

MONOPOLY POWER IN THE PERUVIAN BANKING INDUSTRY

(1990-1995)

An Honors Thesis

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INTRODUCTION

Developing countries have been struggling for years to maintain stability and reach a competitive position in the world economy. To overcome their existing problems, many of these countries developed stabilization and structural adjustment programs which include a wide range of measures aiming to eliminate hyperinflations, recessions, and government inefficiencies portrayed in large budget deficits, as well as attaining political and social stability. In most of the contemporary examples of stabilization programs in LDC's, some common features appear. One important feature is the development of a more efficient financial sector, which will provide "...an adequate environment of productive activities" (Marthans, La Banca, 39) and contribute to the achievement of long term stability. This thesis examines one of the vital remaining issues in the development of financial markets in Peru: the degree of monopoly power or oligopolization in the Peruvian banking industry.

In the context of developing countries and their structural reforms aimed at fostering growth, Peru serves as an interesting example. The stabilization program started in Peru in the second half of 1990 established a path to recovery and progress, while requiring many sacrifices by the Peruvian public. The program has proven to be effective in eliminating hyperinflation. However, after five years of the program, most observers agree that much remains to be done to maintain these economic conditions and reduce poverty. Recognizing the achievements of the program in terms of reduction of inflation and the start of a more disciplined fiscal policy does not forbid us from observing certain problems remaining in the Peruvian economy.

Despite the trend towards an improving financial system in Peru, some problems remain. After years of an inefficient state-controlled banking sector, the financial markets were reformed

as part of the economic program of 1990. The reforms included the liberalization of interest rates, which have come to be determined by free market forces in the commercial banking sector. The problems of deficient liquidity, high levels of dollarization (transactions denominated in U.S. dollars) in the economy, and large volumes of bad debt and reserve requirements have been present before and during the stabilization program. These problems are reflected in the high levels of interest rates in the economy. Most of the measures have been effective in improving the sector. However, a problem which has not been treated by the authorities yet is the degree of market concentration in Peruvian banking. The largest four commercial banks in the sector have more than 65% of the market share in deposits and loans, implying that oligopolistic behavior is possible in the determination of interest rates. Most of the empirical work of this thesis examines the degree of monopolistic pricing in the determination of interest rates in Peru.

The problem of high interest rates becomes more serious when considering the fact that interest rates are getting more differentiated between local and foreign currency. The problems of economies of scale and degree of oligopolization are greater in the first one rather than the second one. Clients of loans in new soles, the Peruvian currency, are often producers of non-tradable goods, having limited access to foreign sources of financing. In this sense, the problems of scale are significant since they do not let small businesses reach cheaper alternatives for credit. It is crucial to understand that the high interest rates in the local currency directly affect small and medium size businesses, since the large corporations have access to foreign financing in foreign currency. To maintain growth and to fight poverty and unemployment, credit has to be available for small businesses.

The core of the thesis tries to determine the extent to which oligopolization constitutes a

problem in the determination of interest rates in Peru. To do this, it uses an econometric model to test the level of competition in the Peruvian banking system. Considering the complexity of the Peruvian financial system, this project also examines other factors affecting interest rate levels.

The econometric models developed in this study focus on interest rates denominated in Peruvian new soles. Despite the strong dollarization in the Peruvian economy, there is an upward, but still very slow trend in deposits and loans in the national currency. Also, interest rates in new soles are crucial for small and middle size businesses, which will play an important role in the future success of the economic program. Nevertheless, interest rates for deposits in dollars are still used in the main econometric model to represent an alternative to deposit rates in new soles (See section 5.2).

It is important to understand the economic and political environment in Peru prior to the program of August 1990. The first part of the thesis provides a background of the Peruvian economy and the changes it underwent in the last five years. It describes the main stabilization and structural reforms together with the results and costs of the program.

Chapter 2 describes the Peruvian financial sector, including a brief history, a list of the main players in the sector and a list of the main areas of concern regarding the Peruvian financial sector, some of which are common to emerging financial markets elsewhere. It also describes the most important interest rates in the Peruvian economy, and compares Peruvian interest rates (both nominal and real) with other Latin American countries to determine to what extent rates in Peru are higher than the region's levels.

One of the main areas of concern in the Peruvian banking sector is the degree of

changes to improve its situation. Chapter 6 describes and analyzes these factors which affect the high cost of credit in Peru. The chapter also describes the evolution of Peruvian banking in after 1990 and considers some factors which appeared in the past two years which are contributing to improvements in the efficiency of the Peruvian banking sector, such as direct intermediation, and foreign competition.

After the analysis of the problems affecting the cost of credit in the Peruvian financial sector, some basic recommendations and conclusions are made. Besides briefly mentioning the future prospects of the Peruvian banking sector, Chapter 7 lists some of the recommendations required to reduce oligopolistic behavior, as well as some general recommendations to improve its overall efficiency. Such actions will help reduce the level of interest rates, and also increase the efficiency of the banking sector, required to achieve long-term economic stability in Peru.

1.-BACKGROUND- Stabilization program and structural adjustment in Peru (1990)

During the past 40 years, especially until the end of the 1980s, the Peruvian economy deteriorated. In the 1950s, government intervention was limited and per-capita income rose, but these positive results were damaged by the high concentration of wealth in a small elite centered in Lima. In addition, irresponsible expansionary fiscal and monetary policies led to a budget deficit, accelerated inflation, and large increases in foreign debt.

By July 1990, when President Alberto Fujimori took office, the situation was critical: annual inflation exceeded 3,000%, wages in the private sector had lost almost 50% of the purchasing power which they had in 1985 and those in the public sector had lost about 60%. The burden of external debt increased and the levels of investment were very low. Most importantly, the level of impoverishment of the population showed up in the falling level of GDP per capita and inequalities in income distribution.

Fujimori declared a series of stabilization measures at the end of July 1990, often referred to as the "Fuji-shock". The program, announced on August 8, 1990, included both stabilization and structural adjustment measures. Measures included the elimination of food subsidies, the upward adjustment of controlled prices such as bread, milk, flour, fuels ², tax increases and the elimination of various tax exemptions aiming at increasing government revenues, liberalization of exchange rates and foreign direct investment, and a reduction in the state's role in the economy, which meant the beginning of a strong process of privatization of state firms and banks. There was a serious commitment to balancing the budget, and restraining monetary

²To illustrate the magnitude of the increases, fuel prices rose by a multiple of 32.

growth. While the program did not use the exchange rate as the nominal anchor, it was stabilized very quickly. On the fiscal side the main goal was to increase government revenues, which had collapsed during the hyperinflation and were so low that there was not any other alternative.

A third aspect of the economic program consisted of renegotiating the foreign debt, paying the arrears on the debt inherited from the García administration, and reinserting Peru into the international financial system. Finally, the program emphasized ending the war against the local terrorist movement "Shining Path", which constituted a serious threat to peace and security in the country.

This program was the first serious attempt in Peru to deal with the numerous problems affecting the nation. It showed a clear attempt to "break with the old regime of populism and widespread government intervention" (Kiguel-Liviatan, 392).

The stabilization program of President Fujimori had very high social costs in its early years, putting Peru in an even deeper recession. With the Fuji-shock of August 1990, prices shot up between 400 and 1,400%, causing very large inflation levels in 1990 (7,146%). GDP fell by 18% in August 1990 and poverty rates rose sharply. Before the August 1990 measures were implemented it was estimated that seven or eight million people lived in poverty in Peru. By December 1990, that number increased to 12 million (almost half of Peru's total population).

After the hard first year of the stabilization program, the Peruvian economy reacted positively to the stabilization program of President Fujimori. Inflation dropped from 7,650% in 1990 to 39.5% in 1993 and to an impressive 10.2% in 1995. Despite higher-than-expected rises in inflation early this year, prices are expected to advance only 9% in 1996 and 7.5% in 1997

(UBS Report, 1). GDP increased in 1991 by 2.7% but declined in 1992 by 2.8%. From then on the economy recovered and has grown every year, reaching a 7% GDP growth in 1993 and 1995, and 10.2% GDP growth rate in 1994.

The Peruvian financial sector, which in the late 1980's was inefficient and predominantly controlled by the state, was reformed and liberalized. Section 2.2 provides detail on financial reforms.

The threat to political stability from terrorist activity has diminished significantly since the capture of the major guerrilla leaders in 1992. In addition, Peru has been reintegrated into the international community, following the political isolation that resulted from past Presidential policies in the last 1980's and President Fujimori's "self coup" in 1992³.

³On April 5, 1992, Alberto Fujimori suspended the constitution, dissolved the bicameral legislature, and reorganized the judiciary, blaming alleged corruption and an "obstructive attitude on part of the Congress" (UBS report, 2). However, international pressures to restore democracy forced new elections, which gave Fujimori majority in Congress. In addition, a new constitution was drafted.

2.-PERUVIAN FINANCIAL SECTOR

2.1.-Peruvian banking sector before the stabilization program of 1990

The financial system in Peru was historically characterized by strong government control. The government of Alan García Perez (1985-1990) strengthened the power of the government in an attempt to re-initiate growth. Price and interest rate controls were the original tool to fight inflation. The Central Bank set interest rate ceilings, which remained from 1985 to 1990 despite the accelerating inflation level. This resulted in negative real interest rates.

The measures proved to be inefficient and detrimental to the prosperity of the country: public enterprises started to generate large losses, and the adopted multiple exchange rate system yielded highly overvalued rates.

The main government institutions which played a role in the financial sector were the Peruvian Central Bank (responsible for monetary policy), Banco de La Nación (financial agent of government which in that period enjoyed a monopoly of all public sector financial services), the Corporación Financiera de Desarrollo (COFIDE-multi sector public finance corporation) and the Superintendency of Banking and Insurance (SBS-Institution in charge of regulating the banking sector).

Together with these institutions the government owned four sector development banks and three commercial banks. The development banks were the mining bank, the agricultural bank, the industrial bank and the housing bank. All were created with the purpose of granting low interest rate loans to promote growth in the economy, basically through sectoral lending to private firms and individuals. These banks proved to be extremely inefficient. Due to mismanagement, high operating costs, and growing non-performing portfolios which required

financing from the central bank, they contributed to a fiscal deficit, which in turn aggravated hyperinflation. The mining bank was declared insolvent in 1991; the industrial and agricultural banks were also declared insolvent in 1992. These banks were liquidated after the banking reforms of the early 1990s.

The three Commercial Banks accounted for 23% of total banking system during that period, and were Banco Continental, Interbanc and Banco Popular Group. The first two banks were privatized; the last one no longer exists.

The strong interest rate controls which generated negative real interest rates by the end of Garcia's regime contributed to the chaotic economic situation. With increasing inflation and a depression in economic activity, the size of the financial sector was reduced considerably.

The Central Bank financed the public-sector deficit with domestic credit. This was combined with lower legal reserves, which declined from 47.1% to 10.5% of broad money supply⁴, helping to fuel the hyperinflation of 1990 and at the same time encouraging disintermediation.

Making the situation even more critical, the Peruvian Central Bank decided to tax financial intermediation due to growing fiscal difficulties. The government imposed a 10% excise tax on interest and commissions on bank loans (December 1988), followed by a 1% extraordinary tax on bank accounts debits (August 1989). This contributed to the further increase in disintermediation. Peruvians started to seek alternative channels for financial transactions, and a rapid expansion in informal banking occurred, which became almost as big as

⁴The statistics are taken from the World Bank Report "Peru At the Crossroads, Building a Modern State", March 31, 1994, p.72.

the formal banking system ⁵.

2.2.-Key Structural Reforms Measures after 1990

To rectify the disastrous situation of the Peruvian banking sector, the government began a series of reforms in the second half of 1990. One of its goals was to liberalize the financial sector in Peru. The main measures adopted were the reduction in marginal reserve requirements from 80% to 40%, the unification of exchange rates at a floating rate, the free determination of interest rates, the abolition of the prohibition to hold foreign currency deposits, the privatization of state owned commercial banks, the downsizing of Banco de la Nación, and a new capital markets framework that redefined the role of securities brokers. The government liberalized securities issues and trading, strengthened supervision, deregulated intermediaries' fees and commissions, improved disclosure requirements, and defined the legal framework and investment criteria for mutual funds. It also allowed the private sector to offer and manage pension funds, and liquidated the four development banks. The main laws affecting the Peruvian financial sector were the 1991 Banking Law and Decree 770 in 1993.

2.2.1.-The July 1991 Banking Law

The 1991 Banking Law sought to enhance competitiveness and introduced a number of prudential requirements, trying to improve regulations, developing a more efficient financial sector and protecting savers. Its main reforms included:

Universal Banking.- The law authorized universal type banking. Banks could operate in the short, medium and long term, issue bonds and underwrite securities, create and

⁵The estimate mentioned comes from a study from the Stock Exchange Supervisory Commission (CONASEV).

administer mutual funds, engage in security and foreign exchange transactions and factor and operate leasing subsidiaries.

Directed Credit.- The Peruvian Central Bank used to require commercial banks to allocate resources to priority sectors and geographical areas. The 1991 law eliminated this portfolio supervision, allowing credit allocation to become the sole responsibility of bankers.

Foreign Capital.- The banking law imposed no restrictions on foreign ownership; all the conditions established by this law apply equally to foreign and national capital. This permitted the entry of international banks into the Peruvian banking sector.

Bank Creation.- Before 1991 the Central Bank was responsible for giving authorization to create banks and finance companies. The 1991 law delegated this role to the Superintendency of Bank and Insurance.

Prudential Requirements.- These included:

- Minimum capital requirements to obtain a charter to open a financial institution were raised considerably.
- The Capital Adequacy ratio (ratio of liabilities to net worth) was limited up to 20%.
- The law limited credit concentration to 20% of net worth to be lent to an individual or an economic group.
- A deposit insurance fund was introduced to protect small depositors for up to ten thousand soles.
- The 1991 law required all financial institutions to publish their financial statements, balance sheets and profit and loss accounts in the official newspaper at least four times a year.

2.2.2.-Decree 770 of 1993

The general law of financial, banking, and insurance institutions (decree 770 of October 31, 1993) modified the system of reserves in the financial system. It established a minimum legal reserve requirement of 9% for all deposits in soles. This decree continued the reforms on the financial sector, finishing the process of closing government banks, expanding the services commercial banks were allowed to perform (along the universal banking model), reaching not only investment banking but also asset management and insurance. It also removed most restrictions on foreign participation in the Peruvian banking market, encouraging competition. According to this law the commercial banking sector became known as the “multiple” banking sector, referring to its new universal or multi-service capabilities. As part of Decree 770, the Superintendency of Banking and Insurance issued a new capital requirements similar in structure to the Basel Accord but assigned more stringent risk-weighting for assets.

These reforms, together with the abolition of taxes on intermediation, have had very effective results, improving the situation of the Peruvian financial system (see section 6.2). Nevertheless, while dealing with urgent problems in the sector such as inefficient state control, high levels of bad debts and low liquidity, they did not address the problem of oligopolization, especially in the early years of the program.

2.3.-Composition of the Peruvian financial sector after the program

The Peruvian banking sector in Peru is constituted by commercial banks, finance companies specialized in consumer credits (empresas financieras), leasing firms (empresas de

arrendamiento financiero), and institutions specialized in personal credits.

TABLE 1 PERUVIAN FINANCIAL SYSTEM Number of Offices (December 31st 1995)				
	Head Offices	Branches	Agencies	Total
Commercial Banks	23	155	628	806
Finance Companies	4	-	1	5
Leasing Companies	6	-	-	6
Consumer Credit Firms	1	-	2	3
Central Bank (BCR)	1	7	-	8
Banco de la Nación	1	19	312	332
Corporación Financiera de Desarrollo (COFIDE)	1	11	-	12
TOTAL	37	192	943	1172

Source: SBS

2.3.1.-Commercial Banking System

The commercial banking system includes a number of national and international private banks. In the past years there have been some new inclusions in the commercial banking sector, mainly from the entry of foreign interests in the sector. By the end of 1995, there were 23 banks, and the number is expected to increase. The largest banks in the sector are Banco de Crédito (leader of the system with the largest number of loans and deposits) and Banco Wiese (second bank of the system in terms of deposits and loans), followed by Banco Continental (showing significant growth rates in its intermediation levels after its process of privatization) and

Interbanc. Examples of middle-size banks are Banco Latino and Mercantil. Some small banks (Banco del Trabajo and Banco Solventa) are concentrated in consumer loans. The most important foreign banks of the sector are Citibank, which had practically a monopoly in the intermediation of foreign investments in the Lima stock exchange, and Banco Santander.

Table 2
Number of Bank offices 1994-1995

BANKS	Dec. 1994	Oct. 1995
Banco de la Nación	355	355
Crédito	195	199
Interbanc	144	139
Continental	116	114
Wiese	83	83
Latino	54	54
Lima	36	36
Sur del Perú	23	26
De Comercio	25	24
Mercantil	19	21
Regional del Norte	16	20
Republica	17	16
Financiero	16	16
BCR (Central Bank)	8	8
Del Progreso	7	7
Extebandes	7	7
Sudamericano	6	7
Solventa	-	8
Del Trabajo	3	7
Banex	5	5
Nuevo Mundo	1	5
Santander	1	1
Interamericano	1	1
Citibank	1	1
Del Libertador	1	1
TOTAL.....	1140	1161
Source: SBS (La Banca Magazine, March 1996)		

2.3.2.-Banco de la Nación

Restructuring of the financial sector included a reduction in the role of the state-owned Banco de la Nación. Parts of the reforms included the elimination of the monopoly that this

bank had on deposits from the public sector (starting December 1992). At the same time the exclusive character of Banco de la Nación as financial and banking agent of the state was eliminated. This caused an increased participation of commercial banks attracting public sector resources: public sector deposits in commercial banks increased from 25% to 45% of the total by the end of 1993, whereas it declined from 71% to 52% for Banco de la Nación.

A new decree in January 1994 eliminated other monopolies that Banco de la Nación enjoyed in the past, such as a monopoly over deposits from state-owned enterprises as well as tax receipts. The main account from the Treasury was moved from Banco de la Nación to the Central Bank. The role of the Banco de la Nación has been reduced considerably in order to increase efficiency in the sector by enabling private banks to compete with this bank.

2.3.3.-Banco Central de Reserva del Peru (BCR)

The Peruvian Central Bank has oriented its monetary policy towards controlling inflation and fostering growth. After 1990 the BCR moved from a mechanism of direct monetary policy control to an indirect monetary control. By this the Central Bank reduced reliance on reserve requirements⁶ and put greater emphasis on open market operations.

Indirect monetary control aims at affecting money supply by intervening in the money and exchange markets. In the money markets the Central Bank intervenes in open market operations with the private sector by offering the so-called "Certificado de depósitos" (CDBCRP), which are auctioned mostly to banks and pension funds at interest rates and volumes

⁶In order to achieve monetary policy goals the 1991 law established uniform marginal reserve requirements for all institutions. Marginal reserves for national currency were reduced from 40% to 0% between December of 1990 and March of 1992, causing a reduction in reserve requirements from 45% in late 1990 to 9% by the end of 1992.

which are negotiable. These instruments have a maturity of four weeks.

After 1993, the Central Bank has increased its offerings in order to maintain a stable exchange rate between the dollar and the new sol. Although the Peruvian Central Bank still retains the ability to control interest rate ceilings, most interest rates are determined in the commercial banking sector. For example, in 1990 with the new economic program, the BCR interest rates ceilings were already placed at non-binding levels for deposit and lending in local currency, since inflation had fallen. In the case of dollar operations binding ceilings for both deposit and lending rates were removed in March 1991. (World Bank Report, Annex V, 6).

2.3.4.-Corporación Financiera de Desarrollo (COFIDE)

The Finance Corporation for Development (COFIDE) was created in 1971. It is in charge of second tier lending, meaning that this corporation only lends money to private commercial banks, which then lend funds to specific firms. COFIDE has grown to promote the creation of enterprises that help development, contributed to the expansion of the stock exchange and provided financing for small businesses at the national level.

The role of COFIDE has increased during the years of stabilization in Peru. With the dissolution of the sectoral banks in 1992, the government decided that COFIDE would replace these banks in some of their functions, acting as an intermediary in lines of credit both from abroad and from fiscal resources for this specific goal ⁷.

2.3.5.-Superintendency of Bank and Insurance (SBS)

Established in 1931 by the national constitution, the SBS has the authority to "oversee

⁷Decree 25694 and 157-92-EF. Information extracted from 1992 annual memories of the BCR.

and control banks, financing institutions (with the exception of brokerage firms), insurance and reinsurance companies, companies that receive deposits from the general public and other similar entities defined in the law" (UBS report, 9). It also supervises the Central Bank to ensure that it follows its by-laws.

2.4.-Interest rates in Peru

Interest rates in Peru reached unusual levels in the 1980's and 1990's. In the last decade, and due to strict government controls, the country experienced negative real interest rates. With the liberalization of interest rates and the hyperinflation of the second semester of 1990, interest rates rose considerably. After the reduction of inflation, nominal interest rates have shown a decreasing trend although they still remain high when compared to its Latin American neighbors (See Table 3). As we can see, Peru's nominal lending rates (in this case rates for loans up until 360 days) are higher than most of the countries in Latin America. In real terms, Peruvian interest rates are still high in comparison to some Latin American countries, whereas deposit rates have surprisingly been negative in real terms until 1994, showing the difficulty to put reforms into practice in the banking sector.

TABLE 3 LATIN AMERICAN INTEREST RATES (period averages in percent per annum)

Real Lending Rates

Country	1990	1991	1992	1993	1994	1995
PERU	-0.357	0.671	0.578	0.328	0.241	0.205
United States	0.048	0.041	0.047	0.041	0.069	0.059
Paraguay	-0.052	0.086	0.112	0.105	0.098	N/A
Costa Rica	0.114	0.079	0.055	0.184	0.172	0.095
Argentina	N/A	-0.369	-0.078	-0.039	0.033	0.099
Bolivia	0.212	0.163	0.298	0.418	N/A	N/A
Chile	0.181	0.055	0.074	0.103	0.080	0.073
Colombia	0.125	0.128	0.081	0.108	0.135	N/A
Ecuador	-0.074	-0.014	0.036	0.020	0.131	0.277

Lending Rates Nominal

Country	1990	1991	1992	1993	1994	1995
PERU	47.745	7.515	1.738	0.974	0.536	0.359
United States	0.100	0.085	0.063	0.060	0.071	0.088
Paraguay	0.310	0.349	0.280	0.308	0.325	N/A
Costa Rica	0.326	0.389	0.285	0.300	0.330	0.355
Argentina	N/A	0.713	0.151	0.063	0.077	0.152
Bolivia	0.418	0.412	0.455	0.539	N/A	N/A
Chile	0.488	0.286	0.239	0.243	0.203	0.164
Colombia	0.453	0.471	0.373	0.358	0.405	N/A
Ecuador	0.375	0.467	0.602	0.478	0.440	0.587

Deposit Rates

Country	1990	1991	1992	1993	1994	1995
PERU	24.396	1.705	0.597	0.441	0.223	0.151
United States	0.082	0.058	0.037	0.032	0.046	0.062
Paraguay	0.229	0.225	0.202	0.221	0.231	N/A
Costa Rica	0.212	0.273	0.158	0.169	0.177	0.213
Argentina	15.179	0.617	0.168	0.113	0.081	0.139
Bolivia	0.238	0.238	0.232	0.222	N/A	N/A
Chile	0.403	0.223	0.183	0.182	0.151	0.118
Colombia	0.364	0.372	0.267	0.258	0.294	0.339
Ecuador	0.436	0.415	0.468	0.320	0.337	0.517

Real Deposit Rates

Country	1990	1991	1992	1993	1994	1995
PERU	-0.665	-0.469	-0.080	-0.030	-0.011	0.020
United States	0.030	0.016	0.021	0.013	0.044	0.033
Paraguay	-0.111	-0.014	0.044	0.032	0.021	N/A
Costa Rica	0.018	-0.011	-0.049	0.065	0.037	-0.020
Argentina	-0.330	-0.405	-0.065	0.007	0.037	0.087
Bolivia	0.058	0.020	0.099	0.126	N/A	N/A
Chile	0.113	0.004	0.025	0.049	0.033	0.030
Colombia	0.057	0.052	-0.003	0.026	0.045	0.104
Ecuador	-0.033	-0.048	-0.050	-0.090	0.050	0.220

Formula used to calculate real interest rates
 $(r = (1 + r_{\text{nominal}}) / (1 + \text{inflation}) - 1)$

2.4.1.-Main interest rates in Peru

To understand the effects that imperfections in the Peruvian financial system (such as oligopolization) have on economic activity, it is necessary to have a certain level of knowledge on the main interest rates in Peru.

After the beginning of the stabilization program, and with the liberalization of the banking sector, one of the main developments was the improvement in the statistical information available concerning the Peruvian banking sector. The government developed a set of interest rates which represented the weighted average rates for deposits and loans in both domestic and foreign currency. In April 1991 the lending rates TAMN and TAMEX started to be published, whereas the deposit rates TIPMN and TIPMEX appeared in August 1991. These interest rates have become the main indicators of interest rate levels in Peru, and have been often used in economic studies regarding Peruvian interest rates. Table 4 shows the main interest rates in Peru after 1990.

TAMN.-Domestic Currency Active Rate.- Lending rate in effective annual terms, calculated accumulating the daily equivalent of TAMN published by the SBS. It corresponds to the weighted average for different types of loans from the eight main entities of the commercial banking sector.

TIPMN.-Interest rate for domestic currency deposits. Annual average rate in effective terms, calculated by accumulating the daily TIPMN published by the SBS. It corresponds to the weighted average interest rate for different types of deposits denominated in new soles, from the main entities of the commercial banking sector and Banco de la Nación.

TAMEX.-Foreign Currency Active Rate. Annual effective lending rate in effective terms,

calculated by accumulating the daily TAMEX published by the SBS, corresponding to different types of loan rates from the main eight institutions of the Peruvian commercial banking sector.

TIPMEX.-Interest rate for foreign currency deposits. Annual average effective rate, calculated by accumulating the daily TIPMEX, representing the weighted average for different types of deposit rates coming from the main institutions of the commercial banking sector including Banco de la Nación.

The main model of this thesis (Testing competition in Peruvian banking-Section 5.2), uses TIPMN as the variable representing soles deposit rates, and TIPMEX as an alternative for deposit rates in sole. TAMN was used at one point as the lending rate in soles to represent the price of output (P), however, working with the ratio of income to total assets to represent this variable gave better model results.

TABLE 4
INTEREST RATES LENDING AND DEPOSITS

	National Currency		Foreign Currency	
	Lending TAMN	Deposit TIPMN	Lending TAMEX	Deposit TIPMEX
	1990			
Oct	N/A	N/A	N/A	N/A
Nov	N/A	N/A	N/A	N/A
Dec	N/A	N/A	N/A	N/A
	1991			
Jan	N/A	N/A	N/A	N/A
Feb	N/A	N/A	N/A	N/A
Mar	N/A	N/A	N/A	N/A
Apr	0.208	N/A	0.194	N/A
May	0.165	N/A	0.194	N/A
Jun	0.189	N/A	0.192	N/A
Jul	0.199	0.050	0.194	0.086
Aug	0.193	0.045	0.196	0.089
Set	0.135	0.033	0.198	0.078
Oct	0.112	0.027	0.200	0.077
Nov	0.111	0.027	0.203	0.076
Dec	0.110	0.028	0.233	0.078
	1992			
Jan	0.108	0.026	0.201	0.078
Feb	0.095	0.023	0.206	0.059
Mar	0.084	0.020	0.192	0.069
Apr	0.075	0.019	0.172	0.065
May	0.079	0.017	0.184	0.062
Jun	0.081	0.017	0.190	0.063
Jul	0.081	0.018	0.192	0.063
Aug	0.081	0.017	0.192	0.062
Set	0.076	0.015	0.169	0.060
Oct	0.075	0.015	0.168	0.059
Nov	0.074	0.014	0.168	0.058
Dec	0.076	0.014	0.169	0.058
	1993			
Jan	1.308	0.169	0.167	0.057
Feb	1.247	0.168	0.165	0.058
Mar	1.127	0.168	0.164	0.057
Apr	0.981	0.167	0.162	0.057
May	0.916	0.163	0.160	0.057
Jun	0.895	0.158	0.158	0.056
Jul	0.875	0.157	0.156	0.055
Aug	0.848	0.145	0.154	0.054
Set	0.835	0.149	0.153	0.053
Oct	0.794	0.145	0.152	0.052
Nov	0.759	0.134	0.150	0.050
Dec	0.723	0.132	0.152	0.050
	1994			
Jan	0.713	0.130	0.154	0.050
Feb	0.717	0.127	0.154	0.049
Mar	0.694	0.119	0.152	0.048
Apr	0.667	0.119	0.151	0.049
May	0.607	0.108	0.151	0.048
Jun	0.572	0.106	0.152	0.048
Jul	0.520	0.096	0.153	0.048
Aug	0.508	0.084	0.153	0.050
Set	0.448	0.078	0.154	0.050
Oct	0.419	0.074	0.154	0.049
Nov	0.391	0.074	0.153	0.049
Dec	0.390	0.073	0.152	0.049
	1995			
Jan	0.372	0.079	0.152	0.051
Feb	0.376	0.090	0.154	0.054
Mar	0.362	0.091	0.156	0.055
Apr	0.355	0.091	0.157	0.056
May	0.355	0.091	0.159	0.057
Jun	0.368	0.097	0.163	0.059
Jul	0.369	0.101	0.164	0.060
Aug	0.365	0.105	0.164	0.061
Set	0.366	0.105	0.166	0.062
Oct	0.364	0.105	0.169	0.062

2.4.2.-Evolution of interest rates during the stabilization program

The decrease in inflation and increase in efficiency and liquidity of the banking sector in Peru caused favorable adjustments of interest rate levels (with a tendency to decrease) .

However, this process took a long time, and it was not until 1993 that interest rates started to recover from the historic levels of negative real deposit rates and high lending rates. For loans and deposits in dollars, deposit rates went down in 1993 with a reduction in the margin with international rates (For example, the differential between TIPMEX rate with the three-month LIBOR rate was reduced in 1993 from 2.5% to 1.8%).

Looking at the interest rate spread (difference between lending and saving rates), after the end of 1991, spreads in interest rates for domestic currency and dollars showed opposite trends, with a decrease in the spread of interest rates in soles and increases in the spread for interest rates in dollars ⁸.

In terms of performance 1993 saw a shift in annual returns, favoring deposit rates in new soles over dollars for the first time since the beginning of the stabilization program (Memorias BCR 1993, 68). Despite this fact, deposit in dollars still were larger than deposits in new soles.

National currency rates showed a slight decrease. The weighted average of the lending rates for national currency (TAMN) decreased in 1993 from 4.1% to 1.9% in real terms, from the end of 1992 to 1993. For deposit rates, the real TIPMN, increased from -2.3% to -1.4%. The interest rate margin between average lending and deposit rates in new soles decreased from 6.7% per month in December 1992 to 3.4% per month by the end of 1993.

⁸From October 1990 to December 1992 spreads for US dollar transactions increased from 8.7% to 12% a year.

In 1994 nominal interest rates for national currency continued to fall, following the slow reduction in inflationary expectations, whereas interest rates for loans in dollars stopped their decreasing trend due to increases in U.S. interest rates (this highlights the complexity of determination of interest rates denominated in dollars, which are not only subject to internal factors of Peru but are also affected by international movements in interest rates).

National lending rates were reduced in both nominal and real terms. In real terms, national lending rates (TAMN) fell from 2.7% per month at the end of 1993 to 2.1% per month by the end of 1994; whereas national deposit rates increased (TIPMN rate increased in real terms from -0.8% to -0.1%). While national lending rates were still high, dollar lending rates were low. For example, in March 1994, the real TAMEX lending rate in dollars was -1.56%.

1995 did not experience reductions in lending rates as pronounced as in the past years, however, it showed stable rates in both dollar and new sol interest rates. Since 1993 the decrease in the spread in soles is still evident (See Table 5), while the spread in dollars is still high, and shows an inflexible nature to fall. Despite the improvements, lending rates remain high, margins are fairly large and deposit rates are low, putting some inconveniences in the progress of the Peruvian banking sector.

Not much was done to reduce the high cost of credit in the first 5 years of the stabilization program, and there was not a dynamic in the cost of credit in both Peruvian and foreign currency which agrees with the goals of long term growth and stabilization. The degree of market concentration may have certain influence in this outcome.

Table 5			
Annual Interest Rates (National Currency)			
SPREAD			
	TAMN(A)	TIPMN (B)	SPREAD (A-B)
Jan 1995	37.1	7.9	29.2
Feb	37.6	9.0	28.6
Mar	36.2	9.1	27.1
Apr	35.5	9.1	26.4
May	35.6	9.1	26.5
Jun	36.7	9.7	27.0
Jul	37.0	10.1	26.9
Aug	36.5	10.5	26.0
Sep	36.6	10.5	26.1
Oct	36.4	10.5	25.9
Nov	35.1	10.2	24.9
Dec	33.5	9.9	23.6
Jan 1996	33.3	9.8	23.5
Feb	33.4	9.8	23.6
Mar*	31.6	10.1	21.5

Source: SBS (Newspaper Gestión April 1996)

* to March 21st, 1996

2.5.-Other areas of concern in the Peruvian financial system

There are some factors characteristic of the Peruvian financial system during the 1980s and early 1990s which affect the overall behavior of the banking sector. Not considering these in this analysis may lead to wrong assumptions about Peruvian banking.

2.5.1.-Dollarization

The financial systems of most developing countries are marked by dollarization.

Dollarization occurs when most of the transactions within a developing country are made in dollars. Peru is no exception in this respect. Due to the history of national currency devaluation, hyperinflation and country risk, the volume of foreign currency in the Peruvian economy became larger than the national currency. In 1990, 80% of the nation's economic transactions were made using dollars. By 1992, 65% of total deposits were denominated in foreign currency; financial institutions tried to match assets to liabilities, so that 70% of total outstanding loans were in foreign currency by the end of this year. Table 6 shows the large amount of deposits denominated in dollars, much larger than the ones in soles.

Table 6
Ranking in Savings Deposits
(to December 31st 1992)

BANK	National Currency (in thousands of soles)	Foreign Currency (in thousands of soles)	TOTAL
Crédito	201,371	821,715	1023,086
Wiese	70,665	344,137	414,802
Continental	133,605	237,764	371,369
Interbanc	95,450	170,014	265,464
Latino	33,943	170,181	204,124
Nación	58,938	38,862	97,800
Sur del Perú	18,388	46,611	64,999
De Comercio	10,570	50,458	61,028
Lima	14,942	39,663	54,605
Probank	5,440	49,075	54,515
Mercantil	8,005	43,355	51,360
Financiero	7,255	25,444	32,699
Bandesco	4,865	16,772	21,637
Citibank	1,709	8,763	10,472
Interamericano	70	3,242	3,312
Interandino	0	0	0
Extebandes	0	0	0
R. Del Norte	0	0	0
TOTAL.....	665,216	2,066,056	2,731,272
Source SBS			

Despite a slight reduction of dollarization in the Peruvian economy, its levels still remains very high, and it is clear that the process of reduction in the level of dollarization in the Peruvian economy will be a slow one. Even when ignoring the limitations of the Peruvian financial sector, the public's preference for the use of dollars in everyday transactions is still clear. Informal vendors exchange currency in numerous streets of Lima, and despite the economic improvements, a lot of transactions are still denominated in dollars, such as

automobile or housing sales, and other commercial transactions within the country (people still prefer being paid in dollars rather than in soles).

2.5.2.-Loan Maturities

At the height of hyperinflation, loans typically had very short maturities, they had maturity levels as low as 3 to 5 days. By 1994, most had maturities of 90 to 180 days. This means that after having controlled inflation the system still did not provide long term financing, which reflects the short term nature of their liabilities. Because of the perceived political and economic risks, depositors are still averse to put their savings long term in Peru, which also hampers the development of a more effective financial market.

2.5.3.-Credit Concentration and Allocation

Geographically, in 1992 83% of the bank credits went to Lima and Callao provinces, which is well above the contribution their contributions to GDP (43%). Also, as of December 1992, Peru's top five firms took 14% of all the credit and the top 100 took 44% of the credit. Such concentration of bank credit could induce instability in the financial market, affect asset quality and also hurt small and mid-size businesses.

3.-CONCENTRATION IN PERUVIAN BANKING.-

The liberalization of interest rates in 1990 has given the commercial banking sector the power to set interest rates. Most Peruvian economists agree that the leading banks⁹ in the sector behave in a strategic way when determining interest rates, with the rest of the smaller banks following the largest ones. As Peruvian Economics Professor J.J. Marthans says "the largest banks are the ones that ultimately determine the structure of interest rates" (Marthans, Determinantes, 42). Under these circumstances it is very hard for the smaller banks to adopt aggressive policies in order to increase their market share. During the first years of the stabilization program there are examples of small Peruvian banks which became insolvent due to aggressive measures aiming at increasing the volume of their transactions. By increasing the amount of loans at a fast rate, they were not careful enough to maintain an strict credit evaluation, resulting in increasing number of bad debts.

Table 7 and 8 show the concentration of deposits and credits in Peru, whereas Table 9 presents total loans in the Peruvian banking sector. The two largest banks account for 46% of total assets--one of the largest concentrations in the world (UBS report on Peruvian banking, 5). By January of 1996, the Peruvian banking system shows the equivalent of US\$ 10,618 millions, where the top five banks have almost 77% of total deposits. Total loans reached US\$ 8,000 millions, with the top five banks offering 72% of these loans. This percentage has been increasing in the past years, due to the sharp reduction in the market share of the state-owned Banco de la Nación.

⁹Most studies consider that the four or five largest banks in the sector influence the levels of interest rates. The largest four banks in the sector have around 66% of total loans.

Table 7

COMMERCIAL BANKING SYSTEM IN PERU

Concentration of deposits and credits.

(December 31, 1993)

<i>BANKS</i>	<i>Deposits</i>	<i>Credits</i>
Crédito	29.2%	22.8 %
Wiese	20.5	21.8
Continental	15.8	15.3
Interbanc	7.4	8.8
Latino	5.3	5.9
Lima	4.3	5.4
Sur del Perú	2.2	2.8
Mercantil	1.8	2.2
Extebandes	1.7	1.7
B. Del Norte	1.7	1.7
Financiero	1.6	1.7
Interandino	1.4	2.2
Nuevo Mundo	1.4	1.2
Probank	1.2	1.4
Citibank	0.9	0.7
Banex	0.8	1.1
De Comercio	0.8	1.3
Interamericano	0.7	0.6
Bandesco	0.7	0.8
Sudamericano	0.7	0.9
TOTAL	100.0	100.0

Source: Superintendency of Bank and insurance

Notes:

- Top 5 banks have more than 75% of deposits and credits in 1993
- Top 3 banks have a considerable larger share than the rest of banks (1993)

Table 8**COMMERCIAL BANKING SYSTEM IN PERU****Concentration of deposits****(%)**

BANKS	1993(Dec)	1994(Dec)	1995(Dec)	1996(Jan)
Crédito	25.7	25.0	24.6	25.6
Wiese	18.1	17.4	18.7	19.5
Continental	13.9	13.0	14.0	14.6
Nación	12.0	16.0	13.0	9.8
Interbanc	6.5	6.7	6.7	6.3
Latino	4.7	4.1	4.5	4.6
Lima	3.8	3.1	3.0	3.1
Sur del Perú	1.9	2.2	2.9	3.0
Nuevo Mundo	1.2	1.2	1.7	1.8
Mercantil	1.6	1.7	1.5	1.5
Regional del Norte	1.4	1.4	1.2	1.3
Santander	1.3	1.1	1.1	1.1
Sudamericano	0.6	0.8	1.0	1.1
Extebandes	1.5	1.1	0.9	0.9
Financiero	1.4	1.2	0.8	0.8
De Comercio	0.7	0.7	0.5	0.8
Del Progreso	1.0	0.8	0.7	0.8
Banex	0.7	0.6	0.7	0.7
Interamericano	0.6	0.7	0.7	0.7
Citibank	0.7	0.8	0.6	0.7
República	0.7	0.3	0.4	0.4
Del Trabajo	-	-	0.3	0.3
Solventa	-	-	0.3	0.3
Libertador	N/A	0.1	0.2	0.3

Source: Superintendency of Bank and Insurance (La Banca magazine, March 1996)

Table 9**COMMERCIAL BANKING SYSTEM IN PERU****Concentration of Loans****(%)**

BANKS	1993(Dec)	1994(Dec)	1995(Dec)	1996(Jan)
Crédito	16.2	22.6	25.2	25.5
Wiese	16.2	17.0	19.2	19.8
Continental	11.1	12.2	12.3	12.9
Interbanc	6.6	7.0	8.2	8.0
Latino	4.5	4.1	4.9	5.2
Nación	26.4	16.0	6.0	4.9
Sur del Perú	2.2	3.1	3.8	3.8
Lima	3.9	3.3	3.4	3.4
Mercantil	1.7	2.1	2.2	2.0
Santander	1.5	1.7	1.9	1.7
Nuevo Mundo	0.9	1.4	1.7	1.7
Regional del Norte	1.3	1.3	1.4	1.4
Sudamericano	0.7	1.0	1.4	1.4
Del Progreso	1.1	0.9	1.3	1.3
Extebandes	1.2	1.0	1.0	1.2
Citibank	0.5	1.1	1.2	1.1
Banex	0.8	0.8	0.9	0.9
Financiero	1.2	1.2	0.9	0.8
Interamericano	0.5	0.6	0.8	0.8
De Comercio	1.0	0.9	0.8	0.7
Del Libertador	N/A	0.3	0.5	0.5
Del Trabajo	-	-	0.4	0.5
Solventa	-	-	0.3	0.3
República	0.5	0.4	0.3	0.2
Herfindahl Index (H)	1438.25	1303.67	1325.17	1365.14 *

Source: Superintendency of Bank and Insurance (La Banca magazine, March 1996)

* H is calculated using the largest 14 banks in the industry.

* The decrease in H after 1993 is explained by the elimination of Banco de la Nación's monopolies on public sector accounts.

Calculating an index of market concentration for Peruvian banking

Considering the fact that the choice of the top four or five largest banks as the main players in the determination of interest rates may seem arbitrary, there are statistical methods to measure roughly the degree of market concentration in a specific industry. A commonly used value is the Herfindahl index (later in the thesis, a more sophisticated measure using regression analysis will be used). This index is given by the sum of the squared values of the market share of all firms in the industry:

$$H = S_1^2 + S_2^2 + S_3^2 + \dots \quad (\text{Salvatore, 386})$$

For the Peruvian banking sector, the value of Herfindahl index (H) has been close to 1400 in the past three years (see bottom of table 9). This value is greater than 1000, which usually implies an unconcentrated industry. Nevertheless, the value does not exceed the value of 1800, usually seen as a number describing a highly concentrated industry¹⁰. The H values for Peruvian banking suggest a certain degree of market concentration, although not large enough to assure monopolistic behavior. It is important to mention that economists agree that the Herfindahl index is an imprecise measure. Also, it measures market concentration, which does not necessarily imply market power. Because of the flaws with this index, later work in the

¹⁰The arbitrary values of 1000 and 1800 are taken from the U.S. Department of Justice values used to determine concentration in industries experiencing merger activities. However, this value is not necessarily an exact determinant of market concentration, especially when using the same limits to compare different industries (for example, the public utilities industry-usually considered to be a natural monopoly- will definitely have a larger H index than the banking industry).

this thesis uses an actual measure of market power based on regression analysis.

Looking at the levels of concentration in the Peruvian banking sector, its possible oligopolistic nature has become one of the most important issues in further financial reform. Table 10 shows daily lending rates in the Peruvian financial system. As we can see, the largest banks offer annual lending rates in soles (360 day loans) ranging from 21.32% to 34.97% (with TAMN at 31.93%), showing that there is not a uniform pricing among the largest banks of the system. A factor to consider here is loan risk: some banks concentrate on riskier loans which are reflected in greater interest rates (example of this is Banco del Trabajo, which has succeeded at lending individuals amounts equivalent to four times their salaries, at very high lending rates- 112.67%!).

Despite the fact that everyone agrees on the influence of imperfect competition derived from the concentration in the sector, there is a lack of empirical evidence based on economic models to prove its influence on the cost of credit, especially when compared with other decisive factors. It is dangerous to assume oligopolistic behavior without having statistical proof. Section 5.2 describes a model which uses statistical evidence to test the degree of competitive pricing in the Peruvian banking sector.

4.-ECONOMIC BEHAVIOR OF BANKS

Microeconomic theory can help us understand the behavior of depository institutions in cases like Peru, with market concentration and flexibility to determine interest rates. It also serves as a background for the main econometric model of this project (section 5.2), which examines the Peruvian banking system from a microeconomic perspective, in order to determine the level of imperfect competition in the sector.

It is important to see banks for what they are: businesses involved in a market for financial instruments, holding assets and issuing liabilities, with specific goals, revenues and costs involved. With this in mind, and applying microeconomic ideas, we can examine the behavior of depository institutions with special regard to cases of monopoly and oligopoly.

Imperfect competition in the banking sector has been the rule rather than the exception. This is evident even in industrialized countries such as the United States. Theories which explain the role of regulation can help us understand this phenomenon.

Public-choice theory hypothesizes that regulators face a trade-off between what is good for consumers and what is good for the banking sector. According to this theory, regulators want banks to charge the lowest possible price for their services, benefiting consumers, but at the same time they do not want the price of these services to be so low that it could hurt individual banks. Regulators typically "will set regulations on markets that permit firms to earn profits above perfectly competitive profit levels but below those they could earn ... at purely monopolistic levels" (Miller and VanHoose, 254).

According to this hypothesis, perfectly competitive pricing should not be expected, especially in the case of Peru, with a liberalized and concentrated banking sector.

In order to simplify the analysis, consider a bank specializing in two tasks: deposits and loans, not subject to legal reserve requirements. In this situation, the bank is subject to a balance sheet constraint, meaning that the bank cannot issue more loans (L) than it has deposits (D). In fact assets must equal liabilities for this bank:

$$L = D$$

Bank Revenues.- Revenues come primarily from interest earned by the bank on its loans:

$$TR = r_L * L$$

Bank Costs.- Any bank incurs three basic types of expenses: Interest expenses (on deposits), real resource expenses devoted to the bank's efforts to obtain deposits (RC_D), which include advertising expenses, costs incurred in clearing the checks written by its depositors; and real resource expenses incurred by a bank in its lending activities (RC_L), including personnel (loan managers, credit analysts, etc).

The total economic costs of bank operations are:

$$TC = (r_D * D) + RC_D + RC_L$$

Bank Profits.- Equals revenues minus expenses:

$$TR - TC = r_L * L - (r_D * D) - RC_D - RC_L$$

A bank profit maximization requires that the bank should make loans to the point which the additional revenue earned is just equal to the additional costs incurred ($MR = MC$).

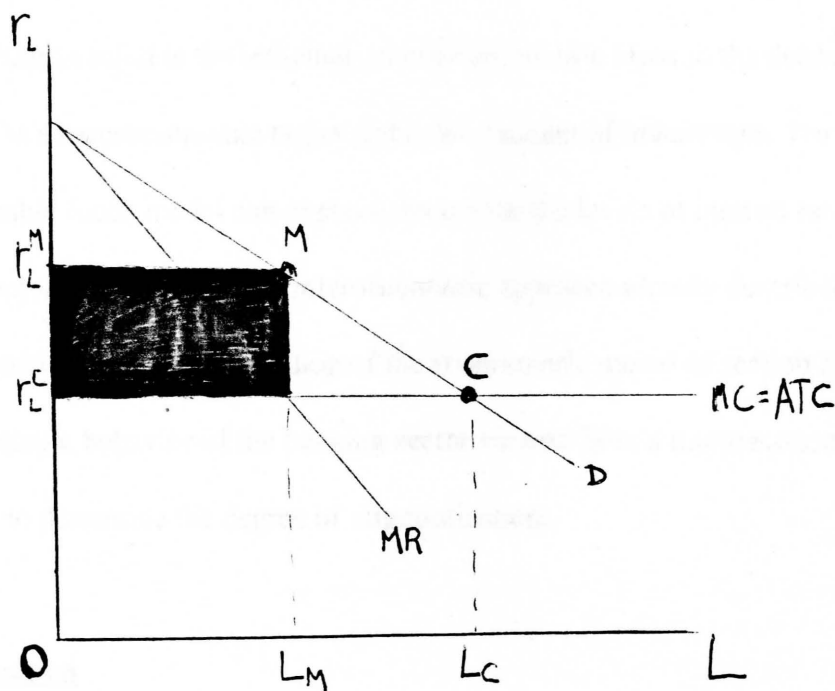
However, due to reasons such as the ones observed in the Peruvian banking sector (large market share owned by one or a few banks), this profit maximizing condition is not followed. Focusing on the market for loans, the monopoly bank faces the overall demand schedule for loans (L^D).

To observe the behavior and price setting for the banking sector under monopoly, Miller

and VanHoose's model assumes the marginal cost schedule to be fixed, since marginal resource costs do not vary in the short run with changes in the amount of deposits and loans in the bank. They also assume that marginal cost equals average total cost and that the magnitude of costs is very similar for all banks. These assumptions simplify the analysis and at the same time show the main points of the issue which are true when we consider more realistic assumptions.

Graph 1 show the loan market equilibrium. Point C would be the competitive equilibrium, point at which the market equilibrium loan rate is equal to marginal cost, and so the loan rate the bank charges just cover the bank costs incurred to produce the last dollar of loans, implying that the competitive loan market is allocatively efficient. In this case banks earn zero economic profits, and accounting profits only to the point when they are sufficient to cover the opportunity cost of being in the banking business.

Graph 1



In the case of a monopolistic or oligopolistic market, banks would maximize joint profits by producing loans to the point at which marginal revenue equals marginal cost. They would produce L_m loans, charging r_L^m (point M). The total revenue earned by the bank equals to $r_L^m * L_m$, and the total costs incurred is $ATC * L_m$, so the amount of economic profits is $(r_L^m - ATC) * L_m$. Because the loan rate charged by banks is greater than the marginal cost of lending, an efficiency loss occur, causing a reduction in bank lending from L_c to L_m .

The total amount of consumer surplus is reduced to the upper triangle. Part of the consumer surplus consumers “would have obtained in a competitive market is now redistributed to bank owners as profits, the upper rectangle in the figure” (Ibid., 258). The lower (and smaller) triangle constitutes deadweight loss, incurred by the society as a whole, because neither bankers nor borrowers receive this portion of consumer surplus.

A thing to bear in mind is the influence of macroeconomic ideas in the determination of interest rates, both as a macroeconomic target and a determinant of investment. For example, it is true that the loanable funds model can explain changes in the levels of interest rates from a macroeconomic approach. However, the microeconomic approach already described in this section is more suitable for the understanding of the econometric model of section 5.2, since that model analyzes strategic behavior of the banking sector viewed from a microeconomic perspective, trying to determine the degree of oligopolization.

4.1 Bank concentration

Regarding the issue of bank concentration, there are two major theories to explain its

effects in the efficiency and performance of the banking system: the structure-conduct-performance model and the efficient structure theory.

4.1.1.-The Structure-Conduct-Performance (SCP) Model

Traditionally, economists based their evaluation of banking concentration and performance on this theory. Market structure is related to the size and number distribution of firms in the market. Market structure influences conduct and this influences market performance. The SCP model states that the more concentrated a banking market is, the greater the possibilities to experience monopolistic conduct. In this case banks would conduct their business taking into account monopoly power, resulting in an inefficient system with social losses and a poor performance. On the other hand, markets with large number of banks each having a small percentage share in the system tend to perform more competitively and more efficiently.

One of the main predictions of the SCP model is that as banking markets become more concentrated, it should be the case that bank profits will be higher; this is true in Peru, although some smaller banks concentrated in consumer loans have started to obtain higher profits than the leading banks in the sector. In addition, banks should charge higher loan rates, pay lower deposit rates and make fewer loans than they would if markets were less concentrated. Most studies have shown that there is a possible relation between bank concentration and bank profits, but the results of these studies show different results, making it difficult to make a clear decision on the validity of this model. Nevertheless, most economists have agreed that the “number and size distribution of banks influence bank profits and the interest rates that banks charge on loans and pay on deposits” (Miller-VanHoose, 267).

4.1.2.-The Efficient Structure (ES) Theory

This model contradicts the structure conduct performance model, basing its argument on the idea that bank concentration results because a few large banks are more efficient than the average for the system. By providing service at a lower cost, they can expand their services and increase their market share. By being more cost-efficient, they have greater profitability.

Empirical studies in U.S. banking during the 1980s supported this theory. These studies found that total bank market concentration was not the “prime contributor” to profits (in fact they showed very little importance). The studies actually showed that the decisive factor was the market share of each firm. These studies concluded that “market share reflected relative efficiency of the banks competing in the banking market” (Ibid., 267).

The weak point of the efficient structure theory remains in its assertion that if banks with larger market share are more cost-efficient, then they should also charge lower loan rates and higher deposit rates, benefiting customers as a whole. This is certainly not the case seen in Peruvian banking.

The debate has not come up with a final decision on which theory holds best. In Peru, bank concentration appears to influence the pricing of banking services. To most economists, the largest Peruvian commercial banks determine interest rates for the entire system. Despite the decline in nominal interest rates, The SCP model best applies to the Peruvian case in that the bank concentration and very large market share of the largest banks has not contributed to lower loan rates and higher deposit rates. On the other hand, the fact that the largest banks in the Peruvian banking system appear to be more efficient than the market averages would agree with

the main ideas of the efficient structure theory ¹¹.

As we can see, these economic theories relate to the Peruvian banking reality but do not perfectly describe it; both theories partially apply to Peruvian banking. However, this analysis helps us realize the importance of empirical data to help determine the validity of these theories, especially in the case of Peru, where empirical models testing competition are lacking. This is why next chapter describes econometric models to provide some statistical evidence of the degree of oligopolization in Peruvian banking.

¹¹For example, Banco Wiese, second bank in the system, has lower operating costs than most banks in Peru.

5.-ECONOMETRIC MODELS

The first model of this section examines the relationship between interest rates and investment in Peru. Although this regression model is not directly testing oligopolization, it constitutes a good starting point to observe the importance of interest rates in Peru, especially since this relation is not as strong as in industrialized countries. Following the first model, section 5.2 refers to the main issue of this thesis, presenting a more elaborated model which test the degree of competition in Peruvian banking.

5.1.- Relationship between interest rates and investment

The inverse relationship between the level of interest rates and investment is generally accepted and has become particularly important in countries such as the United States where monetary policy is made by changing levels of interest rates such as the discount and federal funds rates. In the developing economy of Peru, with a more limited and inefficient financial sector, the strength of this relation might be different. This is why empirical data looking at the relationship between investment and the cost of credit in Peru is relevant.

To examine this relationship, a linear multiple regression was developed. The equation considers investment to be affected by interest rates and profit expectations:

$$I = a + c_1 * r + c_2 * pe$$

where

I = gross investment
r = annual effective interest rates for short term loans (less than 360 days) ¹²
pe = profit expectations (measured as GDP ₁ - GDP ₀)
a = autonomous coefficient
c ₁ = interest rate coefficient
c ₂ = profit expectations coefficient

This equation tests the following hypothesis:

$$H_0 : c_1 = c_2 = 0$$

$$H_1 : c_1 < 0$$

$$c_2 > 0$$

<u>Table 11</u>	
<u>Important determinants of investment in the Peruvian economy</u>	
Variable	Predicted relation to investment
Interest rates	Negative
Profit expectations	Positive

This equation simply tests the negative relationship between interest rates and investment. However, the complex and numerous factors involved in the determination of interest rates together with the imperfections in the Peruvian financial sector have to be taken into consideration, especially in a country like Peru as opposed to an industrialized country like

¹² The weighted average lending rate (TAMN) was not used here due to lack of data for 1990 and part of 1991.

the United States. For this reason, the coefficients may not be statistically significant in the regression analysis.

5.1.1.-Data and sample

The data used were quarterly figures ranging from the first quarter of 1990 to the third quarter of 1995. There were 23 observations, enough to provide significant results. There are different approaches used when trying to measure profit expectations. In this model the choice was to measure profit expectations as the difference between gross domestic product for a specific quarter minus the previous quarter's figure. Appendix I shows the time series data.

Table 12

Summary Statistics for data sample

Variable	Definition	Mean (Standard deviation)
Investment	Gross investment	237.6 (61.9)
Interest Rates	Lending rate for short term loans	10.2 (25.2)
GDP	Gross Domestic Product (Index)	121.0 (13.3)
Profit Expectations	$GDP_{\text{current quarter}} - GDP_{\text{last quarter}}$	1.1 (9.6)

5.1.2.-Results

Table 13 shows the results of the regression analysis. The coefficient on the interest rate variable is negative as predicted, although it is statistically insignificant. The coefficient on profit expectations has also its predicted sign, positive, but is not statistically significant. The results support the point that lending rate levels in Peru are not the main determinant of investment and that there are more factors involved. The large t-value for the intercept (17.421) versus the small value of the t-statistics for the coefficients of investment and profit expectations (-1.477 and 0.854 respectively) are proof of this. These results corroborate the importance of other sources of financing, provided by informal banking, direct credit from the government to specific industries, COFIDE loans, and loans from foreign institutions to the country as a whole or to specific industries.

It is also important to note that profit expectations are a difficult measure to quantify. Using the quarterly change in GDP does not consider security issues and country risks, which were a key determinant of expectations, especially due to the seriousness and large dimensions of the problem of terrorism in Peru during the 1980's and 1990's. Finally, since this study is concerned with the effects of interest rates in small businesses credit, figures for small business investment would have been more accurate ¹³.

This model serves as a sort of introduction to the role of interest rates in the Peruvian economy, and helps to put the analysis of oligopolization in Peruvian banking (section 5.2) in perspective.

¹³Quarterly figures of investment in Peru are not published, and it became one of the most challenging variables to obtain. Fortunately, a research economist from the Peruvian Central Bank was able to provide the data.

Table 13

Results: relationship between investment, interest rates and profit expectations

Dependent variable: Gross Investment

(1)

Intercept	245.735 (17.421)
Interest Rates	-0.795 (-1.477)
Profit Expectations	1.229 (0.854)
Number of Observations	23
R-square	0.1831
Adjusted R ²	0.0972

Note: Column (1) reports the regression analysis results using SAS computer software. T-statistics are in parenthesis below the coefficients.

5.2.-Testing Competition in Peruvian Banking

This non-linear regression model constitutes the core of the thesis. It attempts to provide statistical evidence of the degree of competition in the Peruvian banking system. The model used is based on Shaffer's model presented in the article "Test of Competition in Canadian Banking" (1993). It starts with the profit maximizing assumption of marginal cost equal to marginal revenue, introducing a variable (λ) to represent the extent to which firms recognize the distinction between the demand and marginal revenue functions. The firm's perceived marginal revenue function is the following:

$$MR = P + \lambda h (Q, Y, \alpha) \quad (1)$$

where λ accounts for the level of competitiveness and constitutes a parameter to be estimated, P is the industry price, Q is the aggregate product quantity, Y is a vector of exogenous variables, and α is a vector of demand system parameters to be estimated. In this equation, $h ()$ represents the "semi-elasticity of market demand, $Q/(\delta Q/\delta P)$ " (Shaffer, 51). For $\lambda = 0$, firms act as though marginal revenue coincides with perfectly competitive behavior (marginal cost pricing). At the opposite extreme $\lambda = 1$, firms choose output prices according to the industry marginal revenue curve, which describes monopoly pricing (See appendix II.-a for derivations of the main equations used in the model).

To estimate λ we need both a negatively sloped demand function and a supply relation.

The demand function is specified as:

$$Q = a_0 + a_1 P + a_2 Y + a_3 PZ + a_4 Z + a_5 PY + a_6 YZ + e \quad (2)$$

where Q is the quantity of banking services described below, P is the price of such services, Y is income (exogenous variable), Z is another exogenous variable such as the price of a substitute for banking services, and e is the econometric error term. The interaction terms PZ (implying P times Z), PY (P times Y), and YZ (Y times Z) allow for rotation of the demand curve, as necessary to identify λ .

For the cost function a translog cost function will be used, employed in many studies regarding financial institutions such as Mester (1987) and Berger, Hanweck, and Humphrey (1987). The translog cost function is given by:

$$\ln C = \beta_0 + \beta_1 \ln Q + \beta_2 (\ln Q)^2 + \beta_3 \ln W_1 + \beta_4 \ln W_2 + \beta_5 (\ln W_1)^2 / 2 + \beta_6 (\ln W_2)^2 / 2 + \beta_7 \ln W_1 \ln W_2 + \beta_8 \ln Q \ln W_1 + \beta_9 \ln Q \ln W_2 \quad (3)$$

where C is total cost and W_1 and W_2 are the bank's exogenous input prices, namely wages and deposit rates. The marginal cost function is then:

$$MC = [C/Q][b_1 + b_2 \ln Q + b_3 \ln W_1 + b_4 \ln W_2] \quad (4)$$

Then the supply relation derived from the marginal cost function ¹⁴ (considering MR=MC), assuming the banks are input price-takers and profit-maximizers, is as follows:

$$P = -\lambda Q / [a_1 + a_3 Z + a_5 Y] + [C/Q][b_1 + b_2 \ln Q + b_3 \ln W_1 + b_4 \ln W_2] - b_5 DQ / [a_1 + a_3 Z + a_5 Y] + u \quad (5)$$

where D is a dummy variable to differentiate between the period before and after the Banking

¹⁴Note that the Marginal Cost function is not linear in this case, differing from Miller and Van Hoose's simplifying assumption mentioned in Chapter 4 of this thesis.

Law of July 1991 in Peru. Since interest rates were liberalized in the beginning of the stabilization and structural adjustment program in 1990, way before the banking law of 1991, the model was run with and without the dummy variable to determine the importance of the regulatory changes of July 1991 and the relevance of this variable as part of the model.

The competitive index λ is identified in the system { (2), (5) } of the supply and demand functions for the banking sector as a whole:

Table 14
System of Equations to calculate the competitive Index Lambda (λ)

$$\begin{aligned}
 Q &= a_0 + a_1 P + a_2 Y + a_3 PZ + a_4 Z + a_5 PY + a_6 YZ + e \\
 P &= -\lambda Q / [a_1 + a_3 Z + a_5 Y] + [C/Q][b_1 + b_2 \ln Q + b_3 \ln W_1 + b_4 \ln W_2] \\
 &\quad - b_5 DQ / [a_1 + a_3 Z + a_5 Y] + u
 \end{aligned}
 \tag{6}$$

The empirical model relies on the assumptions followed by Sealey and Lindle (1977) of a bank model. These assume that labor is used both to obtain deposits and to originate loans; in fact the assumptions are in agreement with the simple microeconomic model described in Chapter 4 about the behavior of a banking institution.

The estimated coefficients on P and PZ should be in agreement with the downward sloping industry demand curve. Gross Domestic Product (GDP or Y) is expected to affect positively the level of aggregate demand, as well as the coefficient of Z. The coefficients on the variables representing banks costs, namely W_1 and W_2 , are expected to be positive.

The hypothesis to test is the following:

$$H_0 : \lambda = 0$$

$$H_1 : \lambda > 0$$

Table 15

Important variables affecting pricing of credit in the Peruvian banking sector

Variable	Estimated sign of coefficients
P and PZ	At least one of them negative
Y = GDP.	Positive
Z = Deposit rates in dollars.	Positive
C = Total Expenses.	
W ₁ = Interest Rates on Deposits in soles.	Positive
W ₂ = General wage expenses.	Positive
D = Dummy variable. Accounts for dates before (D = 0) and after (D = 1) the July 1991 Banking law.	Unknown
e = econometric error term.	---

5.2.1.-Data and sample

Data were gathered on a quarterly basis from 1990 to the third quarter of 1995. The sample has twenty-two observations which makes it similar to other recent studies of banking competition. The high degree of instability before the beginning of the stabilization program in 1990 influenced the decision to focus on the period after 1990 rather than collect data annually

starting in the 1970s or 1980s. Unavailability of relevant statistics before 1990 was also a decisive factor. Appendix II.-b lists the complete data set.

The sample is a time series of aggregates of the commercial banking sector in Peru. The quantity of output is measured as a new sol value of assets and the price of output (P) is the interest rate earned on assets, and was measured as the ratio of interest income to total assets. Inputs are defined as labor and deposits, so input prices are wages and the deposit interest rate.

Y is Gross Domestic Product, and Z represents a price of a substitute for bank deposits in Peruvian currency. The most logical measure to use for the Peruvian case is interest rates for deposits in dollars. The lack of data for 1990 and 1991 for the values of the weighted average deposit rate for dollars and soles in Peru (TIPMEX and TIPMN respectively) induced the use of rates for loans ranging from 31 to 179 days to represent the variable W1 and savings rates to represent the variable Z. However, the model was finally executed with the weighted average interest rates TIPMEX and TIPMN, replacing only the missing values for 1990 and 1991 with the short term loan rates for the variable W1 and deposit rates for Z (this is the method used for other studies involving interest rates in Peru after 1990). Dollar interest rates were also adjusted to exchange rate devaluations to be able to compare to interest rates in soles.

Variables were adjusted for inflation. Since some values for interest rates were negative, interest rates were left in nominal form, to avoid dealing with natural logs of negative values. In his Canadian study, Shaffer "found no qualitative difference between real, nominal and hybrid specifications" (Shaffer, 55). Table 16 shows the definitions of each variable. Table 17 shows the mean and standard deviation for the variables used.

TABLE 16 -- MAIN VARIABLES USED IN THE MODEL *

Q = Total Assets.

P = Price of Output (Interest income / Total Assets).

Y = GDP.

Z = Deposit rates in dollars (TIPMEX).

Z_{adjusted} = Deposit rates adjusted to devaluation.

C = Total Expenses.

W₁ = Interest Rates on Deposits (New Soles). Interest rates for deposits ranging from 31 to 179 days.

W₁ = Weighted Average Deposit Rate (TIPMN)

W₂ = General wages for all employed in Peruvian banking.

D = Dummy variable. Accounts for dates before (D = 0) and after (D = 1) the July 1991 Banking law.

e = econometric error term.

*The two different values for the variables W1 and Z were used to see which values give more accurate results.

Table 17**Summary Statistics for data sample**

Variable	Definition	Mean (Standard deviation)
Q	Total Assets	11817000 (9358000)
P	Interest Income	0.172 (0.110)
W1	Deposit Interest rate	4.587 (12.114)
Z	Deposit rates in dollars	0.0636 (0.0144)
Z _{adjusted}	Z adjusted for devaluation	0.9075 (3.413)
Y	Gross Domestic Product	121.48 (13.96)
W2	General Wages	869200 (613800)
C	Total expenses	853100 (423400)

Note: Units of all variables are explained in detail in Appendix II.

5.2.2.-Results

The system of equations in Table 14 were estimated using a linear simultaneous-equations technique (2SLS). Table 18 reports the results for the two equations. Three sets of results are presented: (1) excludes the dummy and uses Z adjusted for devaluation. (2) includes the dummy and Z adjusted and (3) excludes the dummy and uses Z unadjusted for devaluation.

Despite the imperfections of some of the data available, the model produced interesting results. The value of lambda was in all cases significantly different from zero, which implies some sort of imperfect pricing. However, only in case (3) does its value exceed 0 and even in that case is not close to 1 (which would represent monopoly behavior)¹⁵. Also, the regressions produce high values of R and Adjusted R-squared (in all cases above 90%). Five out of the six variables with expected signs followed the theory behind the model (See Table 15).

¹⁵Shaffer's model in the Canadian sector proved statistically that Lambda was equal to zero, but the actual value of Lambda was also negative, going against the expected Lambda being anywhere from 0 to 1.

Table 18

Results: Estimate of Monopoly Power in Peruvian Banking

<i>Dependent variable: Q</i>			
Coefficient	(1)	(2)	(3)
Intercept	12399000 (0.454)	21383000 (0.535)	-113646000* (-3.331)
P	-293212000 (-1.237)	-315550000 (-1.232)	113575000 (0.486)
Y	-182061 (-0.734)	-221000 (-0.775)	906400* (3.831)
PZ	-18554000 (-0.311)	-35796000 (-0.436)	936618000 (1.571)
Z	36052000** (1.876)	36141500** (1.809)	1349695000 (1.717)
PY	2746000 (1.268)	2987000 (1.258)	-1678000 (-0.757)
YZ	-362000 (-1.687)	-334000 (-1.393)	-11957000** (-1.813)
<i>Dependent variable: P</i>			
W1	4100000* (2.522)	1416000 (0.165)	5942000* (3.854)
W2	17.274* (8.302)	16.648* (5.704)	21.817* (8.370)
D	----	-3439000 (-0.320)	----
Lambda	-0.0371* (-1.814)	-0.0299* (-2.675)	0.00694* (2.155)
Number of Observations	23	23	23
R-squared	0.927	0.945	0.960
Adjusted R ²	0.904	0.922	0.948

Note: Column (1) reports the regression analysis using the linear 2SLS method with Z adjusted and no Dummy. Column (2) reports the regression analysis from 2SLS using Z adjusted and Dummy. Column (3) reports the regression analysis using 2SLS method using Z unadjusted without Dummy. Figures in Parenthesis represent t-statistics
 Bolded figures represent variables significantly different than 0, at the 5% (*) and 10% (**) level.

5.2.3.-Limitations of the model and possible improvements

The conditions of the Peruvian banking sector are much more complex than the ones in this model, both in terms of the choice of variables to use as well as the interrelation among them. Some variables presented problems in terms of data selections. P was defined both as the ratio of interest income to total assets, but could also be defined as the weighted average lending rate (TAMN), Z was used adjusted and unadjusted to devaluations, and the choice of the use of a Dummy was debatable. Using nominal instead of real rates may have also caused some trouble, especially because when compared to Canada, the difference between nominal and real rates in Peru was larger, considering its high inflation rates. The fact that the weighted average interest rates started to be published only in 1991 also affected the accuracy of variables such as W1, Z, and P. Changes in the number of banks in the commercial sector over the five years after the stabilization program introduced more uncertainty to interpretations of the model's results.

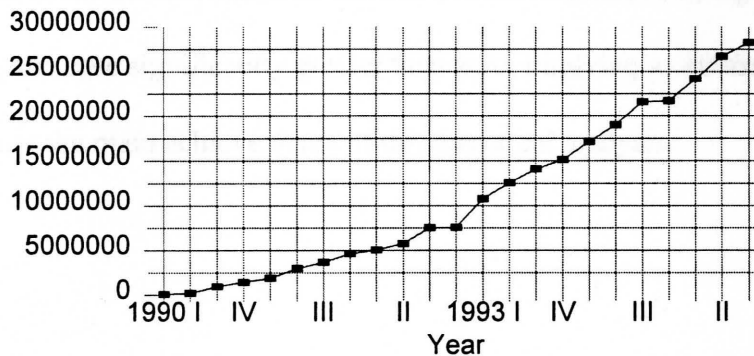
One of the main problems of the model lies in the nature of Z, originally intended to measure the price of an alternative to banking services. Despite the fact that Peruvians have the alternative of owning deposits in dollars as opposed to deposits in soles, the commercial banking sector also influences dollar interest rates, making the validity of Z in this case questionable. Changing Z to the Central Bank rediscount rate (exogenous to the commercial banking sector) or the BCR deposit certificate coupon rate could give interesting results.

Still another problem was to adjust some variables to inflation. Since December 1992, all financial statements from the banking sector were adjusted to inflation according to Decree 627. Figures extracted from balance sheets and income statements published by the Superintendency of Banking and Insurance published statistics from 1990 to 1992 are not

adjusted to inflation. For monetary accounts (such as total expenses or income) there is no problem since these accounts are self adjusted. However, the only variable which presents problems is total assets, since it includes some nonmonetary accounts such as fixed assets. The method to adjust fixed asset accounts for inflation is time consuming but not complicated. However, in order to do so, we would have to know the year of purchase of every fixed asset, which is not publicly available. Nevertheless, as graph 2 of total assets over time shows, the variation from values before and after December of 1992 is not too large.

Graph 2

Peruvian Banking Sector Total Assets 1990-1995



Together with all these problems, the data are “noisy”. After a period of hyperinflation, it is often very difficult to measure prices and output, so the data are not very accurate, causing potential problems in interpreting the regression’s outcome.

The limitations of the model account for the imperfect results, especially regarding the negative value of lambda (which in theory would imply pricing below marginal cost) obtained in two runs of the model. In addition, other factors (such as country risk and inflationary expectations) affecting interest rates are not considered in this model. This is why it is appropriate to analyze other factors affecting the cost of credit in Peru (See chapter 6).

Considering all these factors and limitations, it can be concluded that the model provided interesting results. The high values of the adjusted R-Squared numbers, the expected signs obtained in the model variables, and the fact that Lambda was significantly different than zero (and in one case significantly greater than zero, implying a certain degree of oligopolization), constitute the main achievements of this empirical analysis.

6.-OTHER FACTORS AFFECTING THE COST OF CREDIT IN PERU

Some the empirical results attained in the model of section 5.2 are inconclusive owing to the complexity of the Peruvian financial sector and the limitations of some of the variables used. Besides the effects of oligopolization, it is useful to consider other determinants of the cost of credit in Peru, which affect the level of interest rates in Peru.

6.1.-Additional reasons for high cost of credit in Peru

Three main factors affect the high cost of credit in Peru: factors present in LDC's financial markets, the so-called "universal" factors which are common to any banking sector (including industrialized countries), and factors influenced by government decision making.

6.1.1-Factors common to developing countries' financial sector

a) Country risk

The country risk or sovereign risk especially affects foreign investors. Given the small dimensions of the Peruvian financial markets, and the free flow of international capital into the country, it is clear that interest rates will be affected by the flow of international capital, which at the same time is directly influenced by the country risk.

Country risk is determined by economic, social, and political factors. The progress achieved in some of these areas in Peru after 1990 has caused a gradual reduction in country risk. Evidence of this includes the important participation of foreign investors in the Peruvian stock market and the purchases of Peruvian companies in the process of privatization, by foreign investors from different countries. This process has enabled a small group of prosperous Peruvian industries to get external financing at rates lower than those offered within the country.

We have to consider, however, the difficulties of quantifying country risk. It is usually

calculated on an ex-post basis, and the lack of accurate information for some foreign investors, makes the process very slow. Only after three or four years of the stabilization program has the country risk been reduced considerably.

These difficulties in calculating risk accurately and its tendency to be reduced very slowly have provided the Peruvian financial sector with a sort of "umbrella" (Cigueñas, 61), enabling the national financial markets to charge high lending rates and to operate with high costs. Since country risk has been viewed to be very high for the country, the commercial banking system has been able to charge high lending rates.

b) Shallow Financial Market

By international standards, the Peruvian financial system is still small. There has been a low level of liquidity in the financial system for the last years; the levels of real financing in the banking sector reached its peak in the 1970s and have been lower since (Marthans, Determinantes, 41). This liquidity contraction leads to higher cost of credit; the law of supply and demand suggests that with a decrease in the volume of transactions, and with simultaneous rising taxation and operating costs, banks are forced to increase lending rates. Liquidity in 1990 was about one-sixth of its real value five years earlier (Recommendations on a financial sector adjustment loan, World Bank Report, 9).

The size of the Peruvian financial system is small even when compared to other Latin American countries. Peru is still one of the most under-banked markets in Latin America. The ratio of deposits per banking employees was close to \$200,000 in 1992 whereas the same ratio is approximately a million dollars in other South American countries (Naranjo-Otero, 38). Table 19 shows that the amount of credit to the private sector as a percentage of GDP was less than 6%

in 1991. This figure has risen mainly due to the entry of foreign capital. Between March 1991 and June 1993, liquidity in dollars increased by almost 200% (Palomino, 19). However, financial resources are still lower than in other countries, especially loans and deposits in soles.

TABLE 19

Financial Indicators

Selected Countries

1992

	M2/GDP	PSC/GDP (1)
Peru (2)	12.94%	5.55%
Argentina	13.69	15.25
Ecuador (2)	16.78	12.49
Colombia (2)	17.83	13.20
Paraguay	25.14	16.34
Bolivia (2)	26.26	23.48
Venezuela	29.21	18.64
Mexico	29.29	32.73
Chile	39.08	47.12
Uruguay	47.50	28.57
USA	56.66	61.61
Japan	108.86	121.56

(1) PSC = Credit to the Private Sector
 (2) 1991 figures
 Source: IMF International Financial Statistics, June 1993 (Naranjo-Otero, 37).

Despite the rise in the money-to-GDP ratio from 7% in 1991 to 13% in 1994, and the increase in credit as a percentage of GDP from 8% in 1991 to 14% in 1993, Peru still remains behind other Latin American markets. The prospects are still for growth in the intermediation levels in the Peruvian banking sector. These will encourage an increase in the size of branch

franchises, which are also below the region's levels ¹⁶.

c) Bad and doubtful debts

The problem of default on bank loans has been one of the most serious ones during the first years of the economic program. In general terms, higher levels of bad and doubtful debts induce banks to compensate for these losses by charging higher interest rates or at least by limiting the reduction in these interest rate levels.

Due to the reforms in the banking sector and the improvement of the bank loan portfolios, the problem of bad debt was gradually reduced. A Peruvian newspaper mentions that "one of the greatest achievements of the banking sector during 1995 was to reduce the index of bad debt" (Gestión, February 1996) . This was achieved by improvements in banks with high levels of bad debt, together with a continuity of strict measures by banks which had already achieved a level of bad debts below the sector average.

¹⁶Peru has fewer branches per capita than any other of the major Latin American countries. In Peru there are 22,000 persons per branch, versus 18,000 for Mexico, 12,000 for Chile, Colombia and Argentina.

Table 20

Bad and doubtful debts

(As a % of loans)

BANK	Dec 1993	Sep 1994	Dec 1995	Jan 1996
Nación	46.5	58.4	40.9	51.7
Mercantil	5.4	8.2	13.4	14.3
Lima	16.3	13.8	14.8	13.5
Del Libertador	N/A	88.9	12.9	12.0
De Comercio	21.4	26.6	8.4	11.7
Reg. Del Norte	15.3	14.4	9.9	10.1
Banex	7.1	8.4	8.4	10.0
Interbanc	12.7	9.9	8.4	9.9
Financiero	12.9	15.9	28.4	8.9
Santander	11.4	14.1	7.3	7.8
Latino	10.8	8.3	7.0	7.2
Continental	15.2	13.7	5.9	5.8
Interamericano	6.2	7.3	6.5	5.7
Del Progreso	17.5	14.8	8.3	5.4
Wiese	7.0	7.1	5.0	4.7
Extbandes	12.4	15.1	6.0	4.5
Sur del Perú	3.5	3.6	3.5	4.0
Crédito	7.7	4.6	3.2	3.1
Nuevo Mundo	0.3	1.7	3.0	2.9
Sudamericano	3.4	2.1	2.3	2.1
Solventa	-	-	2.4	1.2
República	34.5	N/A	1.6	1.4
Citibank	4.2	2.0	0.8	0.9
Del Trabajo	-	-	0.2	0.4
Total (avg).....	19.9	17.1	8.0	7.9
Tendency: To decrease				
Source: SBS (La Banca magazine, March 1996)				

Note: By far the bank with the largest % of bad debts is Banco de la Nación, which has of outstanding loans with government agencies and public firms.

d) Inflationary expectations

After the period of hyperinflation which generated negative real lending rates, it is logical to have seen extremely high positive real interest rates in the beginning of the stabilization program, to compensate for the negative rates before 1990 (Marthans, La Banca, 100).

The effects of inflation and inflationary expectations on nominal interest rates is well known. In the case of Peru after 1990, inflationary expectations were consistently higher than the actual inflation rates, causing an extra increase in real interest rates. This process seems to be common in other countries which adopted stabilization programs. With the success of the policy to fight inflation and the stability achieved in the Peruvian economy from 1993 to 1995 (inflation was reduced from 40% to less than 1% monthly), inflationary expectations will tend to decline and get closer to the actual inflation figures.

e) Total cost of credit

When analyzing the cost of credit, it is important to consider factors related to interest rates which also affect the cost of credit. As Luis Abugattás mentions as part of a debate on the cost of credit in Peru in 1993, the financial sector has “additional elements such as commissions, expenses, and conditions imposed on clients which raise the costs of credit above the interest rate levels. These elements in some cases raise credit costs by three to five percentage points” (Dietrich, 59).

6.1.2-Universal Factors

a) Efficiency of banking services

Some banks showed inefficiency in services offered to clients. This inefficiency is the result of many years of state intervention, price distortions, macroeconomic issues affecting

costs, and lack of foreign competition. One measure of the quality of the service of a bank is the number of accounts per branch. This variable is inversely related with the quality of the banking service offered. For example, by the end of 1993, the average number of deposit accounts per branch was around 5,500. The banks which are above this average should focus on either increasing the number of tellers at peak hours or increasing the hours of service in order to offer better service. Improvements in this area can imply an increase in demand deposit accounts which have lower rates than other deposit accounts. This could lead to a reduction in bank costs and interest rates. The hypothesis often considered in industrialized economies, suggesting that more accounts per branch could imply a more efficient service, tends not to be true in developing countries.

b) High operating costs

High costs in the financial sector will be reflected in the short run in a high cost of credit and high interest rates. The fact that operating costs were close to 4 times over many foreign banks in 1992 (Marthans, La Banca, 111) will certainly influence the establishment of high interest rates. From March 1991 to December 1993, operating costs increased from 36% to 43% of total income (Ibid., 112).

To face this problem of high costs there are two alternatives. One is to reduce the rates for deposits, which is not feasible in the case of dollars, especially since dollar deposits are affected by rates in the U.S. and interest rates on deposit in the U.S. have been rising. The second option, which seems to be more suitable, is to raise the cost of credit, or to avoid a reduction in lending rates.

Despite the fact that operating costs have been high, there have been efforts in the past

few years to reduce these costs; the number of employees has been reduced as well as the ratio of administrative expenses to deposits. On December 1992, this ratio had fallen to almost half its value on December 1990 (Portocarrero, 82).

c) Credit to selected clients

There is a high concentration of credit to groups of firms linked to the main commercial banks. The largest banks are owned by business conglomerates. These companies receive preferential lending rates, substantially lower and very consistent to the U.S. prime rate adjusted for country and individual risk. This induces the commercial banks to charge higher rates to regular clients as a way of compensation from the cheap preferential rates: "...the lower the cost of credit to linked industries, the higher the cost of credit for non-linked firms, or the regular public" (Marthans, Determinantes, 44).

6.1.3.-Factors influenced by government decision making

a) Monetary and fiscal policies

The main goals of the government in reducing inflation and promoting growth have influenced the low liquidity levels in the financial sector for national currency and at the same time contributed to the dollarization of the financial system. However, it is clear that expanding the monetary base to increase liquidity in the early years of the stabilization program would have been unwise, having the Central Bank buying dollars and substituting them for soles would also have been incompatible with the fight against inflation. These policies, although successful in their major goals, influenced the low liquidity and high dollarization which raised the cost of credit.

b) Exchange Rate

The government is clearly concerned with the value of the dollar versus the new sol, and it has intervened in the exchange market by buying and selling dollars to maintain a stable and strong Peruvian currency.

Although the cost of credit in dollars in Peru is much higher than the cost of credit in the United States, it is also true that, due to the exchange rate policy by the Central Bank, lending rates in dollars are cheaper (accounting for currency devaluations) than lending rates in new soles (Memorias del BCR 1994, 61).

c) Regulations and taxation

Government and Central Bank regulations put a heavy burden on the banking sector, raising the cost of credit in Peru. The main issues to discuss in this respect are high reserve requirements and taxes on net income and assets.

Reserve requirements.- The banking system has an excess of net reserves kept at the Central Bank. By the end of the first semester of 1993 the effective reserves for the commercial banking sector was 65.1% over the reserve requirements (for national currency) , and 1.1% over reserve requirements for dollars, with a weighted average of excess reserves of 12.6% (Dietrich, 81). Marginal reserve requirements for credit in dollars are very high (45%). One of the main objectives of this measure is to reduce the availability of dollars in the market, trying to help the exchange rate in the short run. Nevertheless, this measure is also an incentive for a greater flow of foreign capital, with a negative result of high cost of credit and a prolonged inflow of dollars. Together with this, the fact that funds denominated in dollars entering the country in the form of credit lines are exempted from this 45% requirement (having actually no reserve requirement), has encouraged Peruvian banks to extend their foreign lines of credit. This account grew by

47.3% from June 1995 to the beginning of 1996. This measure was made because the requirements Peruvian banks have to fulfill to get these foreign credits, would serve as a regulatory mechanism, forcing Peruvian banks to reach international standards. Nevertheless, this increase has in fact caused the entry of dollars and increased the amount of private debt, which could increase the risk of defaulting these loans due to a possible rebound in the number of past due loans generated from the economic slowdown expected in Peru for 1996. This has become a negative factor influencing the reduction of dollarization levels in the country. This situation resembles Chile's in the early 1980s before its large currency devaluation.

Tax on net income. After 1992, the tax on net income of banks was reinstated. While in 1990 this tax accounted for about 1% of total income of the banking system, in 1992 it had increased to 4%. It was much higher than in other Latin-American countries. This fact is important because the tax is not really assumed by the banker but by the client through higher interest rates.

Taxes on Assets. Commercial banks on average have returns on assets of 1.5% annually. Taxes on assets reduce this amount by 2/3, which was especially harsh in the period from 1990 to 1993 when a process of recapitalization of the commercial banking sector was required to improve the situation in Peru. Together with this there are several mandatory contributions to the Superintendency of Banking and Insurance, and a strong selective tax on interest which was eliminated in 1991.

d) Government agreements regarding foreign debt

With the re-entry of Peru in the international financial sector, institutions such as the World Bank and the International Monetary Fund who have granted loans to Peru, meet with members of the Peruvian Ministry of Economy and the Central Bank to make recommendations

on specific measures to apply in the country (these recommendations are a sort of requisite to obtain or maintain a line of credit with these institutions). Due to the fast economic growth experienced in Peru in 1994, the IMF recommended a reduction in growth in 1995 in order to avoid a return to inflation. This affected the financial sector indirectly, especially in the second half of 1995, when there was an evident tightening of credit to small and middle size businesses. Ultimately, a rise in a couple of percentage points is not as important as a tightening of credit. According to a businessmen in the plastics industry, the business sector clearly felt that this credit tightening affected their short term operations more than a rise in nominal lending rates, especially because the banks reduced their loans volume (interview with Alejandro Mahchi, MAROPLAST representative).

At this writing, the government of Peru is about to finalize a new Letter of Intent and a three-year Extended Fund Facility program with the IMF; the previous accord expired in March 1996. The IMF agreement will award Peru a new line of credit. The importance of the IMF in Peru's future international status puts this international institution in a strong position to make recommendations and affect economic policy in the country. With the slight increases in inflation in January and February of 1996, the IMF could be concerned with Peru's ability to attain the inflation targets for the year and might recommend controls on economic growth which could apply credit restrictions, irrespective of the existing high level of interest rates.

6.2.-Factors influencing a reduction in interest rates

The previous section described factors (besides oligopolization) which have contributed to the high cost of credit in Peru. Nevertheless, the reforms of the financial sector (already

described in section 2.2), have caused significant improvements. Many of the major problems mentioned in this study have been addressed by the authorities with efficient reforms, and there is a positive trend in the Peruvian financial sector. In the field of regulation, improvements are also evident, and transparency has increased considerably. These actions have contributed to a reduction in interest rate levels.

Since 1991, there has been an increase in the coefficients of intermediation and savings, as well as in the overall liquidity of the commercial banking sector¹⁷. More importantly, credit to the private sector has increased in real terms¹⁸.

With the favorable growth in both deposits and loans, and the decline in the credit problems of past years, the banks were able to achieve even more impressive results in net income. Earnings have increased at a 76% average annual rate during 1994 and 1995 (UBS Report on Peruvian Banking, 7). This is not only due to the mentioned improvement in asset quality, but also due to improved productivity and operating efficiency¹⁹. The ability of the banks to improve their cost structure has led some Peruvian banks to rank among the most efficient in Latin America (Ibid., 8). Despite the increased growth in net income for the overall banking sector, this growth has been uneven, favoring the leading banks in the sector, especially the top two banks, Banco de Crédito and Banco Wiese.

¹⁷In 1992, total liquidity grew by 25.5% in real terms, while liquidity in Peruvian currency increased by 6.6% in real terms as well. In new soles, demand deposits increased by 107% (32% in real terms).

¹⁸In 1993, credit in national currency experienced a 41.4% growth, and in 1994 there was an impressive 89.1% real increase in credit denominated in new soles. In 1995 the growth in soles deposits was 65.3% in real terms, vs. a 20.8% increase for dollar deposits.

¹⁹Since 1992, Peruvian banks have seen on average, their net cost ratio (non-interest income minus non-interest expense divided by assets) decline from nearly 6% to under 4%.

Competition has definitely increased, although it has been focused on few specific areas of banking. Due to the small size of banking in Peru and the large possibilities of market expansion, most banks have concentrated in consumer banking, advertising campaigns aiming at attracting larger number of deposits. The interesting feature in this case involves the forms of competition among banks. Instead of observing a reduction in interest rate margins due to an increase in deposit interest rates (in an attempt to attract more depositors) or a reduction in lending rates (caused by an increase in loanable funds derived from the increase in the number of deposits), banks have preferred to use cheaper sources of financing, attracting customer's through contests (lotteries) in which they can win prizes such as electrical appliances, automobiles, or a house. Examples of these campaigns are "Superdepósito" from Continental bank and "Dóblate" from Banco de Crédito. In this specific case competition is not contributing to a reduction in interest rate margins or lending rates.

There are some individual factors which have contributed to a reduction in interest rates. The most important ones are the increase in direct intermediation and the entry of foreign banks in the Peruvian financial sector.

6.2.1.-Entry of international banks into the financial system.- The increased participation of foreign financial institutions encourages a more efficient banking sector with less oligopolistic power. To the presences of Citibank, and Banco Interamericano, Banco Bilbao Vizcaya will be added in the second half of 1996. In 1994, when the government sold its stake in Interbanc, Peru's fourth largest bank, several international investors joined former finance minister Mr. Carlos Rodriguez-Pastor to buy it. In 1995, BBV (Banco Bilbao Viscaya) announced it had paid \$196 million in cash and \$60 million in debt to acquire Banco Continental, Peru's third largest

bank. In August and September of 1995, the Spanish bank Santander acquired two Peruvian banks, Banco Mercantil and Banco Interandino, which together ranked as the sixth largest bank. Nowadays the Luksic group, owner's of Chile's Banco O'Higgins controls Banco Libertador and will take a stake in Banco del Sur. Also, two Chilean finance companies have opened banks in Peru (Banco Solventa and Banco del Trabajo). Three losing bidders for Banco de Lima, namely ING Bank, Societe Generale and Banco Occidente, will most likely continue to pursue opportunities in the market.

6.2.2.-Process of direct intermediation.- A factor which is playing a greater role in the last couple of years is the emergence of new alternatives of financing for Peruvian businesses. The increased volume and profitable performance of the stock market has opened the alternatives of raising capital by the issuance of stocks and bonds. The emission of short term instruments such as commercial paper has emerged as a new alternative for Peruvian firms to raise funds. This would increase competition in the financial system and be an important factor in the reduction of lending rates.

7.-RECOMMENDATIONS AND CONCLUSIONS

The cost of credit in Peru, reflected in the level of interest rates, is affected by several factors. The main model described in this study (Section 5.2) suggests that the largest Peruvian banks have some monopoly power. However, it did not provide enough evidence of this to indicate that it is the most important factor in the high cost of credit in Peru. Indeed, the fact that the largest banks in the sector have proved to be more efficient than the average for the industry, supports some postulates of the Efficient Structure hypothesis described in Chapter 4. This study therefore concludes that although oligopolization is present in Peruvian banking, it does not constitute one of the main determinants of interest rates, especially when considering other factors involved (described in Chapter 6).

Any recommendations imposing government controls on interest rates to prevent oligopolistic pricing would be unwise. According to the World Bank's World Development Report (1989), "studies suggested that rigid ceilings on interest rates have hindered the growth of financial savings and reduced the efficiency of investment ...governments in developing and developed countries alike have deregulated interest rates during the past decade"²⁰. In Peru, interest rate controls were detrimental for the Peruvian financial system. The fact that government control in other areas of the economy was also deficient, makes a strong case against returning to policies advocating a strong central government, especially because they would affect expectations and might indirectly contribute to a reappearance of inflation.

Perhaps the major recommendation to help the reduction of interest rates and the problem

²⁰The World Development Report of 1989 concentrates on financial systems and development, taking about limitations and reforms of financial systems of LDC's, which are very similar to the specific Peruvian case.

of market concentration and oligopolization in the sector is to foster competition. The increased entry of foreign capital into the sector, as well as the developments of the Peruvian capital markets (offering direct intermediation), clearly will put pressure on the leading banks to avoid oligopolistic behavior and provide more efficient service in order to maintain market share. To help small businesses in the transitional period to lower lending rates, the role of direct credit for industries, via institutions such as COFIDE, will be extremely important. For this reason, the government should keep supporting these institutions.

Despite the fact that oligopolization is still present to a certain extent, it is important to acknowledge the seriousness of the government's attempts to correct some of the other problems in the financial sector, exemplified in the effectiveness of the reforms. To show a clear example, the government developed an integral plan in 1992 aiming at reducing interest rates and helping to reduce the major problems in the banking sector. Its three major points were to reduce bad loans (government program intended to buy back bad debt from banks), reduce banks operating costs, and to improve bank capital levels.

The reduction of problems in liquidity and bad debt showed that the recommendations were implemented. Other actions of the government such as reducing regulations contributed to the improvements in the system. The Central Bank also helped banks with a series of temporary credits to the financial system under the form of rediscount so that they would meet the increased money demand during the stabilization program (especially during the first years), enabling a smooth transition into a more liquid and efficient banking environment.

Other specific recommendations for regulatory bodies are:

*homogenize marginal reserve requirements for dollars, to eliminate the gap between dollar

deposits and foreign lines of credit to Peruvian banks (See 6.1.3). Peruvian bank expert J.J. Marthans suggests a reduction of marginal required reserves from 45% to 35% and the elimination of the exemption for foreign lines of credit. Even though this is not directly affecting the degree of oligopolization, it will be an incentive to reduce the use of dollars and in the long run encourage an increase in liquidity (in soles) and efficiency in the Peruvian banking sector.

*Facilitate the entry process for foreign banks. It takes around one year to fulfill the requirements to open a bank in Peru, which is very long for international standards and may discourage the entry of some foreign banks. This measure will facilitate the entry of competitors which will directly affect imperfect pricing and the degree of oligopolization.

Despite the problems and limitations already discussed, the overall prospects for the Peruvian banking sector are favorable. The number of banks is increasing, with an expected growth in liquidity, putting Peruvian banking in a comfortable position when compared to the region's levels.

A study by UBS Securities in New York predicts good prospects and stable growth for the Peruvian banking sector. Its valuation analysis states that the main Peruvian banks listed in the New York Stock Exchange are undervalued by 15%-20%, and classify both of them as a "buy"²¹.

Another 1996 study by Standard & Poor's mentions that the Peruvian banking sector is starting to perform its function of intermediary between savings and investment, improving its

²¹ Banco de Crédito (as part of the group Credicorp) and Banco Wiese listed American Depository Receipts (ADR) on the NYSE. These recommendations were made in March 1996.

efficiency and becoming an attractive source of revenue for international investors. However, the same study suggests that those banking institutions which are too cautious might lose market share. This study claims that 1996 will be a crucial year for the Peruvian banking sector, which could decide its future structure in terms of number of banks in the market and leading institutions in market participation.

We must understand that factors such as the slow reduction in the levels of dollarization (due to the preferences for dollars in the Peruvian economy), will limit the reduction of lending rates in soles, regardless of any improvements in the banking sector through improved regulations and competition. In addition to this, market concentration is not expected to decrease considerably in the short run, although the entry of new institutions will definitely contribute to an increase in overall efficiency and competition.

Finally, the strict continuation of the stabilization program, maintaining the macroeconomic goals of sustained growth and low inflation, will be the main factor in continuing the process of development of the financial sector. It will eventually reduce interest rates, thus increasing the availability of resources for medium and small business which will be a key factor in assuring long term stability in Peru.

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... Solos of 1979
... Orta Fya

... Index, Aug. 1990-1991

... instead of using TAMM...
... Rates for short term loans...

APPENDIX I Model 1
Lending rates and its effects in Investments

$$I = c_1 + c_2 \cdot r + c_3 \cdot pe$$

where

I=Investment

r=lending rates

pe=Profit expectations (measured as GDP1-GDPo)

Year	I *	r	GDP **	Pe
1990-I	203.30	16.949	116.63	
II	207.30	57.841	120.90	4.27
III	152.00	111.575	103.73	(17.17)
IV	166.20	4.617	102.37	(1.37)
1991-I	178.10	13.109	105.67	3.30
II	200.40	7.566	121.33	15.67
III	219.70	6.790	116.17	(5.17)
IV	224.70	2.596	113.20	(2.97)
1992-I	207.20	2.127	108.57	(4.63)
II	214.20	1.680	115.57	7.00
III	188.30	1.719	109.03	(6.53)
IV	191.40	1.427	115.10	6.07
1993-I	200.60	1.196	109.13	(5.97)
II	231.60	1.002	121.73	12.60
III	230.10	0.894	120.77	(0.97)
IV	233.40	0.803	121.50	0.73
1994-I	251.60	0.718	120.87	(0.63)
II	305.90	0.581	141.30	20.43
III	266.00	0.442	133.57	(7.73)
IV	338.70	0.400	139.17	5.60
1995-I	331.80	0.359	134.03	(5.13)
II	390.30	0.375	152.37	18.33
III	331.90	0.376	140.03	(12.33)

* Nuevos Soles of 1979
 Inversion Bruta Fija

** Monthly index, Aug. 1990=100

*** Instead of using TAMN (due to lack of information in the early years),
 Rates for short term loans (less than 360 days) will be used

APPENDIX II.-a Model 2.-Testing competition in Peruvian banking

Derivation of model's equations

Starting with the definition of Revenue:

$$\begin{aligned}R &= P * Q \\MR &= \delta (P * Q) / (\delta Q) \\MR &= P + Q * \delta P / \delta Q\end{aligned}$$

which can be written as

$$MR = P + \lambda * [Q/(\delta Q/\delta P)]$$

after introducing the competitive coefficient Lambda. In this way we obtain Shaffer's perceived marginal revenue function:

$$MR = P + \lambda h (Q, Y, \alpha)$$

The Marginal Cost function is just the partial derivative (with respect to Q) of the translog cost function:

$$\ln C = \beta_0 + \beta_1 \ln Q + \beta_2 (\ln Q)^2 + \beta_3 \ln W_1 + \beta_4 \ln W_2 + \beta_5 (\ln W_1)^2 / 2 + \beta_6 (\ln W_2)^2 / 2 + \beta_7 \ln W_1 \ln W_2 + \beta_8 \ln Q \ln W_1 + \beta_9 \ln Q \ln W_2 \quad @$$

$$MC = [C/Q][b_1 + b_2 \ln Q + b_3 \ln W_1 + b_4 \ln W_2]$$

following the condition $MR = MC$

$$P = MC - \lambda * [Q/(\delta Q/\delta P)]$$

$$P = [C/Q][b_1 + b_2 \ln Q + b_3 \ln W_1 + b_4 \ln W_2] - \lambda Q / [a_1 + a_3 Z + a_5 Y]$$

which equals the model's Price function, after adding the Dummy variable term. In this way we obtain the two equations used to calculate Lambda:

$$Q = a_0 + a_1 P + a_2 Y + a_3 PZ + a_4 Z + a_5 PY + a_6 YZ + e$$

$$\begin{aligned}P &= -\lambda Q / [a_1 + a_3 Z + a_5 Y] + [C/Q][b_1 + b_2 \ln Q + b_3 \ln W_1 + b_4 \ln W_2] \\&\quad - b_5 DQ / [a_1 + a_3 Z + a_5 Y] + u\end{aligned}$$

@Bolted terms refer to the parts of the cost function which remain after differentiating with respect to Q.

APPENDIX II.-b.- Model 2: Complete data set
A TEST OF COMPETITION IN PERUVIAN COMMERCIAL BANKING SECTOR
Based on Sherrill Shaffer's work on "A test of competition in Canadian Banking"

Year	Q **	Total Assets	Interest Income Mon \$	Interest Income Mon. Nac	Interest Income Total	Deposit Int. Rate Month	* & W1	Z	TIPMEX Znew	# Savings Rate Dollars	S/per\$ Exchange Rate	devaluatio (ER1-ER/ER)	Savings rate \$ adjusted	Y GDP	W2 Wage	C Total Cost	D Dummy
												0.0058		118.60			
1990	Mar	59,538	1668	31,400	33068						0.00966	0.665517		118.60	3640	43288	0
	Jun	187,789	4128	55,698	59826						0.02758	1.855072		122.10	6904	85602	0
	Set	924,109	15248	132,428	147676	1.463	1.192	0.072	15.78859	0.0721	0.43189	14.65954	15.78859	90.30	25199	236296	0
	Dec	1,412,283	24950	179,697	204647	0.945	2.004	0.072	0.282749	0.0716	0.51699	0.197041	0.282749	110.10	44197	311901	0
1991	Mar	1,878,681	77768	554,712	632480	2.764	2.028	0.067	0.1562	0.0674	0.56	0.083193	0.1562	107.30	146796	818660	0
	Jun	2,981,755	118308	662,372	780680	0.777	1.933	0.086	0.649	0.0951	0.85	0.517857	0.662205	118.90	172604	1060238	0
	***Set	3,659,811	154011	804,571	958581	0.464	0.856	0.078	0.014212	0.0941	0.8	-0.05882	0.029741	110.00	188700	1251321	1
	Dec	4,595,731	166095	598,544	764639	0.382	0.727	0.078	0.347	0.0854	1	0.25	0.35675	113.80	544011	533774	1
1992	Mar	5,041,533	298696	591,560	890256	0.268	0.561	0.069	0.026528	0.0761	0.96	-0.04	0.033056	109.80	638804	538576	1
	Jun	5,751,281	310358	605,840	916198	0.220	0.565	0.063	0.306358	0.0659	1.18	0.229167	0.310169	115.80	698318	523868	1
	Set	7,530,190	345983	727,580	1073563	0.197	0.533	0.060	0.23033	0.0642	1.37	0.161017	0.235554	105.20	831260	612649	1
	Dec	7,565,587	386645	1,083,794	1470439	0.184	0.514	0.058	0.258788	0.0628	1.63	0.189781	0.264499	121.90	1080205	790029	1
1993	Mar	10,751,816	758032	760,052	1518084	0.168	0.460	0.057	0.193404	0.0583	1.84	0.128834	0.194645	115.40	1208588	925920	1
	Jun	12,528,914	846318	876,796	1723114	0.158	0.427	0.056	0.148152	0.0585	2	0.086957	0.150543	124.50	1301422	1029658	1
	Set	14,067,852	916163	952,729	1868892	0.149	0.364	0.053	0.10565	0.0563	2.1	0.05	0.109115	115.50	1462088	1103272	1
	Dec	15,107,722	818062	846,362	1664424	0.132	0.313	0.050	0.08	0.0519	2.16	0.028571	0.081954	129.80	1152693	979834	1
1994	Mar	17,107,738	1013596	741,412	1755008	0.119	0.250	0.048	0.052852	0.0490	2.17	0.00463	0.053856	129.70	1293144	1033540	1
	Jun	18,998,984	1094334	801,600	1895934	0.106	0.180	0.048	0.057659	0.0480	2.19	0.009217	0.057659	143.10	1289534	1087142	1
	Set	21,536,103	1164215	943,177	2107392	0.078	0.151	0.050	0.083562	0.0500	2.26	0.031963	0.083562	129.30	1393024	1169980	1
	Dec	21,676,140	1246563	983,444	2230007	0.073	0.151	0.049	-0.01134	0.0480	2.13	-0.05752	-0.01228	144.00	1476386	1189842	1
1995	Mar	24,172,536	1622200	1,219,968	2842168	0.091	0.156	0.055	0.116913	0.0510	2.255	0.058685	0.112678	137.80	1638236	1307420	1
	Jun	26,690,313	1727572	1,353,380	3080952	0.097	0.168	0.059	0.056652	0.0540	2.25	-0.00222	0.051663	151.10	1690398	1435720	1
	Set	28,251,879	1826889	1,438,760	3265649	0.105	0.170	0.062	0.062	0.0550	2.25	0	0.055	133.00	1704775	1552673	1

bold=31 a 179 days

NOTE: Total Assets figures from 1990 to sep 1992 are historical, not adjusted for inflation

* Deposit rates are rates for deposits from 31 to 179 days. The weighted average deposit rate (TIPMN) could not be used due to lack of numbers for 1990 and 1991.

** Not including Banco de la Nacion.

*** Change of currency into the New Sol

& Quarterly figures from the International Financial Statistics

Monthly figures (annualized) for Savings deposit rate in Dollars.

**** Before or after the 1991 Banking Law.

Boldface : variables extracted from income statements, expect to correct the figures by the using the following concept:

Ex:		
1990 I	10	multiply by 4
II	17	multiply by 2
III	24	multiply by 4/3
IV	67	multiply by 1
1991 I	17	multiply by 4

concentration in the system, which may lead to oligopolization and imperfect pricing. Chapter 3 describes the degree of market concentration and its influence in the overall efficiency of the Peruvian financial system. This chapter also describes an empirical measure of market concentration, namely the Herfindahl index, to determine market concentration in the Peruvian banking industry. The degree of oligopolization in Peruvian banking constitutes the main issue addressed by this thesis.

The fourth part analyzes the behavior of financial institutions in a general microeconomic perspective, trying to determine the monopolistic or oligopolistic behavior of banks having control of a specific market. This chapter provides theoretical background which can be related to the Peruvian banking environment.

Chapter 5 explains and develops two statistical models describing interest rates in the Peruvian economy. To understand the relation between interest rates and investment in Peru, the first model is developed. It consists of a multiple linear regression which attempts to determine the importance of interest rates in Peruvian investment levels. The second model constitutes the core of this thesis and considers a microeconomic perspective on the Peruvian banking sector as a whole, testing to what extent its pricing portrays a degree of imperfect competition or cartel behavior. Both models use quarterly figures from 1990 to 1995 to focus on the effects of the stabilization program of 1990¹.

Besides oligopolization, there are other factors involved in the effects of high interest rates which are crucial when trying to understand the Peruvian experience and implement

¹It is important to consider the lack of some statistical data available before 1990 for some of the variables used, which made it impossible to run an accurate model with yearly data covering a longer period of time.