parentheses are fractions (in %) of the average values of total assets and of total assets minus acceptances and guarantees in the reported year.
2. The average values of assets are the geometric means of assets at the beginning and end of each year.
3. The geometric average for 1980 was obtained with the ratios of January and December of 1980.

Appendix Table 11

PAKISTAN: CONSOLIDATED INCOME ACCOUNTS OF COMMERCIAL BANKS: 1979-83

(in millions of rupees and as a fraction of the average value of total assets in the reported year)

	1979	1980	1981	1982	1983
1. Interest Received	9,959	11,764	13,995	17,392	19,889
	(12.0)	(12.0)	(12.3)	(12.9)	(11.8)
2. Interest Paid	6,362	7,739	9,110	11,463	12,832
	(7.6)	(7.9)	(8.0)	(8.5)	(7.6)
3. Interest Margin (1 - 2)	3,597	4,025	4,885	5,929	7,057
	(4.4)	(4.1)	(4.3)	(4.4)	(4.2)
4. Other Income (net)	-	-	-	-	-
4.1 Commissions, Fees, Investments, Foreign Exchange	-	-	-	-	-
4.2 Other	110	144	156	491	227
	(0.1)	(0.1)	(0.1)	(0.4)	(0.1)
5. Gross Margin (3 + 4)	3,707	4,169	5,041	6,420	7,284
	(4.5)	(4.3)	(4.4)	(4.7)	(4.3)
6. Operating Costs	2,601	2,953	3,394	4,182	4,784
	(3.1)	(3.0)	(3.0)	(3.1)	(2.8)
6.1 Personnel	1,539	1,758	1,991	2,396	2,841
	(1.8)	(1.8)	(1.7)	(1.8)	(1.7)
6.2 Insurance, Contrib. Indirect Taxes	376	406	426	516	573
	(0.5)	(0.4)	(0.4)	(0.4)	(0.3)
6.3 Other	686	789	977	1,270	1,370
	(0.8)	(0.8)	(0.8)	(0.9)	(0.8)
7. Net Margin (5 - 6)	1,106	1,216	1,647	2,238	2,500
	(1.3)	(1.2)	(1.4)	(1.6)	(1.5)
8. Other Credits (net)	-	-	-	-	-
	-	-	-	-	-
9. Profits Before Tax (7 + 8)	-	-	-	-	-
	-	-	-	-	-
10. Profits After Tax	-	-	-	-	-
	-	-	-	-	-
TOTAL ASSETS (End of Year)	117,728	134,941	160,175	191,400	237,645
TOTAL ASSETS (IMF)	90,169	106,005	122,837	148,854	191,950

Source: Central Bank of Pakistan, Banking Statistics of Pakistan, 1983-84, and IMF.

Notes: 1. The figures on interests received and paid also include commissions, fees and other income items.

2. The original income statements do not provide a separation of the profits and provisions figures.

3. Total assets IMF exclude guarantees.

Appendix Table 12

PERU: CONSOLIDATED INCOME ACCOUNTS OF COMMERCIAL BANKS, 1976-81

(in millions of soles and as a fraction of the average value of total assets in the reported year)

	1976	1977	1978	1979	1980	1981
1. Interest Received	9,898 (5.2)	14,309 (5.5)	24,767 (6.1)	55,560 (9.0)	122,176 (11.4)	331,209 (19.3)
2. Interest Paid	3,741 (2.0)	6,138 (2.4)	12,691 (3.1)	33,635 (5.4)	74,874 (7.0)	23,7146 (13.8)
3. Interest Margin (1 - 2)	6,157 (3.2)	8,171 (3.1)	12,076 (3.0)	21,925 (3.5)	47,302 (4.4)	94,063 (5.5)
4. Other Income (net)	5,113 (2.7)	7,962 (3.0)	14,249 (3.5)	23,117 (3.7)	41,370 (3.8)	88,362 (5.2)
4.1 Commissions, Fees, Investments, Foreign Exchange	- - -	- - -	- - -	- - -	- - -	68,188 (4.0)
4.2 Other	-	-	-	-	-	20,174 (1.2)
5. Gross Margin (3 + 4)	11,270 (5.9)	16,133 (6.2)	26,325 (6.5)	45,042 (7.3)	88,672 (8.2)	182,425 (10.6)
6. Operating Costs	9,026 (4.7)	12,688 (4.9)	20,638 (5.1)	34,414 (5.6)	65,441 (6.1)	106,556 (6.2)
6.1 Personnel	6,377 (3.4)	8,170 (3.1)	12,972 (3.2)	20,613 (3.3)	38,705 (3.6)	65,098 (3.8)
6.2 Insurance, Contrib. Indirect Taxes	- -	- -	- -	- -	- -	37,668 (2.2)
6.3 Other	-	-	-	-	-	3,790 (0.2)
7. Net Margin (5 - 6)	2,244 (1.2)	3,445 (1.3)	5,687 (1.4)	10,628 (1.7)	23,231 (2.2)	75,869 (4.4)
8. Other Credits (net)	-	-	-	-	-	39,704 (2.3)
9. Profits Before Tax (7 + 8)	-	-	-	-	-	36,165 (2.1)
10. Profits After Tax	1,310 (0.7)	2,055 (0.8)	3,754 (0.9)	7,783 (1.3)	17,421 (1.6)	27,130 (1.6)
TOTAL ASSETS (End of Year)	215,659	315,071	515,976	742,324	1,552,825	1,891,329

Source: Superintendencia de Bancos y Seguros. Memoria y Estadística, 1979, 1980 and 1981.

Notes: 1. The numbers in parentheses are fractions (in %) of the average value of total assets of commercial and savings banks (bancos comerciales y de ahorro) in the reported year.

2. The average values of total assets are the geometric means of total assets at the beginning and end of each year.

Appendix Table 13

PORTUGAL: CONSOLIDATED INCOME STATEMENTS OF COMMERCIAL BANKS, 1978-83

(in millions of escudos and as a fraction of the average value of total assets in the reported year)

	1978	1979	1980	1981	1982	1983
1. Interest Received	61,399	82,862	109,210	147,117	119,495	274,784
	(9.2)	(9.9)	(10.4)	(10.9)	(11.8)	(12.1)
2. Interest Paid	49,971	71,762	97,342	143,229	204,348	299,196
(1 - 2)	(7.5)	(8.5)	(9.3)	(10.6)	(11.7)	(13.2)
3. Interest Margin	11,378	11,100	11,868	3,888	-4,853	-24,412
	(1.7)	(1.3)	(1.1)	(0.3)	(-0.3)	(-1.1)
4. Other Income (net)	13,517	18,666	26,695	44,967	67,559	96,613
	(2.0)	(2.2)	(2.5)	(3.3)	(3.9)	(4.3)
4.1 Commissions, Fees, Investments, Foreign Exchange	9,703	16,972	24,575	43,035	66,650	95,436
	(1.4)	(2.0)	(2.3)	(3.2)	(3.8)	(4.2)
4.2 Other	3,814	1,694	2,120	1,932	909	1,177
	(0.6)	(0.2)	(0.2)	(0.1)	(0.1)	(0.1)
5. Gross Margin	24,895	29,766	38,563	48,855	62,706	72,201
(3 + 4)	(3.7)	(3.5)	(3.7)	(3.6)	(3.6)	(3.2)
6. Operating Costs	14,359	18,249	24,049	30,593	38,591	52,326
	(2.1)	(2.2)	(2.3)	(2.3)	(2.2)	(2.3)
6.1 Personnel	10,982	13,389	17,255	21,783	28,124	38,116
	(1.6)	(1.6)	(1.6)	(1.6)	(1.6)	(1.7)
6.2 Insurance, Contrib. Indirect Taxes	-	-	-	-	-	-
6.3 Other	-	-	-	-	-	-
	-	-	-	-	-	-
7. Net Margin	10,536	11,517	14,514	18,262	24,115	19,875
(5 - 6)	(1.6)	(1.4)	(1.4)	(1.3)	(1.4)	(0.9)
8. Other Credits (net)	-8,793	-9,776	-10,895	-14,381	-18,745	-15,955
	(-1.3)	(-1.2)	(-1.0)	(-1.1)	(-1.1)	(-0.7)
9. Profits Before Tax	1,743	1,741	3,619	3,881	5,370	3,920
(7 + 8)	(0.3)	(0.2)	(0.3)	(0.3)	(0.3)	(0.2)
10. Profits After Tax	-	-	-	-	-	-
	-	-	-	-	-	-
TOTAL ASSETS (End of Year)	751,951	937,073	1,174,161	1,544,287	1,972,088	2,603,146

Source: Banco de Portugal. Boletim Trimestral, June 1984

Notes: 1. The numbers in parentheses are fractions (in %) of the average values of total assets in the reported year.

2. The average values of total assets are the geometric means of total assets at the beginning and end of each year.

Appendix Table 14

PORTUGAL: CONSOLIDATED INCOME ACCOUNTS OF THE FINANCIAL SYSTEM, 1978-83

(in millions of escudos and as a fraction of the average value of total assets in the reported year)

	1978	1979	1980	1981	1982	1983
1. Interest Received	85,881 (9.1)	124,725 (10.4)	166,927 (11.0)	230,685 (11.9)	317,407 (12.3)	439,414 (12.9)
2. Interest Paid	70,289 (7.5)	109,274 (9.1)	146,046 (9.6)	211,444 (10.9)	303,374 (11.8)	448,372 (13.1)
3. Interest Margin (1 - 2)	15,592 (1.6)	15,451 (1.3)	20,881 (1.4)	19,241 (1.0)	14,033 (0.5)	-8,958 (-0.3)
4. Other Income (net)	20,012 (2.1)	26,061 (2.2)	34,644 (2.3)	53,724 (2.8)	80,082 (3.1)	114,817 (3.4)
4.1 Commissions, Fees, Investments, Foreign Exchange	13,926 (1.5)	24,268 (2.0)	32,397 (2.1)	51,577 (2.6)	78,882 (3.1)	113,306 (3.3)
4.2 Other	6,086 (0.6)	1,793 (0.1)	2,247 (0.1)	2,147 (0.1)	1,200 (0.0)	1,511 (0.0)
5. Gross Margin (3 + 4)	35,604 (3.8)	41,512 (3.5)	55,525 (3.7)	72,965 (3.8)	94,115 (3.6)	105,859 (3.1)
6. Operating Costs	17,991 (1.9)	22,495 (1.9)	30,025 (2.0)	38,634 (2.0)	49,533 (1.9)	67,485 (2.0)
6.1 Personnel	14,060 (1.5)	16,859 (1.4)	22,058 (1.4)	28,042 (1.4)	36,491 (1.4)	49,621 (1.4)
6.2 Insurance, Contrib. Indirect Taxes	-	-	-	-	-	-
6.3 Other	-	-	-	-	-	-
7. Net Margin (5 - 6)	17,613 (1.9)	19,017 (1.6)	25,500 (1.7)	34,331 (1.8)	44,582 (1.7)	38,374 (1.1)
8. Other Credits (net)	-12,910 (-1.3)	-11,641 (-1.0)	-19,199 (-1.3)	-22,894 (-1.1)	-29,738 (-1.1)	-27,213 (-0.8)
9. Profits Before Tax (7 + 8)	4,703 (0.5)	7,376 (0.6)	6,301 (0.4)	11,437 (0.6)	14,844 (0.6)	11,161 (0.3)
10. Profits After Tax	-	-	-	-	-	-
TOTAL ASSETS (End of Year)	1,056,697	1,363,354	1,682,658	2,236,363	2,977,494	3,920,779

Source: Banco de Portugal. Boletim Trimestral, June 1984

- Notes:
1. The financial system here defined comprises commercial banks and savings and investment banks.
 2. The numbers in parentheses are fractions (in %) of the average values of total assets in the reported year.
 3. The average values of total assets are the geometric means of total assets at the beginning and of each year.

Appendix Table 15

SRI LANKA: CONSOLIDATED INCOME ACCOUNTS OF COMMERCIAL BANKS, 1980-84

(in millions of rupees and as a fraction of the average value of total assets in the reported year)

	1980	1981	1982	1983	1984
1. Interest Received	2,262 (10.1)	3,504 (15.7)	4,656 (12.8)	5,345 (11.9)	5,907 (11.1)
2. Interest Paid	1,437 (6.4)	2,553 (11.5)	3,306 (9.1)	3,789 (8.4)	4,312 (8.1)
3. Interest Margin (1 - 2)	825 (3.7)	951 (3.2)	1,350 (3.7)	1,556 (3.5)	1,595 (3.0)
4. Other Income (net)	877 (3.9)	994 (3.4)	868 (2.4)	1,232 (2.7)	1,113 (2.1)
4.1 Commissions, Fees, Investments, Foreign Exchange	871 (3.9)	958 (3.2)	848 (2.3)	1,194 (2.6)	1,060 (2.0)
4.2 Other	6 (0.0)	37 (0.2)	20 (0.1)	38 (0.1)	53 (0.1)
5. Gross Margin (3 + 4)	1,702 (7.6)	1,945 (6.6)	2,218 (6.1)	2,788 (6.2)	2,708 (5.1)
6. Operating Costs	748 (3.4)	1,113 (3.8)	1,427 (3.9)	1,701 (3.8)	1,955 (3.7)
6.1 Personnel	443 (2.0)	617 (2.0)	725 (2.0)	895 (2.0)	1,098 (2.1)
6.2 Insurance, Contrib. Indirect Taxes	59 (0.3)	62 (0.3)	69 (0.2)	79 (0.2)	102 (0.2)
6.3 Other	246 (1.1)	434 (1.5)	633 (1.7)	727 (1.6)	755 (1.4)
7. Net Margin (5 - 6)	954 (4.3)	832 (2.6)	791 (2.2)	1,087 (2.4)	753 (1.4)
8. Other Credits (net)	-	-	-	-	-
9. Profits Before Tax (7 + 8)	-	-	-	-	-
10. Profits After Tax	-	-	-	-	-
TOTAL ASSETS (End of Year)	26,601	32,755	40,194	50,382	56,553

Source: Central Bank of Sri Lanka

Notes: 1. The original income statements do not provide a separation of the profits and provisions figures.

Appendix Table 16

THAILAND: CONSOLIDATED INCOME ACCOUNTS OF COMMERCIAL BANKS, 1975-1980

(in billions of baht and as a fraction of the average value of total assets in the reported year)

	1975	1976	1977	1978	1979	1980
1. Interest Received	10.3 (9.5)	11.7 (9.1)	13.9 (8.9)	18.4 (9.5)	25.5 (10.7)	35.1 (12.6)
2. Interest Paid (1 - 2)	7.5 (6.9)	8.6 (6.7)	10.4 (6.7)	13.8 (7.1)	19.5 (8.2)	28.5 (10.2)
3. Interest Margin	2.8 (2.6)	3.1 (2.4)	3.5 (2.2)	4.6 (2.4)	6.0 (2.5)	6.6 (2.4)
4. Other Income (net)	2.4 (2.2)	2.6 (2.0)	3.1 (2.0)	3.6 (1.8)	3.9 (1.6)	5.3 (1.9)
4.1 Commissions, Fees, Investments, Foreign Exchange	-	-	-	-	-	-
4.2 Other	-	-	-	-	-	-
5. Gross Margin (3 + 4)	5.2 (4.8)	5.7 (4.4)	6.6 (4.2)	8.2 (4.2)	9.9 (4.2)	11.9 (4.3)
6. Operating Costs	2.9 (2.7)	3.3 (2.6)	3.8 (2.4)	4.7 (2.4)	5.6 (2.3)	6.8 (2.4)
6.1 Personnel	-	-	-	-	-	-
6.2	-	-	-	-	-	-
6.3 Other	-	-	-	-	-	-
7. Net Margin (5 - 6)	2.3 (2.1)	2.4 (1.9)	2.8 (1.8)	3.5 (1.8)	4.3 (1.8)	5.1 (1.8)
8. Other Credits (net)	-	-	-	-	-	-
9. Profits Before Tax (7 + 8)	2.0 (2.1)	2.1 (1.6)	2.4 (1.5)	3.1 (1.6)	3.5 (1.5)	4.1 (1.5)
10. Profits After Tax	1.4 (1.3)	1.5 (1.2)	1.6 (1.0)	2.1 (1.1)	2.3 (0.9)	2.4 (0.8)
TOTAL ASSETS (End of Year)	117.9	139.6	173.3	218.2	259.9	300.0

Source: INDFD/World Bank.

Notes: 1. The numbers for interest paid include foreign exchange losses and gains.

2. The numbers in parentheses are fractions (in %) of the average values of total assets in the reported year.

3. The average values of total assets are the geometric means of total assets at the beginning and end of each year.

Appendix Table 17

TUNISIA: CONSOLIDATED INCOME ACCOUNTS OF COMMERCIAL BANKS: 1980-82

(in thousands of dinars and as a fraction of the average value of total assets in the reported year)

	1980	1981	1982
1. Interest Received	92,746	121,192	160,568
		(4.3) (6.1)	(4.5) (6.5)
2. Interest Paid	45,454	60,766	80,555
		(2.1) (3.1)	(2.3) (3.3)
3. Interest Margin (1 - 2)	47,292	60,426	80,013
		(2.1) (3.0)	(2.2) (3.3)
4. Other Income (net)	11,594	11,999	15,632
		(0.4) (0.6)	(0.4) (0.6)
4.1 Commissions, Fees, Investments, Foreign Exchange	7,624	7,861	10,445
		(0.3) (0.4)	(0.3) (0.4)
4.2 Other	3,970	4,138	5,187
		(0.1) (0.2)	(0.1) (0.2)
5. Gross Margin (3 + 4)	58,886	72,425	95,645
		(2.5) (3.6)	(2.7) (3.9)
6. Operating Costs	33,473	40,682	52,162
		(1.4) (2.0)	(1.5) (2.1)
6.1 Personnel	-	-	-
6.2 Insurance, Contrib. Indirect Taxes	-	-	-
6.3 Other	-	-	-
7. Net Margin (5 - 6)	25,413	31,743	43,483
		(1.1) (1.6)	(1.2) (1.8)
8. Other Credits (net)	-	-	-
9. Profits Before Tax	-	-	-
10. Profits After Tax	11,125	11,738	13,678
		(0.4) (0.6)	(0.4) (0.6)
TOTAL ASSETS (End of Year)	2,447,852	3,285,815	3,823,547
TOTAL ASSETS - (Acceptances + Guarantees) (End of Year)	1,776,607	2,232,440	2,684,013

Source: Association Professionnelle des Banques de Tunisie. Rapport Sur L'Activite Bancaire, 1980, 1981 and 1982.

- Notes: 1. The group of commercial banks does not include the Arab Bank Limited Tunis, for which there is no available data for 1982.
2. The numbers displayed in rows 1 and 2 (interest received and paid) also include commissions.
3. The numbers in parentheses are fractions (in %) of the average values of total assets and of total assets minus acceptances and guarantees in the reported year. The latter should be more relevant for comparisons with other countries.
4. The average values of assets are the geometric means of assets at the beginning and end of each year.

Appendix Table 18

TURKEY: CONSOLIDATED INCOME ACCOUNTS OF DOMESTIC COMMERCIAL BANKS, 1980-83

(in millions of Turkish liras and as a fraction of the average value of total assets in the reported year)

	1977	1978	1979	1980	1981	1982	1983
1. Interest Received	12,893	18,046	27,711	68,113	182,945	337,972	447,962
	-	(6.9)	(7.3)	(11.7)	(17.9)	(19.3)	(18.6)
2. Interest Paid	6,454	9,070	15,639	36,789	144,241	326,664	415,010
	-	(3.4)	(4.1)	(6.3)	(14.1)	(18.7)	(17.2)
3. Interest Margin (1 - 2)	6,439	8,976	12,072	31,324	38,704	11,308	32,952
	-	(3.4)	(3.2)	(5.4)	(3.8)	(0.6)	(1.4)
4. Other Income (net)	4,949	7,769	12,367	27,669	56,402	116,391	125,834
	-	(2.9)	(3.2)	(4.8)	(5.5)	(6.7)	(5.2)
4.1 Commissions, Fees, Investments, Foreign Exchange	4,526	6,768	10,956	23,487	48,261	77,665	99,833
	-	(2.6)	(2.9)	(4.0)	(4.7)	(4.4)	(4.1)
4.2 Other	423	1,001	1,411	4,182	8,141	38,726	26,001
	-	(0.3)	(0.4)	(0.7)	(0.8)	(2.2)	(1.1)
5. Gross Margin (3 + 4)	11,388	16,745	24,439	58,993	95,106	127,699	158,786
	-	(6.3)	(6.4)	(10.1)	(9.3)	(7.3)	(6.6)
6. Operating Costs	9,645	14,718	23,031	51,398	72,223	99,995	120,075
	-	(5.6)	(6.0)	(8.8)	(3.7)	(5.7)	(5.0)
6.1 Personnel	7,007	11,002	18,219	36,643	54,822	74,130	88,982
	-	(4.2)	(4.8)	(6.3)	(5.3)	(4.2)	(3.7)
6.2 Insurance, Contrib. Indirect Taxes	1,381	1,861	2,026	7,490	8,547	12,691	15,431
	-	(0.7)	(0.5)	(1.3)	(0.8)	(0.7)	(0.6)
6.3 Other	1,257	1,855	2,786	7,265	8,854	13,174	15,662
	-	(0.7)	(0.7)	(1.2)	(0.9)	(0.7)	(0.6)
7. Net Margin (5 - 6)	1,743	2,027	1,408	7,595	22,883	27,704	38,711
	-	(0.8)	(0.4)	(1.3)	(2.2)	(1.6)	(1.6)
8. Other Credits (net)	-27	-278	221	-42	-10,482	-17,748	-11,366
	-	(0.0)	(0.0)	(0.0)	(1.0)	(1.0)	(0.5)
	-	-	-	-	-	-	-
9. Profits Before Tax (7 + 8)	1,716	1,749	1,629	7,553	12,401	9,956	27,345
	-	(0.7)	(0.4)	(1.3)	(1.2)	(0.6)	(1.1)
10. Profits After Tax	-	-	-	-	-	-	-
TOTAL ASSETS (End of Year)	218,567	316,330	457,534	737,471	1,418,737	2,148,583	2,709,421

Source: Publications of the Banks Association of Turkey, several Issues.

- Notes: 1. The banking system here defined comprises the domestic commercial banks, the foreign banks and the banks founded by special laws.
2. The interest numbers (rows 1 and 2) for 1980 include commissions (received and paid).
3. The numbers in parentheses are fractions (in %) of the average values of total assets in the reported year.
4. The average values are the geometric means of the total assets at the beginning and end of each year.

Appendix Table 19

TURKEY: CONSOLIDATED INCOME ACCOUNTS OF THE BANKING SYSTEM, 1980-83

(in millions of Turkish liras and as a fraction of the average value of total assets in the reported year)

	1977	1978	1979	1980	1981	1982	1983
1. Interest Received	25,566	35,394	53,926	134,906	336,321	578,441	823,228
	-	(6.6)	(7.1)	(11.1)	(15.9)	(16.4)	(15.9)
2. Interest Paid	13,863	18,416	31,274	74,560	245,581	524,197	738,889
	-	(3.4)	(4.1)	(6.1)	(11.6)	(14.9)	(14.2)
3. Interest Margin (1 - 2)	11,703	16,978	22,652	60,349	90,740	54,244	84,939
	-	(3.2)	(3.0)	(5.0)	(4.3)	(1.5)	(1.6)
4. Other Income (net)	13,652	18,230	31,799	60,754	117,902	209,917	206,742
	-	(3.4)	(4.2)	(5.0)	(5.6)	(6.0)	(4.0)
4.1 Commissions, Fees, Investments, Foreign Exchange	7,241	10,465	16,679	34,986	74,983	117,692	154,805
	-	(1.9)	(2.2)	(2.9)	(3.5)	(3.3)	(3.0)
4.2 Other	6,411	7,765	15,120	25,768	42,919	92,225	51,937
	-	(1.4)	(2.0)	(2.1)	(2.0)	(2.6)	(1.0)
5. Gross Margin (3 + 4)	25,355	35,208	54,451	121,100	208,642	264,161	291,681
	-	(6.5)	(7.2)	(10.0)	(9.8)	(7.5)	(5.6)
6. Operating Costs	22,337	34,739	57,494	103,715	144,712	191,384	213,158
	-	(6.5)	(7.5)	(8.5)	(6.8)	(5.4)	(4.1)
6.1 Personnel	14,911	24,327	40,973	73,054	107,500	135,750	148,575
	-	(4.5)	(5.4)	(6.0)	(5.1)	(3.8)	(2.9)
6.2 Insurance, Contrib. Indirect Taxes	2,233	3,012	4,823	12,058	15,670	23,095	31,537
	-	(0.6)	(0.6)	(1.0)	(0.7)	(0.6)	(0.6)
6.3 Other	5,193	7,400	11,698	18,603	21,542	32,503	33,046
	-	(1.4)	(1.5)	(1.5)	(1.0)	(0.9)	(0.6)
7. Net Margin (5 - 6)	3,018	469	-3,043	17,385	63,930	72,813	78,523
	-	(0.1)	(-0.4)	(1.4)	(3.0)	(2.1)	(1.5)
8. Other Credits (net)	-2,545	-2,732	-353	870	-22,657	-32,427	-22,107
	-	(-0.5)	(0.0)	(0.1)	(-1.1)	(-1.0)	(-0.4)
9. Profits Before Tax (7 + 8)	473	-2,263	-3,396	18,255	41,273	40,386	56,416
	-	(-0.4)	(-0.4)	(1.5)	(1.9)	(1.1)	(1.1)
10. Profits After Tax	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
TOTAL ASSETS (End of Year)	466,878	619,490	936,940	1,580,464	2,844,623	4,359,563	6,176,530

Source: Publications of the Banks Association of Turkey, several Issues.

- Notes: 1. The banking system here defined comprises the domestic commercial banks, the foreign banks and the banks founded by special laws.
2. The interest numbers (rows 1 and 2) for 1980 include commissions (received and paid).
3. The numbers in parentheses are fractions (in %) of the average values of total assets in the reported year.
4. The average values are the geometric means of the total assets at the beginning and end of each year.

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