FINANCIAL INTERDEPENDENCE AND ECONOMIC POLICY IN COSTA RICA

FINANCIAL INTERDEPENDENCE AND ECONOMIC POLICY IN COSTA RICA

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ABSTRACT

The main objective of the dissertation is to formulate a system for financial analysis and planning in the Costa Rican economy. First, a tentative structure within which a model of the financial system can be organized is outlined, and the corresponding statistical tables are constructed for the period 1961-1975. It is expected that such tables will be periodically updated and incorporated into a series of publications which describe and analyze financial developments in Costa Rica. The study then analyzes the evolution of the Costa Rican financial system based on the generated data and a set of well-known financial indicators. Finally, alternative linear financial models are formulated and estimated; they are the basis for an analysis of financial interdependence, i.e., the process through which sectoral investment and/or saving decisions generate indirect financial consequences in the rest of the economy.

Some interesting findings of the study, related to the analysis of financial developments during the period 1961-1975, are the observed rapid growth of the relative size of the Costa Rican financial super-structure, coupled with an accelerated process of monetization of the economy. In addition the importance of the foreign sector in the financial activities of the country shows a considerable increase.

The empirical evidence that emerges from estimating alternative linear financial models suggests a considerable degree of finan-

cial interdependence, with the government sector taking a predominant role in the generation of financial multiplier effects. It also indicates that the definition of sectoral preferences over liability holdings as a behavioral assumption in the underlying model, explains the pattern of sectoral financial behavior in the Costa Rican economy more effectively than the alternative assumption that preferences are defined over asset holdings.

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CHAPTER I

1. INTRODUCTION

In modern economies, decisions regarding real capital are made within an institutional framework that interacts significantly with a well defined structure of financial claims and financial institutions. Furthermore, the influence of financial markets in the process of promoting real economic activity has been observed to increase over time, as the economy develops. This is particularly true for economies where resource allocation activity is basically decentralized. Therefore, research efforts aimed at understanding the nature and theoretical basis of such phenomena are clearly justified.

This study addresses itself to two aspects of the question posed above. The context of the investigation is the Costa Rican economy. First, a tentative structure within which the salient features of the financial system can be described and analyzed is suggested. A set of statistical tables, corresponding to the framework proposed, is constructed for the period 1961-1975. The suggested structure is flexible enough to allow for further disaggregation and more detailed elaborations. Secondly the generated data base is used to analyze the observed evolution of the Costa Rican financial system. Such an approach is expected to serve as the basis for a series of periodical publications by the Central Bank about financial developments in Costa Rica. Thirdly, alternative linear financial models are formulated and

estimated, calling attention to the concept of financial interdependence, i.e., the process through which a sector's decision to save and/or invest generates portfolio adjustments in other sectors not directly involved with the original decision. Thus the interconnection between financial and real variables is demonstrated, and a potential framework for financial prediction and planning is suggested.

The questions which this study attempts to answer have not been comprehensively treated in the Costa Rican context. On the one hand, the analytical and quantitative connections between financial and real variables were not yet established. This left unanswered important questions related to the interdependent nature of the processes of (a) the accumulation and consumption of tangible assets and (b) the accumulation of a changing set of financial claims which are acquired as financial assets or issued as financial liabilities by the interacting sectors of the economy. Anticipating some of the empirical findings of the study, a rapid process of monetization parallel to a growing real infrastructure has been observed in the Costa Rican economy. The interdependence of financial and real variables had been analyzed previously only in partial terms, by relating conventional monetary aggregates to certain indicators of real economic activity. However, the empirical evidence which emerges from the models tested indicates significant levels of financial interdependence, thus providing a justification for the disaggregated approach taken here.

On the other hand, the quantitative sources required to conduct this type of analysis were available only in partial terms. Thus a

complete set of sectoral balance sheets accounts was constructed and elaborated, permitting the analysis of the topics mentioned above, as well as other related ones, such as,

(i) The volume and direction of the intersectoral financial flows of the economy,

(ii) The nature and extent of imbalances between the financial and real flows, and

(iii) The type of financial claims involved in the intersectoral transactions.

Flow of Funds tables were generated for the first time in the Costa Rican context, thus providing the analytical framework and data base required to address such issues. In this respect, the financial analysis of two subperiods (1961-1964 and 1972-1975) gives evidence of an increasing reliance on foreign funds to finance net sectoral deficit positions. All domestic sectors show a consistent financial deficit which increased by more than eight times from the period 1961-1964 to 1972-1975, except for the private sector where the magnitude of its financial deficit shows a fourfold increase during the same period. Such results have clearly defined policy implications in terms of the increased foreign debt burden and the impact of foreign financing on the economic development of the country. The particular forms of instruments through which the financial transactions among sectors have occurred appear concentrated in terms of loans, government bonds, money market instruments (currency, demand deposits and saving deposits), insurance reserves, and various obligations with the foreign sector

(pending payments, import endorsements and commercial obligations).

The constructed set of balance sheets accounts was utilized, in addition, to elaborate on some quantitative indicators of the evolution of the Costa Rican Financial System during the period 1961-1975. The results give evidence of a significant increase in the relative size of the financial superstructure, coupled with important structural changes in its composition. Thus, for example, while currency has diminished in relative importance in the total stock of financial instruments, saving deposits show an increasing share of the total. This is a reflection of higher degrees of "institutionalization" of the banking habit, and, consequently, of a greater scope for the financial intermediation process.

Finally, the complete sectoral accounts were used to quantify the parameters of a set of theoretical relations of financial interdependence. Two alternative behavioural assumptions were considered to explain the pattern of sectoral financial behaviour in the Costa Rican economy. The first model assumes that asset holdings are behaviourally determined over sectors, and liability holdings behaviourally determined over financial claims. The second model assumes the alternative; a pattern of asset holdings determined over claims, and a pattern of liability holdings determined over sectors. The evidence emerging from such econometric exercise suggests a considerable degree of financial interdependence, with the government sector taking a predominant role in the generation of financial multiplier effects. After testing several versions of each alternative model, it was found that

the definition of sectoral preferences over liabilities, as a behavioural assumption in the underlying model, did explain the pattern of sectoral financial behaviour in the Costa Rican economy more effectively than the alternative assumption stating that preferences are defined over assets.

ORGANIZATION OF THE STUDY

Chapter II introduces the alternative financial interdependence models examined in the study. Particular attention is paid to the accounting framework utilized and the economic basis and implications of each alternative theoretical specification suggested. The structural relations which define each model are solved simultaneously for the endogenous variables in terms of the exogenous variables and the parameters of the model. The solutions - "reduced form" expressions - indicate the degree of financial interdependence existing in the economy corresponding to each alternative set of assumptions. Chapter III, in turn, provides the background to the proposed organization of the Costa Rican financial system, exploring aspects related to the sectoral classification adopted, the different financial instruments involved, and the criteria behind the different tables constructed. The formal presentation of the data is given in the Statistical Appendix. Chapter IV describes and analyzes the body of data referred to in Chapter III. The emphasis of the discussion centres on the evolution of the Costa Rican financial system - during the period 1961-1975 - in the light of well known financial indicators (e.g., a financial inter-

relations ratio, the composition of the financial structure, and flow of funds statements). In Chapter V, the empirical estimations, their economic implications and possible applications of the theoretical models are discussed. In particular, the forecasting ability of each alternative version is tested for years (1972-1975) outside the sample period of estimation. The results of such exercises are taken as the basic criterion to discriminate among the various models estimated. Correspondingly, various measures of financial interdependence are also analyzed. Finally, a summary of the major findings of the study and the scope for further research are provided in the concluding chapter.

CHAPTER II

ALTERNATIVE MODELS OF SECTORAL FINANCIAL INTERDEPENDENCE: THEORETICAL STRUCTURE

1. INTRODUCTION

The essential objective of this chapter is to develop various alternative models capable of explaining the financial interdependence observed in modern monetary economies. The term financial interdependence is here defined as the process through which the decisions to save and/or invest in any given sector of the economy generate portfolio adjustments in other sectors not directly involved with the original decision. Just as it is widely recognized that the attempts of a producing sector to modify output decisions generate changes in the output and employment of other economic units in the system, it is possible and meaningful to draw the corresponding parallels to recognize the link between investment/saving decisions on the one hand, and financial portfolio patterns on the other. In the end, it will be possible to spell out a form of financial interdependence, reflected in a multiplier process in financial markets, similar in nature to the familiar Keynesian income multiplier process.

The various theoretical formulations explored in this chapter, utilize the accounting framework suggested by Stone (1966), where the real and financial components of the balance sheet of each economic sector are separately defined[1]. The analytical advantage of such a

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[1] Table 1 summarizes the main features of the system of sector balance sheets suggested.

framework lies not only in the fact that there is a clear separation of real and financial components, but on the plausibility of the assumption that economic sectors effect their decisions after considering their overall financial position, information which is contained in their respective balance sheet statements. Consequently, it is expected that the identification of clearly defined parameters of sectoral financial interdependence should emerge from the composition of assets and liabilities in the sectoral balance sheets (stock relations) rather than in their corresponding income statements (flow relations). Within this framework, alternative specifications have been developed, defining behavioural patterns of asset and liability holding by the different economic sectors of the system, thereby generating an economic relation reflecting the degree of financial interdependence existing in the economy. The quantification of these theoretical results should provide some answers to questions such as:

a) What is the amount of financial claims generated by the investment and/or saving decision of any sector in the economy?, and,

b) What is the distribution (sectorwise) and composition (claimwise) of such an amount of financial claims?

These and other related questions will be the subject of a subsequent chapter of the study.

2. FORMULATION OF THE ALTERNATIVE SPECIFICATIONS

A. ACCOUNTING FRAMEWORK

From the original contributions of Stone (1966) and Stone and Roe (1971) the system of sectoral balance sheets envisaged in the

present context is given in Table 1, where each of the entries is defined as follows;

A_{jk} = Financial Asset Matrix, with as many rows as there are sectors, and as many columns as there are financial claims. In this matrix the typical element a_{jk} represents the holding as an asset of financial claim k by sector j.

e_j = The column vector of sectoral real assets, where the jth element stands for the total holdings of tangible assets by sector j.

w_j = The column vector of total sectoral assets (financial and real), being the jth element the total holdings of financial and tangible assets by sector j.

L_{kj} = Financial Liability Matrix, with as many rows as there are financial claims, and as many columns as there are sectors. In this matrix the typical element l_{kj} refers to the holding as a liability of financial claim k by sector j.

z_j = The column vector of sectoral net worths, where the jth element refers to the net worth (total assets less financial liabilities) of sector j.

x_j = The column vector of total sectoral liabilities, where the jth element represents the total liabilities (financial and net worth) of sector j.

a_k = The column vector of total outstanding financial assets, where the kth element denotes the total holding as an asset of financial claim k by all sectors in the economy.

l_k = The column vector of total outstanding financial liabilities. Thus the kth element refers to the total holding as a liability of financial claim k by all sectors in the economy.

There are two fundamental identities which can be generated from the financial relationships given in Table 1. Namely,

$$(1)\quad w_j = x_j$$

and

$$(2)\quad a_k = l_k$$

TABLE 2.1

A SYSTEM OF SECTOR BALANCE SHEETS

	SECTOR	TYPE OF CLAIM	TANGIBLE ASSETS	ROW TOTALS
SECTOR		A_{jk}	e_j	w_j
TYPE OF CLAIM	L_{kj}			1_k
NET WORTH	z'_j			
COLUMN TOTALS	x'_j	a'_k		

Identity (1) illustrates the familiar balance sheet identity, such that, for each sector, total assets (financial and tangible) are equal to total liabilities (financial and net worth).

Identity (2) indicates that the total amount of each financial claim held as an asset is exactly equal to the total amount of the same claim held as a liability by all sectors. In other words, every financial asset constitutes someone else's liability.

A more analytically oriented expression of the elements involved in identities (1) and (2) is given by expressions (3), (4), (5) and (6).

$$(3)\quad w_j = A_{jk}\, i_k + e_j \ ,$$

which states that[1] the total assets of sector j are obtained by summing over the corresponding row of the financial asset matrix plus the sectors tangible assets.

[1] The expressions i_k and i_j correspond to unit vectors of dimension k and j respectively.

(4) $x_j = L'_{kj}\, i_k + z_j$,

indicating that the total liabilities of sector j are the result of summing over the corresponding row of the transposed of the financial liability matrix plus the sector's net worth.

(5) $a_k = A'_{jk}\, i_j$,

such that the total outstanding amount of each financial claim k as an asset, is obtained by summing over the corresponding row of the transposed financial asset matrix, and

(6) $l_k = L_{kj}\, i_j$,

illustrating that the total of each financial claim k, as a liability is obtained by summing over the corresponding row of the financial liability matrix.

B. ALTERNATIVE LINEAR FINANCIAL MODELS

This section develops two broad categories of alternative behavioural relations which incorporate and extend the original structure suggested by Stone (1966). The outstanding feature of both of these groups of theoretical relations is that they define alternative patterns of asset and liability holdings by the different sectors of the economy, drawing on various behavioural hypotheses. The structural relations are then used to generate "reduced form" expressions; that is, the structural relations are solved simultaneously for the endogenous variables in terms of the exogenous variables and the parameters of the model. The solutions indicate the degree of financial interdependence existing in the economy corresponding to the alternate set of assumptions.

Using the balance sheet-accounting framework given in Table 2.1, it is possible to define the two basic theoretical patterns of asset and liability holdings developed in this chapter. The first model assumes that asset holdings are behaviourally determined over sectors and liability holdings behaviourally determined over financial claims. The different formulations explored under the above assumptions (MODEL 1) are summarized in Table 2.2. In an effort to clarify the theoretical nature of the suggested structural forms, a detailed explanation of the first specification (1.A) of Model 1 is provided in the next subsection. Each alternative case (from 1.Å to 1.H) includes a system of structural equations and the corresponding reduced form expressions derived from the structural relations. The full derivation of the final solutions is given in Appendix I. The second model (MODEL 2) is based on an assumed pattern of asset holdings determined over claims and a pattern of liability holdings determined over sectors. The corresponding set of structural and reduced form expressions for each alternative formulation (2.A to 2.H) is summarized in Table 2.3.

a) ALTERNATIVE SPECIFICATIONS OF MODEL 1

Case (1.A) represents the simplest version of MODEL 1. It assumes, on the one hand, that sectors will preserve their observed share of the market for each financial asset, irrespective of the total amount outstanding of the corresponding financial asset. Thus the system of equations given by

$$A_{jk} = Bl_{jk} \cdot \hat{A}_{kk}$$

shows the distribution among sectors of each financial instrument held

TABLE 2.2

MATHEMATICAL FORMULATION OF THE SET OF RELATIONS

DEVELOPED UNDER MODEL 1

ALTERNATIVE	STRUCTURAL RELATIONS[1]	REDUCED FORMS[2]
1.A	$A_{jk}=B1_{jk}.\hat{A}_{kk}$	$w_j=(I_{jj}-B1_{jk}.C1_{kj})^{-1}.e_j$
	$L_{kj}=C1_{kj}.\hat{X}_{jj}$	$l_k=C1_{kj}(I_{jj}-B1_{jk}.C1_{kj})^{-1}.e_j$
1.B	$A_{jk}=B2_{jk}.\hat{A}_{kk}+D2_{jk}$	$w_j=(I_{jj}-B2_{jk}C2_{kj})^{-1}.(e_j+b2_j+d2_j)$
	$L_{kj}=C2_{kj}.\hat{X}_{jj}+E2_{kj}$	$l_k=C2_{kj}(I_{jj}-B2_{jk}C2_{kj})^{-1}(e_j+b2_j+d2_j)+C2_k$
1.C	$A_{jk}=B3_{jk}.\hat{A}_{kk}+\sum_{p=1}^{j}(F3_{jk}.\hat{A}_{jk-1})_p$	$w_j=(I_{jj}-B3_{jk}(C3_{kj})^{-1}(b3_{j-1}+f3_{j-1}+e_j)$
	$L_{kj}=C3_{kj}.\hat{X}_{jj}+\sum_{p=1}^{k}(G3_{kj}.\hat{L}_{kj-1})_p$	$l_k+C3_{kj}(I_{jj}-B3_{jk}C3_{kj})^{-1}(b3_{j-1}+f3_{j-1}+e_j)$
1.D	$A_{jk}=B4_{jk}\hat{A}_{kk}+\sum_{p=1}^{j}(F4_{jk}\hat{A}_{jk-1})_p+D4_{jk}$	$w_j=(I_{jj}-B4_{jk}C4_{kj})^{-1}(b4_{j-1}+f4_{j-1}+c4_j+d4_j+e_j)$
	$L_{kj}=C4_{kj}\hat{X}_{jj}+\sum_{p=1}^{k}(G4_{kj}\hat{L}_{kj-1})_p+E4_{kj}$	$l_k=C4_{kj}(I_{jj}-B4_{jk}C4_{kj})^{-1}(b4_{j-1}+f4_{j-1}+c4_j+e_j)+g4_{k-1}+c4_k$
1.E	$A_{jk}=B5_{jk}\hat{A}_{kk}+\sum_{p=1}^{j}(F5_{jk}\hat{A}_{jk-1})_p+T5_{jk}\hat{T}_{kk}$	$w_j=(I_{jj}-B5_{jk}C5_{kj})^{-1}(b5_{j-1}+v5_j+t5_j+f5_{j-1}+e_j)$
	$L_{kj}=C5_{kj}\hat{X}_{jj}+\sum_{p=1}^{k}(G5_{kj}\hat{L}_{kj-1})_p+V5_{kj}\hat{T}_{jj}$	$l_k=C5_{kj}(I_{jj}-B5_{jk}C5_{kj})^{-1}(b5_{j-1}+v5_j+t5_j+f5_{j-1}+e_j)+g5_{k-1}+v5_k$
1.F	$A_{jk}=B6_{jk}\hat{A}_{kk}+\sum_{p=1}^{j}(F6_{jk}\hat{A}_{jk-1})_p+T6_{jk}\hat{T}_{kk}+D6_{jk}$	$w_j=(I_{jj}-B6_{jk}C6_{kj})^{-1}(b6_{j-1}+v6_j+c6_j+f6_{j-1}+t6_j+d6_j+e_j)$
	$L_{kj}=C6_{kj}X_{jj}+\sum_{p=1}^{k}(G6_{kj}\hat{L}_{kj-1})_p+V6_{jk}\hat{T}_{jj}+E6_{kj}$	$l_k=C6_{kj}(I_{jj}-B6_{jk}C6_{kj})^{-1}(b6_{j-1}+v6_j+c6_j+f6_{j-1}+t6_j+d6_j+e_j)+v6_k+C6_k+g6_{k-1}$
1.G	$A_{jk}=B7_{jk}\hat{A}_{kk}+T7_{jk}\hat{T}_{kk}$	$w_j=(I_{jj}-B7_{jk}C7_{kj})^{-1}(v7_j+t7_j+e_j)$
	$L_{kj}=C7_{kj}\hat{X}_{jj}+V7_{kj}\hat{T}_{jj}$	$l_k=C7_{kj}(I_{jj}-B7_{jk}C7_{kj})^{-1}(v7_j+t7_j+e_j)+v7_k$
1.H	$A_{jk}=B8_{jk}\hat{A}_{kk}+T8_{jk}\hat{T}_{kk}+D8_{jk}$	$w_j=(I_{jj}-B8_{jk}C8_{kj})^{-1}(v8_j+t8_j+b8_j+d8_j+e_j)$
	$L_{kj}=C8_{kj}\hat{X}_{jj}+V8_{jk}\hat{T}_{jj}+E8_{kj}$	$l_k+C8_{kj}(I_{jj}-B8_{jk}C8_{kj})^{-1}(v8_j+t8_j+b8_j+d8_j+e_j)+v8_k+c8_k$

[1] The symbol "^" identifies a diagonal matrix. Thus, e.g., $\hat{A}_{kk}$ stands for the diagonal matrix corresponding to the vector a_k.

[2] The full derivation of the reduced forms is given in Appendix I.

as an asset. The coefficient matrix Bl_{jk} defines the sectoral share of each financial asset. A typical equation would be,

$$a_{14} = bl_{14} \cdot a_4$$

stating that sector 1 holds a proportion bl_{14} of the total holding as an asset of financial claim 4 by all sectors in the economy; each column of the coefficient matrix Bl_{jk} sums to unity.

On the other hand, the values of the financial liabilities of each sector are defined as fixed proportions of the value of the total liabilities of the corresponding sector. Consequently, the system of equations defined by

$$L_{kj} = Cl_{kj} \cdot \hat{X}_{jj}$$

indicates the distribution among the outstanding set of financial instruments of the total liabilities of each sector. A typical equation of this system would be,

$$l_{42} = cl_{42} \cdot x_2$$

where cl_{42} is the proportion of sector 2's total liabilities held in the form of financial instrument 4. In this case, the column sums of the coefficient matrix Cl_{kj} would be one minus the proportion of the sector's net worth to its total liabilities.

A plausible theoretical foundation for a financial structure assumed in (1.A) would be obtained by drawing the parallels between this system and conventional input-output models[1]. In this case the

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[1] The specification of conventional Input-Output models involves two sets of assumptions answering two types of questions:
(a) how to allocate the production of commodities among industries; and
(b) how to specify the production function of industries in order to determine the requirements of industries for commodity inputs.
The present context requires the identification of assets, sectors and liabilities, instead of commodities, industries, and inputs respectively.

assumed pattern of sectoral asset and liability holding may be referred to as the Financial Market Share Assumption and the Sectoral Financial Technology Assumption. The former refers to sectoral portfolios (asset distribution) determined according to specific market shares of the set of financial instruments held as assets. The latter identifies "technical" coefficients, i.e., the proportion of inputs (liabilities) required to generate a unit of output (assets), in terms of sectoral total liabilities.

The reduced form equations obtained under the above assumptions generate an inverse matrix, $(I_{jj} - Bl_{jk}Cl_{kj})^{-1}$, that is generally referred to as the matrix multiplier. It is used to convert the vector e_j (tangible assets) into:

(i) the vector of total assets, w_j (tangible and financial assets); and, using the Sectoral Financial Technology Assumption,

(ii) the vector of total outstanding holdings of each financial claim as a liability, l_k.

In this way, the (endogenous) sectoral holdings of financial assets and the distribution of these assets over types of financial claims can be computed from the (exogenous) vector of tangible assets. Thus a connection is established between real asset holding and

financial asset holding.[1]

The absence of any degree of financial intermediation in the economy makes the matrix multiplier a unit matrix, implying a non-existent financial superstructure in the economy. This occurs when one or both of the matrices Bl_{jk} and Cl_{kj} is zero, i.e., when all sectors hold no financial assets or have no financial liabilities. Thus the actual existence of a particular form of financial intermediation in the system is reflected via the particular values taken by set of parameters involved in the matrix multiplier.[2] These values, in turn, constitute a source of valuable information regarding the magnitude and direction of the financial interdependence which exists in the economy.

The additional formulations developed from (1.B) to (1.H) depart from the simple "fixed proportions" world of case (1.A), in an attempt to capture the effects of other variables expected to play a significant complementary role in shaping the pattern of asset and liability holdings by the different sectors of the economy. Thus a constant element, lagged holdings of the particular financial claim, and a time trend have been incorporated, separately and jointly, into

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[1] At this stage it is not necessary to consider real assets as exogenous and financial assets and liabilities as endogenous variables. In fact, the investment decision is not independent of the financing decision, and what the matrix multiplier shows is the relationship between the two decisions.

[2] Chapter V takes up the task of quantifying such parameters.

the analytical structure leading to the different combinations listed from (1.B) to (1.H). The theoretical basis of each specification is developed next.

Alternative (1.B), by incorporating a constant element to the structural relations, allows for the hypothesis that the marginal holding of a particular financial claim may be different from the average holding. The observed evolution of the Costa Rican financial system makes this formulation a plausible one. From the system of equations formulated for (1.B) in table 2.2, the following typical equations are generated:

$$a_{31} = b2_{31} \cdot a_1 + d2_{31}$$

$$l_{21} = c2_{21} \cdot x_1 + e2_{21}$$

On the one hand, the elements $d2_{31}$ and $e2_{21}$ identify the constant stock holdings of the corresponding financial instruments. The coefficients $b2_{31}$ and $c2_{21}$, on the other hand, represent the "marginal propensities" to hold financial instruments 1 (as an asset) and 2 (as a liability) by sectors 3 and 1, respectively. It is evident that to the extent that the constant element is non-zero, the average and marginal stock holdings of a financial claim will have different values.

Alternative (1.C) includes the sectoral lagged holdings of the corresponding financial claim as an additional explanatory variable. Such a formulation is consistent with the "permanent income" hypothesis developed by Friedman (1957). Typical equations of sectoral asset and liability holding, corresponding to this specification are given below; namely,

$$a_{22} = b3_{22} \cdot a_2 + f3_{22} \cdot a_{22_{-1}}$$

$$l_{71} = c3_{71} \cdot x_1 + g3_{71} \cdot l_{71_{-1}}$$

where $a_{22_{-1}}$ and $l_{71_{-1}}$ refer to lagged holdings of financial instrument 2 (as an asset) and financial instrument 7 (as a liability) by sectors 2 and 1 respectively. An implication of this hypothesis is that sectors are assumed to effect short-run adjustments to their holdings of financial claims in response to changes in the "permanent" rather than the current outstanding amount of the corresponding explanatory variables. In the long run, marginal and average holdings would become identical. Thus referring to the above typical equations, the long run (marginal equal average) coefficient would be $b3_{22}/(1-f3_{22})$ and $c3_{71}/(1-g3_{71})$, respectively.

Case (1.D) modifies the specification given in (1.C) by introducing a constant term. Such a modification allows for a more formal test of the "permanent income" hypothesis, by introducing the possibility of a non-zero constant value in the explanation of sectoral asset/liability holdings. If the latter modification holds, the long run marginal and average coefficients would have different values.

Alternatives (1.E) and (1.F) extend the previous formulations by

bringing into the set of explanatory variable a time trend (with and without a constant term), which on a priori grounds is expected to capture part of the observed evolving structure of the sectoral asset and liability holdings, not accounted for by the other explanatory variables. An example of an apparent structural change would be the diminishing relative participation of currency holdings in contrast to an increasing share of saving deposits' holding with respect to the total outstanding financial claims[1]. An expanded (j=2, k=3) version of the system of equations determining the pattern of asset holding in case (1.F) would be of the form;

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{bmatrix} = \begin{bmatrix} b5_{11} & b5_{12} & b5_{13} \\ b5_{21} & b5_{22} & b5_{23} \end{bmatrix} \begin{bmatrix} a_1 & 0 & 0 \\ 0 & a_2 & 0 \\ 0 & 0 & 0 \end{bmatrix} + \begin{bmatrix} f5_{11} & f5_{12} & f5_{13} \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} a_{11_{-1}} & 0 & 0 \\ 0 & a_{12_{-1}} & 0 \\ 0 & 0 & a_{13_{-1}} \end{bmatrix} + \cdots$$

$$+ \begin{bmatrix} 0 & 0 & 0 \\ f5_{21} & f5_{22} & f5_{23} \end{bmatrix} \begin{bmatrix} a_{21_{-1}} & 0 & 0 \\ 0 & a_{22_{-1}} & 0 \\ 0 & 0 & a_{23_{-1}} \end{bmatrix} + \begin{bmatrix} t5_{11} & t5_{12} & t5_{13} \\ t5_{21} & t5_{22} & t5_{23} \end{bmatrix} \begin{bmatrix} t & 0 & 0 \\ 0 & t & 0 \\ 0 & 0 & t \end{bmatrix} + \begin{bmatrix} d5_{11} & d5_{12} & d5_{13} \\ d5_{21} & d5_{22} & d5_{23} \end{bmatrix}$$

and a typical equation would take the form,

$$a_{11} = b5_{11}a_1 + f5_{11}a_{11_{-1}} + t5_{11} \cdot t + d5_{11}$$

Similarly, an expanded version of the system of equations determining the pattern of liability holding corresponding to case (1.F) would be of the same form as the one developed above for asset holdings. In this case, a typical (1.F) equation of liability holdings would be,

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[1] Chapter IV includes further elaborations on this subject.

$$l_{23} = c5_{23} \cdot x_2 + g5_{23} l_{23_{-1}} + v5_{23} \cdot t + e5_{23}$$

where the coefficients $c5_{23}$, $g5_{23}$ and $v5_{23}$ define the influence of x_2 (total liabilities of sector 2), $l_{23_{-1}}$ (lagged liability holdings of financial claim 3 by sector 2) and t (time) on l_{23} (actual liability holdings of claim 3 by sector 2). The parameter $e5_{23}$ stands for the constant term.

Finally alternative (1.G) and (1.H) modify the original cases (1.A) and (1.B) by introducing a time trend variable which is incorporated to capture any structural changes not accounted for by the explanatory variable a_k (for asset holdings) or x_j (for liability holdings). Additionally these last two cases depart from the "permanent income" hypothesis to return to the simpler "current" stock holdings type of hypothesis, and thus provide the basis for a rigorous statistical test of the hypothesis in this context.

The empirical plausibility of the different alternatives is considered in Chapter V of the study, where a set of data is employed to estimate the corresponding structural parameters and reduced form solutions.

b) ALTERNATIVE SPECIFICATIONS OF MODEL 2

The different formulations developed under the basic framework of MODEL 2 (the pattern of asset holding determined over claims and the pattern of liability holding determined over sectors) are listed in Table 2.3, where each set of structural relations appears next to its corresponding reduced form expression. A detailed explana-

TABLE 2.3

MATHEMATICAL FORMULATION OF THE SET OF RELATIONS

DEVELOPED UNDER MODEL 2

ALTER-NATIVE	STRUCTURAL RELATIONS[1]	REDUCED FORMS[2]
2.A	$A'_{jk}=B'1_{jk}\hat{W}_{jj}$	$x_j=(I_{jj}-C'1_{kj}B'1_{jk})^{-1}\cdot z_j$
	$L'_{kj}=C'1_{kj}\hat{L}_{kk}$	$a_k=B'1_{jk}(I_{jj}-C'1_{kj}B'1_{jk})^{-1}\cdot z_j$
2.B	$A'_{jk}=B'2_{jk}\hat{W}_{jj}+D2_{jk}$	$x_j=(I_{jj}-C'2_{kj}B'2_{jk})^{-1}(b2_j+d2_j+z_j)$
	$L_{kj}=C'2_{kj}\hat{L}_{kk}+E2_{kj}$	$a_k=B'2_{jk}(I_{jj}-C'2_{kj}B'2_{jk})^{-1}(b2_j+d2_j+z_j)+C2_k$
2.C	$A_{jk}=B'3_{jk}\hat{W}_{jj}+\sum_{p=1}^{k}(F3_{jk}\hat{A}_{jk-1})_p$	$x_j=(I_{jj}-C'3_{kj}B'3_{jk})^{-1}(b3_{j-1}+f3_{j-1}+z_j)$
	$L_{kj}=C'3_{kj}\hat{L}_{kk}+\sum_{p=1}^{j}(G3_{kj}\hat{L}_{kj-1})_p$	$a_k=B'3_{jk}(I_{jj}-C'3_{kj}B'3_{jk})^{-1}(b3_{j-1}+f3_{j-1}+z_j)$
2.D	$A_{jk}=B'4_{jk}\hat{W}_{jj}+\sum_{p=1}^{k}(F4_{jk}\hat{A}_{jk-1})_p+D4_{jk}$	$x_j=(I_{jj}-C'4_{kj}B'4_{jk})^{-1}(b4_{j-1}+f4_{j-1}+c4_j+d4_j+z_j)$
	$L_{kj}=C'4_{kj}\hat{L}_{kk}+\sum_{p=1}^{j}(G4_{kj}\hat{L}_{kj-1})_p+E4_{kj}$	$a_k=B'4_{jk}(I_{jj}-C'4_{kj}B'4_{jk})^{-1}(b4_{j-1}+f4_{j-1}+c4_j+d4_j+z_j)+g4_{k-1}+c4_k$
2.E	$A_{jk}=B'5_{jk}\hat{W}_{jj}+\sum_{p=1}^{k}(F5_{jk}\hat{A}_{jk-1})_p+T'5_{jk}\hat{T}_{jj}$	$x_j=(I_{jj}-C'5_{kj}B'5_{jk})^{-1}(b5_{j-1}+f5_{j-1}+v5_j+t5_j+z_j)$
	$L_{kj}=C'5_{kj}\hat{L}_{kk}+\sum_{p=1}^{j}(G5_{kj}\hat{L}_{kj-1})_p+V'5_{kj}\hat{T}_{kk}$	$a_k=B'5_{jk}(I_{jj}-C'5_{kj}B'5_{jk})^{-1}(b5_{j-1}+f5_{j-1}+v5_j+t5_j+z_j)+g5_{k-1}+v5_k$
2.F	$A_{jk}=B'6_{jk}\hat{W}_{jj}+\sum_{p=1}^{k}(F6_{jk}\hat{A}_{jk-1})_p+T6'_{jk}\hat{T}_{jj}+D6_{jk}$	$x_j=(I_{jj}-C'6_{kj}B'6_{jk})^{-1}(b6_{j-1}+v6_j+c6_j+t6_j+d6_j+z_j)$
	$L_{kj}=L'6_{kj}\hat{L}_{kk}+\sum_{p=1}^{j}(G6_{kj}\hat{L}_{kj-1})_p+V'6_{kj}\hat{T}_{kk}+E6_{kj}$	$a_k=B'6_{jk}(I_{jj}-C'6_{kj}B'6_{jk})^{-1}(b6_{j-1}+v6_j+c6_j+f6_{j-1}+t6_j+d6_j+z_j)+g6_{k-1}+v6_k+c6_k$
2.G	$A_{jk}=B'7_{jk}\hat{W}_{jj}+T'7_{jk}\hat{T}_{jj}$	$x_j=(I_{jj}-C'7_{kj}B'7_{jk})^{-1}(v7_j+t7_j+z_j)$
	$L_{kj}=C'7_{kj}\hat{L}_{kk}+V'7_{kj}\hat{T}_{kk}$	$a_k=B'7_{jk}(I_{jj}-C'7_{kj}B'7_{jk})^{-1}(v7_j+t7_j+z_j)+v7_k$
2.H	$A_{jk}=B'8_{jk}\hat{W}_{jj}+T'8_{jk}\hat{T}_{jj}+D8_{jk}$	$x_j=(I_{jj}-C'8_{kj}B'8_{jk})^{-1}(v8_j+t8_j+b8_j+d8_j+z_j)$
	$L_{kj}=C'8_{kj}\hat{L}_{kk}+V'8_{kj}\hat{T}_{kk}+E8_{kj}$	$a_k=B'8_{jk}(I_{jj}-C'8_{kj}B'8_{jk})^{-1}(v8_j+t8_j+b8_j+d8_j+z_j)+v8_k+c8_k$

[1]The symbol "^" identifies a diagonal matrix. Thus, e.g., $\hat{W}_{jj}$ stands for the diagonal matrix corresponding to the vector w_j.

[2]The full derivations of the reduced forms is given in Appendix I.

tion of the first version (2.A) of MODEL 2 will clarify the theoretical basis of this alternative model.

In case (2.A) sectors are assumed to assign a fixed proportion of their wealth to each asset included in their portfolio. On the other hand, it is assumed that a fixed sectoral pattern of liability holding applies, i.e., each sector maintains a constant proportion of the amount of each financial liability outstanding. Thus typical equations of the system postulated in this case are:

$$a_{24} = bl_{24} \cdot w_4; \text{ and}$$

$$l_{16} = cl_{16} \cdot l_6$$

where bl_{24} indicates the proportion of wealth held in the form of financial asset 2 by sector 4. Similarly, the coefficient cl_{16} represents the market share of financial liability 6 held by sector 1.

The theoretical nature of the pattern of asset holding here assumed may be related to the theory of portfolio selection developed by Tobin (1965). It is proved there[1] that, in a world of imperfections in asset markets, in which the asset holder has an assortment of differently timed accumulation objectives, every portfolio would consist of an assignment of a proportion of wealth of each asset. By drawing the corresponding parallels between this theoretical structure and conventional input-output models, it is possible to define the Sectoral Financial Share Assumption and the Financial Market Technology Assumption. The former refers to sectoral portfolios (asset distribution) allocated according to given proportions of the sector's total wealth. The latter

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[1] Tobin (1965), p. 23.

identifies "technical" coefficients in terms of the sectoral share of a given liability (input) in the total market for the corresponding claim. The reduced form solutions identify a matrix multiplier $(I_{jj}-Cl'_{kj}Bl'_{jk})$ measuring the degree of financial interdependence existing in the economy according to the assumptions previously stated. In the present context such a matrix converts the vector z_j (net worth) into:

(i) the vector of total liabilities, x_j; and, using the Sectoral Financial Share Assumption,

(ii) the vector of total outstanding holdings of each financial claim as an asset, a_k.

As in model 1, the absence of any sort of financial intermediation in the economy would make the matrix multiplier a unit matrix. In the actual economy, where various forms of financial activity do occur, the effort of estimating the set of parameters that constitute the matrix multiplier becomes worthwhile, because they enhance the understanding of the intermediation process.

Alternatives (2.B) to (2.H) correspond to the various formulations of MODEL 1, so that further elaboration on their plausibility is left for the chapter dealing with empirical results.

c) COMPARISON OF MODEL 1 AND MODEL 2

Various useful observations emerge from the comparison of the two models of financial interdependence. First, the endogenous variables[1] of both MODEL 1 and MODEL 2 are the acquisition and issuing of

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[1]See footnote (p.16) concerning the use of the terms endogenous and exogenous in the present context.

the different financial claims by the various sectors. Second, while MODEL 1 takes sectoral tangible assets as the exogenous variable, MODEL 2 considers sectoral net worths as the exogenous one. An implication of the above is the resulting trade off between preferences over liabilities (MODEL 1) and preferences over assets (MODEL 2). The former assumes a pattern of liability financing such that "each sector's asset portfolio must be allowed to depart from its previous composition"[1], whereas the latter, by imposing a given pattern of asset acquisition requires that each sector's liability composition must be allowed to adjust in the event of new real sectoral investment programmes or saving decisions, respectively.

Those observations lead to two general statements about the application of the alternative models:

i) Knowledge of the sectoral tangible assets (e_j) in MODEL 1 permits the solution of the complete system for the vectors w_j and l_k. If, alternatively, e_j is replaced by the vector of sectoral investment programmes (Δe_j) for a particular period, a flow table, including changes in both sectoral total wealth and total outstanding amounts of financial liabilities would be obtained.

ii) Knowledge of the sectoral net worths (z_j) in MODEL 2 permits a reduced form solution of the system for x_j and a_k. If, alternatively, z_j is replaced by the vector of sectoral saving intentions (Δz_j) for a particular period, a flow table, including changes in both sectoral total liabilities and total outstanding amounts of financial assets, would be obtained.

Which model more closely fits the reality of financial behaviour in a particular economic system is an open empirical question. In Chapter V, conventional criteria will be used to determine the relative plausibility of the alternative models within the context of the Costa Rican economy.

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[1] Bain (1973), p. 1073

APPENDIX TO CHAPTER II

MATHEMATICAL DERIVATION OF THE REDUCED FORM EXPRESSIONS GIVEN FOR MODEL 1 AND MODEL 2

The full derivation[1] of the reduced form expressions given in Tables 2 and 3 involve the use of identities (1) to (4) developed in Chapter II. For convenience, those identities are repeated below[2];

(1) $w_j = x_j$

(2) $a_k = l_k$

(3) $w_j = A_{jk}.i_k + e_j$

(4) $x_j = L_{kj}.i_k + z_j$

ALTERNATIVE 1.A

The assumed behavioural relations are given by equations (5) and (6). Namely,

(5) $A_{jk} = Bl_{jk}\ \hat{A}_{kk}$

(6) $L_{kj} = Cl_{kj}\ \hat{X}_{jj}$

which may be expressed in an alternative manner, as in (7) and (8) respectively, by multiplying each expression by i_k or i_j.

(7) $A_{jk}.i_k = Bl_{jk}.a_k$

(8) $L_{kj}.i_j = Cl_{kj}.x_j = l_k$

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[1] The mechanics involved in deriving the alternative versions of MODEL 2 are omitted. They are similar to the ones illustrated for cases (1.A) to (1.H).

[2] Strictly speaking, there should be a time subscript with each of the variables listed in identities (1) to (4). In an effort to make the notation less confusing, such subscript has been ommitted.

Combining (3) and (7), in the first place, and (2) and (8) a posteriori, relations (9) and (10) are obtained;

$$(9)\quad w_j = Bl_{jk}.a_k + e_j$$

$$(10)\quad w_j = Bl_{jk}.Cl_{kj}.x_j + e_j$$

and, ultimately, by the combination of (1) and (10) on the one hand, and (8), (1) and (10), on the other, the reduced form expressions are derived, via equations (11) and (12)

$$(11)\quad w_j = (I_{jj}-Bl_{jk}.Cl_{kj})^{-1}.e_j$$

$$(12)\quad l_k = Cl_{kj}(I_{jj}-Bl_{jk}.Cl_{kj})^{-1}.e_j$$

ALTERNATIVE 1.B

The behavioural relations are given by,

$$(5)\quad A_{jk} = B2_{jk}\hat{A}_{kk} + D2_{jk}\ ;\ \text{and}$$

$$(6)\quad L_{kj} = C2_{kj}\hat{X}_{jj} + E2_{kj}$$

which after post-multiplying the first expression by i_k and the second by i_j, are denoted by (7) and (8).

$$(7)\quad A_{jk}.i_k = B2_{jk}.a_k + D2_{jk}.i_k$$

$$(8)\quad L_{kj}.i_j = C2_{kj}.x_j + E2_{kj}.i_j = l_k$$

The combination of (3) and (7), in the first place, and (2) and (8), as a second step, yields (9) and (10) below:

$$(9)\quad w_j = B2_{jk}.a_k + D2_{jk}.i_k + e_j$$

$$(10)\quad w_j = B2_{jk}.C2_{kj}.x_j + B2_{kj}.i_j + D2_{jk}.i_k + e_j$$

Finally, using (1) and (10), on the one hand, and (1), (8), and (10), on the other, allows for the derivation of the corresponding reduced form expressions. Namely,

$$(11)\quad w_j = (I_{jj}-B2_{jk}.C2_{kj})^{-1}(b2_j+d2_j+e_j);\ \text{and}$$

$$(12)\quad l_k = C2_{kj}\,(I_{jj}-B2_{jk}.C2_{kj}^{-1})(b2_j+d2_j+e_j) + C2_k$$

where,

$$b2_j = B2_{jk} \cdot E2_{kj} \cdot i_j$$

$$d2_j = D2_{jk} \cdot i_k$$

$$c2_k = E2_{kj} \cdot i_j$$

ALTERNATIVE 1.C

The corresponding structural relations are given in (5) and (6), below:

$$(5)\quad A_{jk} = B3_{jk}\,\hat{A}_{kk} + \sum_{p=1}^{j} (F3_{jk} \cdot \hat{A}_{jk_{-1}})_p$$

$$(6)\quad L_{kj} = C3_{kj}\,\hat{X}_{jj} + \sum_{p=1}^{k} (G3_{kj} \cdot \hat{L}_{kj_{-1}})_p$$

where,

$F3_{jk}$ = a (j x k) matrix with non-zero values in the j=p row, zero elsewhere.

$A_{jk_{-1}}$ = a diagonal (k x k) matrix, with its non-zero diagonal values corresponding to the lagged asset holdings of financial claim k by sector (j=p).

$G3_{kj}$ = a (k x j) matrix with non-zero values in the (k=p) row, zero elsewhere.

$L_{kj_{-1}}$ = a diagonal (j x j) matrix with its non-zero diagonal elements referring to the lagged liability holdings of financial claim (k=p) by sector j.

Postmultiplying (5) and (6) by i_k and i_j, respectively, alternative expressions may be obtained. Namely,

$$(7)\quad A_{jk} \cdot i_k = B3_{jk} \cdot a_k + f3_{j_{-1}}; \text{ and}$$

$$(8)\quad L_{kj} \cdot i_j = C3_{kj} \cdot x_j + g3_{k_{-1}} = l_k$$

where,

$$f3_{j_{-1}} = \sum_{p=1}^{j} (F3_{jk} \cdot A_{jk_{-1}}) \cdot i_k$$

$$g3_{k_{-1}} = \sum_{p=1}^{k} (G3_{kj} \cdot L_{kj_{-1}}) \cdot i_j$$

Combining firstly, (3) and (7), and secondly, (2) and (8), relations (9) and (10) are generated.

(9) $w_j = B3_{jk} \cdot a_k + f3_{j_{-1}} + e_j$

(10) $w_j = B3_{jk} \cdot C3_{kj} \cdot x_j + B3_{jk} \cdot g3_{k_{-1}} + f3_{j_{-1}} + e_j$

The final combination of (1) and (10), on the one hand, and (1), (8) and (10), on the other, allows for the derivation of the corresponding reduced form expressions.

(11) $w_j = (I_{jj} - B3_{jk} \cdot C3_{kj})^{-1} \cdot (b3_{j_{-1}} + f3_{j_{-1}} + e_j)$

(12) $l_k = C3_{kj} (I_{jj} - B3_{jk} \cdot C3_{kj})^{-1} \cdot (b3_{j_{-1}} + f3_{j_{-1}} + e_j)$

where

$b3_{j-1} = B3_{jk} \cdot g3_{k_{-1}}$

ALTERNATIVE 1.D

Starting from the behavioural relations given by (5) and (6),

(5) $A_{jk} = B4_{jk} \cdot \hat{A}_{kk} + \sum_{p=1}^{j} (F4_{jk} \cdot \hat{A}_{jk_{-1}})_p + D4_{jk}$

(6) $L_{kj} = C4_{kj} \cdot \hat{X}_{jj} + \sum_{p=1}^{k} (G4_{kj} \cdot \hat{L}_{kj_{-1}})_p + E4_{kj}$

it is possible to generate alternative expressions by post-multiplying (5) and (6) by i_k and i_j, respectively. Namely,

(7) $A_{jk} \cdot i_k = B4_{jk} \cdot a_k + f4_{j_{-1}} + d4_j$; and

(8) $L_{kj} \cdot i_j = C4_{kj} \cdot x_j + g4_{k_{-1}} + c4_k = l_k$

where $d4_j = D4_{jk} \cdot i_k$ and $C4_k = E4_{kj} \cdot i_j$. The expressions $f4_{j_{-1}}$ and $g4_{k_{-1}}$ follow similar definitions as the ones given in (1.C).

The combination of (3) and (7), firstly, and (2) and (8) secondly, brings out two new equations given by (9) and (10).

$$(9)\quad w_j = B4_{jk}.a_k + f4_{j_{-1}} + d4_j + e_j$$

$$(10)\quad w_j = B4_{jk}.C4_{kj}.x_j + B4_{jk}.g4_{k_{-1}} + B4_{jk}.C4_k + f4_{j-1} + d4_j + e_j$$

Finally after combining (1) and (10), on the one hand, and (1), (8) and (10), on the other, the derivation of the reduced form expressions is given by (11) and (12).

$$(11)\quad w_j = (I_{jj} - B4_{jk}.C4_{kj})^{-1}(b4_{j_{-1}} + f4_{j_{-1}} + c4_j + d4_j + e_j)$$

$$(12)\quad l_k = C4_{kj}\,(I_{jj} - B4_{jk}.C4_{kj})^{-1}(b4_{j_{-1}} + f4_{j_{-1}} + c4_j + d4_j + e_j) + g4_{k_{-1}} + c4_k$$

where

$$b4_{j-1} = B4_{jk}.g4_{k_{-1}}$$

$$c4_j = B4_{jk}.c_k$$

ALTERNATIVE 1.E

The corresponding behavioural relations are given by (5) and (6). T_k and T_j represent the time trend variable, given by a vector of k and j dimensions respectively.

$$(5)\quad A_{jk} = B5_{jk}\hat{A}_{kk} + \sum_{p=1}^{j}(F5_{jk}\hat{A}_{jk_{-1}})_p + T5_{jk}.\hat{T}_{kk}$$

$$(6)\quad L_{kj} = C5_{kj}\hat{X}_{jj} + \sum_{p=1}^{k}(G5_{kj}\hat{L}_{kj_{-1}})_p + V5_{kj}.\hat{T}_{jj}$$

Post-multiplying (5) and (6) by i_k and i_j, expressions (7) and (8) are obtained.

$$(7)\quad A_{jk}.i_k = B5_{jk}.a_k + f5_{j_{-1}} + T5_{jk}.t_k$$

$$(8)\quad L_{kj}.i_j = C5_{kj}.x_j + g5_{k_{-1}} + V5_{kj}.t_j = l_k$$

The combination of (3) and (7), firstly, and (2) and (8), secondly, yields equations (9) and (10). Namely,

$$(9)\quad w_j = B5_{jk}.a_k + f5_{j_{-1}} + T5_{jk}.t_k + e_j$$

$$(10)\quad w_j = B5_{jk}.C5_{kj}.x_j + B5_{jk}.g5_{k_{-1}} + B5_{jk}.V5_{kj} + f5_{j_{-1}} + T5_{jk}.t_k + e_j$$

And, finally, using (1) and (10), on the one hand, and (1), (8) and (10), on the other, yields the reduced form expressions given by (11) and (12).

$$(11)\quad w_j = (I_{jj} - B5_{jk}.C5_{kj})^{-1}(b5_{j_{-1}} + v5_j + t5_j + f5_{j_{-1}} + e_j)$$

$$(12)\quad l_k = C5_{kj}(I_{jj} - B5_{jk}.C5_{kj})^{-1}(b5_{j_{-1}} + v5_j + t5_j + f5_{j_{-1}} + e_j) + g5_{j_{-1}} + v5_k$$

where,

$$v5_j = B5_{jk}.V5_{kj}.t_j$$

$$t5_j = T5_{jk}.t_k$$

$$v5_k = V5_{kj}.t_j$$

ALTERNATIVE 1.F

The behavioural relations involved are outlined in (5) and (6)

$$(5)\quad A_{jk} = B6_{jk}\hat{A}_{jj} + \sum_{p=1}^{j}(F6_{jk}\hat{A}_{jk_{-1}})_p + T6_{jk}\hat{T}_{kk} + D6_{jk}$$

$$(6)\quad L_{kj} = C6_{kj}\hat{X}_{jj} + \sum_{p=1}^{k}(G6_{kj}\hat{L}_{kj_{-1}})_p + V6_{kj}\hat{T}_{jj} + E6_{kj}$$

Post-multiplying the above expressions by ik and ij, yields the following expressions:

$$(7)\quad A_{jk}.i_k = B6_{jk}.a_k + f6_{j_{-1}} + T6_{jk}\,tk + d6_j$$

$$(8)\quad L_{kj}.i_j = C6_{kj}.x_j + g6_{k_{-1}} + V6_{kj}\,t_j + c6_k = l_k$$

where

$$d6_j = D6_{jk} \cdot ik$$

$$c6_k = E6_{kj} \cdot i_j$$

The combination of (3) and (7) and (2) and (8) yields equations (9) and (10).

$$(9)\quad w_j = B6_{jk} \cdot a_k + f6_{j_{-1}} + T6_{jk} t_k + d6_j + e_j$$

$$(10)\quad w_j = B6_{jk} \cdot C6_{kj} \cdot x_j + B6_{jk} g6_{k_{-1}} + B6_{jk} V6_{kj} t_j + B6_{jk} \cdot C6_k + f6_{j_{-1}} + T6_{jk} t_k + d6_j + e_j$$

and the final combination of (1) and (10), on the one hand, and (1), (8) and (10), on the other, yields the reduced forms, as in (11) and (12).

$$(11)\quad w_j = (I_{jj} - B6_{jk} C6_{jk}^{-1})(b6_{j_{-1}} + v6_j + c6_j + f6_j + t6_j + d6_j + e_j)$$

$$(12)\quad l_k = C6_{kj}(I_{jj} - B6_{jk} C6_{kj}^{-1})(b6_{i_{-1}} + v6_j + c6_j + f6_{j_{-1}} + t6_j + e_j) + v6_k + c6_k + g6_{k_{-1}}$$

where

$$c6_j = B6_{jk} \cdot c6_k$$

ALTERNATIVE 1.G

The structural relations are given by (5) and (6)

$$(5)\quad A_{jk} = B7_{jk} \hat{A}_{kk} + T7_{jk} \hat{T}_{kk}$$

$$(6)\quad L_{kj} = C7_{kj} \hat{X}_{jj} + V7_{kj} \hat{T}_{jj}$$

Post-multiplying the above expressions by i_k and i_j, yields alternative expressions, as given by (7) and (8)

$$(7)\quad A_{jk} \cdot i_k = B7_{jk} a_k + T7_{jk} t_k$$

$$(8)\quad L_{kj} \cdot i_j = C7_{kj} x_j + V7_{kj} t_j = l_k$$

After combining (3) and (7), in the first place, and (2) and (8), in the second, relations (9) and (10) are obtained;

$$(9)\quad w_j = B7_{jk} \cdot a_k + T7_{jk} t_k + e_j$$

$$(10)\quad w_j = B7_{jk} C7_{kj} x_j + B7_{jk} V7_{kj} t_j + T7_{jk} t_k + e_j$$

and finally, pooling (1) and (10), on the one hand, and (1), (8) and (10), on the other, yields the corresponding reduced form expressions. Namely,

$$(11)\quad w_j = (I_{jj} - B7_{jk} C7_{kj}^{-1})(v_{7_j} + t_{7_j} + e_j)$$

$$(12)\quad 1_k = C7_{kj}(I_{jj} - B7_{jk} C7_{kj}^{-1})(v_{7_j} + t_{7_j} + e_j) + v_{7_k}$$

ALTERNATIVE 1.H

The structural relations are given by (5) and (6). Namely,

$$(5)\quad A_{jk} = B8_{jk} \hat{A}_{kk} + T8_{jk} \hat{T}_{kf} + D8_{jk}$$

$$(6)\quad L_{kj} = C8_{kj} \hat{X}_{jj} + V8_{kj} \hat{T}_{jj} + E8_{kj}$$

After post-multiplying (5) and (6) by i_k and i_j respectively, an alternative version of the above equations is obtained. Thus:

$$(7)\quad A_{jk} ik = B8_{jk} a_k + T8_{jk} t_k + d_{8_j}$$

$$(8)\quad L_{kj} i_j = C8_{kj} x_j + V8_{kj} t_j + c_{8_k} = 1_k$$

The combination of (3) and (7), and (2) and (8), yields the set of equations summarized by (9) and (10).

$$(9)\quad w_j = B8_{jk} a_k + T8_{jk} t_k + d_{8_j} + e_j$$

$$(10)\quad w_j = B8_{jk} C8_{kj} x_j + B8_{jk} V8_{kj} t_j + B8_{jk} C8_k + T8_{jk} t_k + d_{8_j} + e_j$$

Bringing together (1) and (10), on the one hand, and (1), (8) and (10) yields the reduced form expressions, as given by (11) and (12).

$$(11)\quad w_j = (I_{jj} - B8_{jk} C8_{kj}^{-1})\ (v_{8_j} + t8_j + b_{8_j} + d_{8_j} + e_j)$$

$$(12)\quad l_k = C8_{kj}(I_{jj} - B8_{jk} C8_{kj}^{-1})(v_{8_j} + t_{8_j} + b_{8_j} + d_{8_j} + e_j) + v_{8_k} + c_{8_k}$$

CHAPTER III

A SUGGESTED STRUCTURAL ORGANIZATION OF THE COSTA RICAN FINANCIAL SYSTEM

1. INTRODUCTION

In this chapter the basic framework used to analyze the Costa Rican Financial System is described. First, a tentative structure within which a model of the financial system can be formulated is suggested. Second, the corresponding statistical tables are constructed for the period 1961-1975, using, in many instances, unpublished, raw sources of data. It is expected that such tables will be periodically updated and incorporated into a series of publications which describe financial developments in Costa Rica. An illustration of such a type of periodical study is given in Chapter IV, where the evolution of the Costa Rican financial system is discussed on the basis of the body of data introduced in this chapter. The suggested structure is flexible enough to allow for further disaggregation and more detailed elaborations in the near future.

The sections that follow elaborate on four fundamental methodological issues:

a) sectoral classification

b) the financial instruments involved in the different intersectoral transactions.

c) the criteria involved in the construction of the sectoral financial accounts, particularly with respect to format of the tables, sources of data and other general assumptions.

d) the estimation of sectoral tangible assets and net worths,

information which is essential to the applications developed in chapters IV and V.

2. SECTORAL CLASSIFICATION

Four major economic sectors have been defined, each of which is supposed to represent a group of economic units with a rather similar economic behaviour. The sectors defined are given below;

A. The Financial Sector

B. The Government Sector

C. The Private Sector

D. The Foreign Sector

A. THE FINANCIAL SECTOR

The information obtained for this sector summarizes the activities of the institutions performing the intermediary role of bringing together surplus and deficit spending economic units[1] in their effort to finance the different forms of economic activites existing in the country. In constructing the accounts for the financial sector, it has been possible to distinguish four subsectors; namely,

A.1 the central bank

A.2 the government-owned commercial banks

A.3 the government-owned non-banks

A.4 the private financial intermediaries

Table 1 gives in summary form the institutional coverage for the Financial Sector, which in fact was the only sector for which the available data permitted a subsectoral classification.

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[1] Surplus spending economic units are generally called the "savers" of the economy, i.e., income exceeds expenditure in a given time period. Conversely, deficit spending units are the "dissavers" of the economy, i.e. income is less than expenditure in a given time period.

TABLE 3.1 : ORGANIZATION OF THE FINANCIAL SECTOR

A.1 The Central Bank

A.2 The Government-Owned Commercial Banks (4)*

A.3 The Government-Owned Non-Banks

1. Mortgage Departments (4)*
2. Rural Credit Department
3. Investment Banking Sections (4)*
4. Cooperative Development Institute
5. Community Development Bank
6. Costa Rican Development Corporation
7. National Insurance Institute
8. Costa Rican Social Security Board
9. National Housing and Urban Institute
10. Public Enterprises (2)*

A.4 The Private Financial Institutions

1. Private Commercial Banks (5)*
2. Private Finance Companies (...)*

The Central Bank A.1 was established in 1950. It has a monopoly in the issuing of currency and major authority to implement monetary policy. Since the most important financial intermediaries operating in the country are government owned, the Central Bank has ample controls over their operations[1]. In 1973 it acquired certain controls over the

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*Number of institutions. When not shown the number is one. The symbol (...) indicated unavailable figures.

[1] As the different groups of financial intermediaries are discussed, a more detailed account of the Central Bank's instruments of control will be presented.

operations of the private financial intermediaries. The institution is authorized to apply policy instruments for correcting balance of payments disequilibria, and may establish qualitative as well as quantitative controls on imports. It also engages in financial operations in the foreign sector, serving as a guarantor and financing institution for many of the economic activities of the government sector. Finally, it is worth noting that the Central Bank is the fiscal agent of the government, and as such performs the functions of revenue collection and debt management for the government sector.

The government-owned commercial banks (A.2) represent the major form of financial intermediation in the Costa Rican economy. Their operations are strictly controlled by the Central Bank in various ways. Firstly, an annual monetary budget is elaborated at the beginning of each year, determining credit expansion targets for the commercial banks according to overall policy objectives and indicators of economic activity in the country[1]. In other words, the lending activities of the commercial banks are subject to qualitative and quantitative measures, aimed at channeling their financial resources towards those sectors regarded as basic for the developmental goals of the national authorities. Secondly, commercial banks are subject to legal reserve requirements on their deposits and other obligations, and thirdly, are allowed to effect rediscount operations with the Central Bank. The interest rates paid on deposits or charged on loans are also administered by the Central Bank.

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[1] The monetary budget is subject to periodic revisions throughout the year.

Finally, insofar as foreign indebtedness is concerned, commercial banks need the Central Bank's approval when borrowing abroad.

The sub-sector formed by the government-owned non-bank financial intermediaries (A.3) has experienced a considerable growth over the last years. It embodies the set of entities whose main activity centres around the financing of medium and long term projects. The institutional structure that characterizes this subsector is quite heterogeneous and their operations somewhat diversified. Below are some distinguishing features of the different institutions grouped under this heading (see Table 1):

The Mortgage Departments, the Rural Credit Department, and The Investment Banking Sections operate within the public commercial banks' organization. In other words, they do not constitute separate institutions but operate via departments or sections of the established commercial banks. The Mortgage Departments concentrate their activities in the financing of residential construction. The Rural Credit Department deals exclusively with the financing of the activities of small farmers. The Investment Banking Sections are of recent origin[1] and were created primarily to compete with the private finance companies, whose operations expanded quite rapidly over the 1960's. As a result of an aggressive policy of highly competitive interest rates, the Investment Sections have been able to capture a considerable amount of financial resources, particularly via long term deposits.

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[1] Their operations started in 1971. Disaggregated data on their activities became available in 1973.

The Cooperative Development Institute began operations in June, 1973 as an independent non-bank intermediary. Formerly it was a department of a commercial bank. Its main objectives are to promote and finance cooperativism within the country. The institution can apply for rediscount facilitities with the Central Bank, and is subject to credit controls by the Central Bank.

The Community Development Bank is another institution of fairly recent origin. Its operations began in 1969 with the objective of providing lower income workers with access to bank credit at reasonable cost. The Bank finances its operations from three sources:

a) compulsory savings deposits by the wage earners of an amount equal to 1 per cent of wages and salaries,
b) compulsory charges on employers of 1/2 per cent of wages and salaries paid,
c) voluntary savings deposits by the general public.

The institution is subject to a 10 per cent legal reserve requirement, and most of its lending activities have been directed towards housing financing.

The Costa Rican Development Corporation was created in November 1972 as a semi-official development institution, with the government underwriting 67 per cent of its capital. Its main function corresponds to promoting the economic development of the country within the framework of a mixed economy. The institution may rediscount from the Central Bank, is not subject to legal reserve requirements, and operates under the supervision of the Ministries of Economy and Finance, the Planning Office, and the Central Bank.

The National Insurance Institute is a government owned institution with a monopoly of the country's insurance business for over the last

fifty years. Its risk-carrying operations are backed by its own reserves and re-insurance abroad. The institution grants loans to holders of two year-old policies for residential construction.

The Costa Rican Social Security Board is a public autonomous institution in charge of most of the social insurances established in the country. Compulsory coverage of the social insurance system to all citizens is currently being implemented, with the consequent expansion of the financial activities of the institution. Its main source of funds originates from obligatory premiums paid by wage earners and employers both at the private and public levels. Over the years, the institution has played a major role in the financing of the government's internal debt via the acquisition of government bonds to cover for unpaid contributions.

The National Housing and Urban Institute represents another state owned entity concentrating in the financing of residential construction for low and medium income families. It also provides financing for the purchase of existing housing units. The lending operations of the institution are financed out of its own capital and reserves, bond placements, government contributions, and loans from foreign private and public institutions.

The Costa Rican Electricity Institute and The National Water and Sewage Board are considered to be the major non-bank public enterprise institutions with well defined activities in the financial spheres, particularly with respect to bond market operations and borrowing from foreign sources for the financing of their numerous long term projects.

Finally a brief reference will be made to the Private Financial

Institutions, in which the private commercial bank and private finance companies are included. As noted above, the operation of private financial institutions has been restricted and discouraged by the authorities, in an effort to let government owned financial institutions carry on the mobilization of national savings in accordance with given developmental objectives. Thus, as a general rule, private commercial banks can not accept deposits from the domestic private sector, being limited to work with their own capital resources and borrowing from abroad. As far as the private finance companies are concerned, a large number of them emerged in the late 1960's concentrating their lending activities on the gaps left by the public financial institutions; mainly, commercial operations and consumers' credit. As of 1972 and 1973, several measures were undertaken by the monetary authorities in an effort to control their operations[1]. Consequently most of the smaller companies disappeared and the remaining ones are subject to legal controls by the Central Bank, and the auditing of the Superintendency of Banks.

B. THE GOVERNMENT SECTOR

The information compiled for this sector combines the accounts of the central government and other government institutions included in the statistical reports of the sector. Since the Costa Rican government's role in the economy is large, the description and analysis of the government sector accounts are of great importance. It may have been desirable to look at separate subsectors within this large sector,

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[1] The main regulations were concerned with minimum capital requirements, maximum interest rates, terms of the lending operations, compositions of their lending activities and legal reserve requirements.

e.g., local authorities, general government and government enterprises, but lack of disaggregated data prevented this. At any rate the analysis conducted in chapter IV about the role of the government sector in the context defined here provides a valuable overall perspective that should encourage further research in this area.

C. THE PRIVATE SECTOR

The financial statistics obtained for this group of economic units do not permit a clear-cut distinction between the household and business sub-sectors. From an analytical point of view, the inability to disaggregate these subsectors may constitute a limiting factor if it is believed that the nature of economic activities differs considerably across them. Using flow of funds terminology, various country studies[1] about the financial behaviour of the household sector show it to be a net saver, whereas the business sub-sector behaves as a net investor (dissaver). In general terms, the analysis of the data compiled for this sector (chapter IV) gives evidence that it is an aggregate net investor. This would be compatible with net saving by the households which is more than compensated by the net investment of the business sector. Again the general insights emerging from the present study should serve as the basis for further research.

D. THE FOREIGN SECTOR

The accounts for the foreign sector summarize the economy's

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[1] See for example, Wood (1959) and Goldsmith (1965).

relationships with external economic units. The fact that Costa Rica constitutes a small open economy with a rather limited domestic productive capacity, gives this sector a singular importance in the workings of the Costa Rican financial system. Over the years the country has experienced a consistent current account deficit, the financing of which, has been made possible via capital imports. In fact external institutions constitute a basic source of financing for all the domestic sectors. Thus the analysis of developments between the foreign sector and the domestic sectors is of crucial importance for the understanding of the process of financial intermediation inside the country, and its role in stimulating economic development.

3. FINANCIAL INSTRUMENTS

The intersectoral relations in any financial system take place via financial instruments that may be classified in two major groups.

A. Those explicitly designed to mobilize real capital resources, such as stocks, headquarter contributions, and more generally all those instruments that guarantee property rights and offer a variable rent.

B. Those instruments which are essentially of a credit nature, such as bankloans, mortgages, bonds, and more generally all those instruments offering a fixed rent and with no property right stipulations.

Referring concretely to the financial instruments involved in the intersectoral transactions of the Costa Rican financial system, it is interesting to observe that the great bulk of the country's financial activity is developed mainly through financial instruments of the credit

nature defined above. Thus, by way of illustration[1], the main financial assets of the Central Bank, on the one hand, are constituted by loans to financial institutions and the government sector, rediscounts to the banking system, government bonds and international financial claims. The Private Sector, on the other hand, concentrates its holdings of financial assets in terms of currency, various types of bank deposits, government bonds and insurance reserves. Most of the transactions involving financial instruments of the capital nature type may be assumed to occur between the households and business enterprises. The extensive work done by Goldsmith (1969) on comparative financial structures and development, would classify the type of financial structure existing in Costa Rica in category 7. Accordingly, this category is characterized by a financial structure in which financial instruments of the credit nature type predominate in intersectoral transactions, and commercial banks constitute the major form of financial intermediation. Other countries included in this category[2] are Spain, rest of Latin America, India and Egypt.

4. THE CONSTRUCTION OF THE SECTORAL FINANCIAL ACCOUNTS

Tables 1 to 14 (Statistical Appendix) summarize the constructed sectoral financial accounts for all the years included in the period 1961-1975. The classification used is described in section 2 of this chapter. Such data constitute the basic information from which detailed quantitative insights will be estimated in the chapters ahead. The

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[1] See Chapter IV where these aspects are discussed in detail.

[2] Goldsmith (1969), pp. 32-34.

statistical series involved in such tables were generated by examining the various institutions' yearly statements of accounts, and distinguishing between type of claim transacted and sector of origin. Thus each table is given in stock form and organized according to sectoral source and type of financial instrument used in the intersectoral transactions. Thus by looking at table 1, for example, it is observed that, in 1961, the financial assets of the Central Bank totalled[1] 490.2 millions of colones, out of which 45.1 per cent originated from transactions with the commercial banks, 13.6 per cent with the non-banks, 9.0 per cent with the government sector, and the remaining with the foreign sector. A large percentage (36.3)of the Central Bank's assets for that particular year was held in the form of loans to the different domestic sectors, followed by 27.3 per cent held in the form of rediscounts to the commercial banks, and 17.0 per cent in different international assets.

A.SOURCES OF DATA

The data for the financial sector was the most readily available and constituted the essential source to complete the sectoral accounts incorporated in tables 1 to 14. In order to facilitate future updating and revising of the tables, an attempt was made at utilizing as much as possible published statistical material. Unfortunately most of this information appears in a rather aggregated form, so that specific reliance was made on internal accounting reports which provided much of the statistical disaggregation required. The set of sources of data

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[1] All figures in the tables are given in Costa Rican colones. Currently there is a fixed rate of 8.6 colones per U.S. dollars.

employed for the construction of these accounts includes the following:

a) Informe Anual de la Auditoris General de Bancos, various issues.

b) Balance de Situacion, Banco Central de Costa Rica, various issues.

c) Libros Auxiliares de contabilidad, Bancs Central, various issues.

d) Cuentas Monetaries and Boletin Estadistico, Banco Central, various issues.

e) Memoria Anual de Hacienda Publica, Ministerio de Hacienda, various issues.

f) Statistical Appendix of Salas and Gutierrez (1973).

g) various statistical reports of government institutions.

h) Memoria Anual de la Contraloria General de la Republica, various issues.

With regard to the private financial institutions, the information obtained is somewhat incomplete. The financial reports given by these institutions to the Central Bank are on a voluntary basis, so that series of information available reflect the fact that some institutions do not provide data on a regular basis. Nevertheless some general perspectives about the evolution and behaviour of these institutions should emerge out of the limited quantitative and qualitative information available.

The estimation of the intersectoral transactions between the private sector and the foreign sector was restricted to unpublished Central Bank calculations of accumulated private foreign debt by type of obligation for the period 1967-1975[1].

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[1]The missing data for the period 1961-1966 was estimated by calculating individual growth rates for the years 1967-1975, taking an average growth rate for such a period, and assuming that such average growth rate prevailed over the period 1961-1966.

Since the original Central Bank calculations were given in U.S. dollars, the conversion to Costa Rican colones was done via the "effective" exchange rate - generally different from the official rate - calculated by the Central Bank. Finally it must be emphasized that the overall estimations of the relations between the private and the foreign sector are only approximations to the real situation, since the data available are based on transactions effected through the national banking system and does not incorporate any of the direct dealings between such sectors.

The construction of the table was greatly faciliated by the existance of a set of data previously compiled by Salas and Gutierrez (1973) with the purpose of setting up a system of flow of funds in Costa Rica. Despite the fact that their approach and objectives were somewhat different to the present one, many of the data were collected by those authors for the period 1961-1969 were of considerable use in this study.

B. GENERAL ASSUMPTIONS

It is evident that in the development of research project of this type some simplifying assumptions must be implemented in order to accomplish the stated goals.

Throughout the process of construction of the accounts there was a considerable application of the concept that the financial assets (liabilities) of a given sector are at the same time the financial liabilities (assets) of the other sectors in the economy. The use of this accounting identity was particularly crucial in the elaboration of the accounts for both, the private sector and the foreign sector, since no original source of data was available for either of these sectors. Thus

for example, the financial assets of the Central Bank with the private sector were recorded simultaneously as financial liabilities of the private sector with the Central Bank. Furthermore such an identity was generalized to facilitate the closing of all the sectoral accounts. In order to avoid any sort of inconsistencies arising from the use of various sources of data, the information obtained from the Central Bank and the General Superintendency of Banks was regarded as the most accurate, and hence the one recorded in the tables[1]. In general terms it was assumed that by capturing the main features of the Costa Rican financial system, considerable improvement could be made insofar as understanding the effects of different economic policies. This in turn would stimulate further more refined work in this particular area. The application of such an assumption manifested itself in terms of the definition of broad economic sectors and the deliberate effort to disregard minor - generally undefined - items included in the different individual sources of data examined. Thus when the entry other assets (liabilities) appeared in any of the individual accounts, and there was no possibility of defining exactly what was included there, the entry was eliminated. A particular example relates to currency holdings by the different sectors. It was observed that in all the years under study, currency holdings by the private sector and the commercial banks accounted for a least 98 per cent of the total outstanding. Furthermore, obtaining the exact individual currency holdings for the rest of the institutions would have

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[1] If for instance Central Bank data on financial assets of the Central Bank with the non-banks did not coincide with the relevant data provided by the non-banks, the information recorded in both entries of the constructed tables was the one from the Central Bank source.

been quite costly and, to a certain extent, irrelevant for the purpose of the study. Therefore, it was assumed that currency was held only by commercial banks and the private sector[1]. Finally, given the double entry nature of the data being recorded, the possibility of discrepancies was eliminated by relying, when needed, on the source considered most accurate.

C. FORMULATION OF THE FINANCIAL STOCKS INTERRELATION MATRIX

The financial stocks interrelation matrix (FSIM) constitutes a quantitative indicator of the consolidated financial assets and liabilities of the economic sectors of the country. It permits the observation, in a condensed way, of the sectoral financial interrelations occurring at any point of time. Having information on more than one FSIM, allows for the analysis of sectoral flows of funds between two periods of time, thus providing useful insights into the magnitude and direction of the financial flows taking place among the sectors of the economy[2].

Tables 15 to 29 include the FSIM formulated for each of the years ranging from 1961 to 1975. Each table is organized as a 7 x 7 matrix, the columns showing the financial liabilities of the different sectors, whereas the rows stand for the assets of the corresponding sectors. The sectoral classification is identical to the one described at the beginning of the chapter, where the financial sector appears disaggregated into four subsectors.

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[1] Interviews with Central Bank technicians brought out the fact the for policy purposes they consider currency holdings by the private sector and commercial banks as the relevant variable, and ignore all other minor holdings.

[2] See Chapter 4 for an application of such ideas for selected periods between 1961 and 1975.

The source of information used to formulate each of the FSIM is the data reported in Tables 1 to 14, where the financial assets (liabilities) of each sector (subsector) are given in stock form and main type of financial claim. Thus, by way of illustration, the totals of the first column of Table 1 (Financial Assets of the Central Bank, 1961) correspond to the asset values reported for the Central Bank in the first row of the FSIM for 1961 (Table 15).

5. ESTIMATION OF SECTORAL TANGIBLE ASSETS AND NET WORTH

A complete empirical verification of the theoretical models described in Chapter 2, requires, in addition to sectoral financial accounts, information on sectoral tangible assets and net worth. One widely recognized limitation when dealing with developing countries, is the lack of estimates of the value of total wealth, let alone the possible estimation of a sectoral disaggregation of tangible assets and net worth. Thus in order to complete the statistical base required to conduct the empirical estimations, a simple methodology was devised to generate the missing "real" stock data. It is evident that "accurate" measures of wealth would need a more complete and comprehensive approach which lies beyond the scope of this study. Nevertheless, the wide uses that this type of data may have (such as the ones illustrated in chapter IV and V) make worthwhile the efforts to approximate[1] the actual values of these figures, with the hope that they can be improved in the near future. The resulting estimates of real assets and net worth for the

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[1] The methodology employed is described fully in the appendix to this chapter.

period 1961 to 1975, are summarized in tables 30 to 34 of the statistical appendix, where sectoral financial and real accounts are coupled in order to generate aggregate and sectoral balance sheet statements. The financial components of such tables originate from the financial accounts given in Tables 1 to 15.

APPENDIX TO CHAPTER 111

THE ESTIMATION OF SECTORAL TANGIBLE ASSETS AND NET WORTHS

A. AGGREGATE AND SECTORAL TANGIBLE ASSETS

The benchmark suggested to start accumulating the aggregate Capital stock of the Costa Rican economy was 1956, when according to a United Nations study (1957), the output-capital ratio for the Latin American region, in 1950 prices, was of 0.40. Thus, assuming such measure holds for Costa Rica,

$$(GDP/P)_{1956} / (K/Pk)_{1956} = 0.40$$

where, GDP = Gross Domestic Product at factor cost, current prices

P = Wholesale Price Index, 1950 = 100

K = Stock of Capital

Pk = Price of Capital approximated by the Industrial Goods Price Index of the U.S., 1950 = 100

Solving for K, and given values of 1922.3 million colones, 116.4 and 95.2 for GDP, Pk and P, respectively, the corresponding value for the aggregate stock of Capital in 1956 turns out to be 5875.94 millions of colones. Given aggregate net investment figures for the years 1957 to 1961 of 330.5, 290.8, 344.5, 333.1 and 376.9 millions of colones, in chronological order, the accumulated capital stock figure for 1961 becomes 7551.7 millions of colones.

In order to be able to generate the complete sectoral tangible assets' data for the period 1961-1975, two steps had to be followed.

First, sectoral net investment data was compiled for the period 1962-1975, as shown in Table 3.2, so that a criterion was required to allocate the aggregate Capital stock among the different sectors for the initial year, 1961. The corresponding accumulation of net sectoral investment data to the benchmark stock of capital for each sector would provide the required data on sectoral tangible assets for the period 1961-1975.

Defining an equation relating depreciation allowances (D_t) to the stock of Capital (K_t), of the form

(a) $D_t = d\ K_t$

two assumptions relating the overall d (depreciation rate) to the sectoral d, and the sectoral depreciation allowance (D_j) to the aggregate depreciation figure were made. Namely,

(b) $d = d_j$, for all j ; and

(c) $D_{jt} = {}^{c}D_t$

where $c = \frac{1}{t} \sum_{t=1962}^{1975} \frac{I_{jt}}{I_t}$

Assumption (b) states that the overall depreciation rate is identical for all sectors. Assumption (c) defines a constant proportion of sectoral depreciation to total depreciation, given by the average sectoral share of investment in the total investment during the period 1962-1975.

It follows from (a) and (b) that,

(d) $D_{jt} = d\ K_{jt}$

and from (a), (c) and (d) it is found that

(e) $K_{jt} = c\ K_t$

TABLE 3.2

COSTA RICA: AGGREGATE AND SECTORAL INVESTMENT - 1962-1975

Year	Aggregate Net Investment	Finc. Sector	Gov't Sector	Private Sector	Foreign Sector
1962	428.5	52.7	91.6	311.4	-27.2
1963	434.4	73.4	143.1	254.4	-36.5
1964	358.3	183.4	77.0	297.4	-199.5
1965	528.0	91.6	120.3	171.3	144.8
1966	561.5	66.5	201.1	209.8	84.1
1967	612.5	-44.4	171.2	191.9	293.8
1968	600.2	86.9	193.2	296.5	23.6
1969	779.2	60.4	138.1	271.4	309.3
1970	924.4	51.3	217.9	649.9	5.3
1971	1287.2	52.9	446.9	787.6	-.2
1972	1306.1	260.9	386.9	295.8	362.5
1973	1871.2	420.8	721.1	563.0	166.3
1974	2748.9	377.5	965.8	1512.7	-107.1
1975	3325.2	1423.3	866.9	987.4	47.6

SOURCE:
U.N. Yearbook of National Accounts' Statistics,
Central Bank of Costa Rica, and author's own calculations.

The estimated C_j's, given the investment figures of Table II.1 are the following;

Financial Sector = 0.167

Government Sector = 0.286

Private Sector = 0.486

Foreign Sector = 0.061

and correspondingly, the sectoral capital stocks for 1961 are the following:

Financial Sector = 1260.8 millions of colones

Government Sector = 2161.3 millions of colones

Private Sector = 3670.8 millions of colones

Foreign Sector = 458.8 millions of colones

Aggregate capital stock= 7551.7 millions of colones

The complete figures corresponding to the period 1961-1975 are given in tables 33-37 of the text.

B. AGGREGATE AND SECTORAL NET WORTHS

Using the balance sheet identity that total assets equal total liabilities, made possible the estimation of the sectoral net worths. From identity (f)

(f) $A_{jk} \cdot ik + C_j = L'_{kj} \cdot i_k + Z_j$

which states that for any given sector j, the sum of the financial and tangible assets equals the sum of the financial liabilites and net worth. Solving for Z_j,

(g) $Z_j = A_{jk} \cdot i_k + C_j - L'_{kj} \cdot i_k$

and since all the right hand elements of (g) are already known, Z_j comes

out as a residual item. Therefore, the resulting sectoral net worth estimates are given in tables 31 to 34 of the statistical appendix. By definition, the aggregate tangible assets equal the aggregate net worth.

CHAPTER IV

THE EVOLUTION OF THE COSTA RICAN FINANCIAL SYSTEM: 1961-1975.

1. INTRODUCTION

The purpose of this chapter is to illustrate a particular way in which the body of data referred to in Chapter III may be utilized. The object is to describe and analyze financial developments in the Costa Rican economy during the period 1961-1975. The various indicators of change in the financial system introduced in the present context are not exhaustive of the large number of possible uses of the available financial data. Rather the emphasis is upon describing and analyzing the relative size of the financial superstructure, as well as its composition and distribution, and the sectoral sources and uses of funds at any given point or period of time. The analytical framework utilized is expected to supply policy makers with a valuable set of indicators about financial developments in the country. The updating of such indicators would involve simple techniques, thus making highly viable the possibility of incorporating this type of analysis into the periodic publications of the monetary authorities.

2. INDICATORS OF THE EVOLUTION OF THE FINANCIAL SYSTEM

A. RELATIVE SIZE OF THE FINANCIAL SUPERSTRUCTURE

Table 4.1 presents the calculated values of the Financial Interrelation Ratio (FIR) for each of the years ranging from 1961 to 1975.

TABLE 4.1

THE FINANCIAL INTERRELATION RATIO: 1961-1975

Year	Total Finc. Claims	Total Real Assets	Finc. Interr Ratio (FIR)
1961	3574.2	7551.7	0.473
1962	3958.9	7980.2	0.496
1963	4553.5	8414.6	0.541
1964	5294.1	8772.9	0.603
1965	6190.4	9300.9	0.666
1966	6744.4	9862.4	0.684
1967	7433.4	10474.6	0.710
1968	8383.8	11075.1	0.757
1969	9241.7	11854.3	0.780
1970	10722.5	12778.6	0.837
1971	13742.2	14065.9	0.977
1972	16109.7	15371.9	1.048
1973	18908.4	17243.2	1.097
1974	25409.4	19992.1	1.271
1975	31563.9	23317.2	1.354

SOURCE:
Statistical Appendix

Such a coefficient measures the relative size of the financial superstructure by relating total financial claims to total real assets at different points of time. Thus

(1) FIR = TFC/TTA

where TTA = total tangible assets, and TFC = total financial claims. The larger the value of FIR, the larger the size of the financial superstructure with respect to the real infrastructure. As observed in Table 4.1, the FIR coefficient values have increased steadily during the period of study. Such a finding lends empirical support to the hypothesis that the FIR increases during the process of economic growth as the activities of the financial system expand more rapidly than the real infrastructure. Thus while in 1961 the FIR was only 0.473, by 1970 was 0.839, reaching a peak value of 1.354 in 1975. Such a rapid growth in this indicator may be the response to the relative stability experienced by the Costa Rican economy during the sample period, coupled with the active role played by government-owned financial institutions (mainly the nationalized commercial banks) in promoting banking opportunities and wider access to credit facilities.

Goldsmith[1] computed the 1960 FIR values for a selected number of countries which did not include Costa Rica. By way of comparison, the Costa Rican FIR for 1961 comes quite close to the estimates given for Mexico and Argentina (approximately 0.50) but lower than the FIR given for Japan (1.70), Canada (0.91) and the United States (1.35).

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[1]Goldsmith (1969)

B. COMPOSITION OF THE FINANCIAL SUPERSTRUCTURE

The relative importance of the financial instruments involved in the intersectoral transactions is expected to undergo a process of adjustments as the activities of the financial system expand throughout the years. The same adjustment consideration holds true with respect to the distribution among economic sectors of the total financial claims outstanding at different points of time. The former aspect is summarized quantitatively, for selected years, in Table 4.2. The analysis of such statistical information leads to the following remarks:

a) The aggregate stock of financial instruments increased very rapidly during the period 1961-1975, moving from a level of 3574.2 millions of colones in the initial year to 31563.9 millions of colones in the last year. Comparing rates of growth for the periods 1961-1964 and 1972-1975 it is observed that in the former the average annual growth rate of the aggregate financial stock amounted to 16.0%, whereas the latter experienced an average annual growth rate of 32.0%. Such figures reflect a rapid process of "monetization" in the Costa Rican economy during the sample period.

b) Looking at some of the individual financial instruments reported in table 4.2, it is worth noting how currency has diminished in relative importance in the total stock of financial instruments outstanding at different points of time. Thus while in 1961 its participation amounted to 6.1% of the total, by 1975 the corresponding percentage dropped to 3.3, in spite of the approximately fivefold increase in its nominal level between 1961 and 1975. Demand deposits exhibited a less pronounced decline in relative participation, moving from 11.6% in 1961

TABLE 4.2

DISTRIBUTION OF TOTAL FINANCIAL INSTRUMENTS OUTSTANDING AND THEIR RELATION TO NATIONAL TANGIBLE ASSETS

- millions of colones -

FINANCIAL INSTRUMENTS	AMOUNT				DISTRIBUTION				TOTAL RELATION TO TANGIBLE ASSETS			
	1961	1964	1972	1975	1961	1964	1972	1975	1961	1964	1972	1975
Currency	217.0	269.0	605.0	1033.1	.061	.051	.038	.033	.029	.031	.039	.044
Demand Deposits	414.0	558.0	1669.0	3422.3	.116	.105	.104	.108	.055	.064	.109	.147
Time Deposits	100.0	151.0	846.0	2245.2	.028	.029	.052	.071	.013	.017	.055	.096
Foreign Curr. Depsts.	24.0	19.0	115.0	520.7	.007	.004	.007	.016	.003	.002	.007	.022
Gov't. Bonds	259.0	387.0	1174.0	1614.9	.072	.073	.073	.051	.034	.044	.076	.069
Rediscounts	134.0	156.0	138.0	421.3	.037	.029	.009	.013	.018	.018	.009	.018
Loans	1756.0	2706.0	7280.0	15293.1	.491	.511	.452	.485	.233	.308	.474	.656
Treasury Cert.	10.0	35.0	91.0	0.0	.003	.007	.006	--	.001	.004	.006	--
Insurance Reserves	202.0	330.0	1207.0	1948.7	.057	.062	.075	.062	.027	.038	.079	.084
Re.Insurance Claims	7.0	3.0	34.0	61.0	.002	.001	.002	.002	.001	--	.002	.003
Non Bank Bonds	34.0	110.0	313.0	448.0	.010	.021	.019	.014	.004	.013	.020	.019
Gov't Pend. Paymts.	51.0	35.9	174.3	448.1	.014	.007	.011	.014	.007	.004	.011	.019
Short Term Int'l Claims	81.3	151.1	321.3	603.0	.023	.029	.020	.019	.011	.017	.021	.026
Long Term Int'l Claims	17.0	40.8	429.0	674.7	.005	.008	.027	.021	.002	.005	.028	.029
Deposits in Foreign Banks	33.9	16.0	121.9	126.9	.009	.003	.008	.004	.004	.002	.008	.005
Pending Payments Private Sector	89.5	146.0	500.6	774.7	.025	.028	.031	.025	.012	.017	.033	.033
Import Endorsements	1.2	4.0	105.6	166.3	--	.001	.007	.005	--	--	.007	.007
Commercial Obligations	36.4	82.0	750.6	1372.1	.010	.015	.047	.043	.005	.009	.049	.059
Other Claims	106.9	94.3	234.2	389.8	.030	.018	.015	.012	.014	.011	.015	.017
TOTAL	3574.2	5294.1	16109.5	31563.9	1.000	1.000	1.000	1.000	.473	.603	1.048	1.354

SOURCE:
Statistical Appendix

to 10.8% in 1975. On the other hand the stock of this financial instrument increased by more than 8 times during the same period.

c) Saving Deposits (Time and Foreign currency Deposits in the table) have increased both absolutely and relatively. Thus while in 1961 their level amounted to 124.0 millions of colones, in 1975 the figure was 2765.9 millions of colones. The corresponding percentages are 3.5% of total financial assets in 1961 and 8.7% in 1975.

d) The declining share of very liquid forms of financial instruments (currency and demand deposits) combined with the increasing relative participation of less liquid forms of financial claims (saving deposits) point towards an important structural change in the financial superstructure of the Costa Rican economy; that is, there exists an increased demand for less liquid, interest-bearing financial instruments. One implication of such a phenomenon is an increased "institutionalization" of the banking habit and a greater scope for the financial intermediation activity.

e) Approximately 50% of the total stock of financial claims takes the form of loans. As such loans constitute the major form of financing investment expenditures on the part of the private sector (business firms and households). Given the important role this financial instrument plays in the financial activity of the country, potentially higher degrees of efficiency in monetary policy management, could be obtained by disaggregating the different forms that this financial instrument has taken over the years, and measure their corresponding impact in the economic activity of the country. Possibly such disaggregation could shed light on the impact of quantitative and qualitative guidelines

that have been imposed by the monetary authorites.

f) A final observation relates to the increasing reliance of the government in financing its current account deficit by issuing and selling government bonds[1]. At the same time there is an apparent declining role of financing expenditures via the financial sector[2] (treasury certificates or bank credit). The implications of such a policy shift are yet to be analyzed.

The distribution among economic sectors of the total financial claims outstanding at different points of time is given in Table 4.3. Some interesting remarks that flow from this data are the following;

a) The distribution of the holdings of financial assets indicates an increase in the importance of the foreign sector (23.2% in 1961 against 31.5% in 1975) and the government sector (0.2% in 1961; 0.8% in 1975). At the same time the diminishing role of the financial sector is evident (48.9% in 1961 against 40.4% in 1975). The private sector has on average maintained its share of approximately 27% of the total financial claims outstanding during the sample period. The above figures give evidence of the increasing role the foreign sector shows in the financial activities of the Costa Rican economy. This is elaborated in

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[1] At present most of the outstanding government bonds possess a sight repurchase clause and competitive rates of return, making them highly attractive to hold.

[2] The clear exception is 1974 when all means of financing were utilized to make possible an expansionary fiscal policy in the light of internal and external abnormal situations.

TABLE 4.3

DISTRIBUTION AMONG ECONOMIC SECTORS OF TOTAL FINANCIAL CLAIMS

- millions of colones -

SECTOR	AMOUNT AND DISTRIBUTION OF FINANCIAL ASSETS				AMOUNT AND DISTRIBUTION OF FINANCIAL LIABILITIES				RELATION OF SECTORAL FINC. ASSETS TO NATIONAL WEALTH				RELATION OF SECTORAL FINC. LIABILITIES TO NATIONAL WEALTH			
	1961	1964	1972	1975	1961	1964	1972	1975	1961	1964	1972	1975	1961	1964	1972	1975
FINANCIAL SECTOR	1748.8 (.489)	2319.8 (.438)	6648.1 (.413)	12740.2 (.404)	1372.9 (.384)	2176.5 (.411)	6855.5 (.426)	14872.6 (.471)	.232	.264	.432	.546	.182	.248	.446	.638
GOVERNMENT SECTOR	8.6 (.002)	28.3 (.005)	147.7 (.009)	240.7 (.008)	550.4 (.154)	781.0 (.148)	2424.3 (.150)	4388.1 (.139)	.001	.003	.010	.0100	.073	.089	.158	.188
PRIVATE SECTOR	987.4 (.276)	1331.5 (.252)	4584.9 (.285)	8641.6 (.274)	1453.3 (.407)	2053.4 (.388)	5998.4 (.372)	11071.5 (.351)	.131	.152	.298	.371	.192	.234	.390	.475
FOREIGN SECTOR	829.4 (.232)	1614.5 (.305)	4729.0 (.294)	9941.4. (.315)	197.6 (.055)	283.2 (.054)	831.5 (.052)	1231.7 (.039)	.110	.184	.308	.426	.026	.032	.054	.053
ALL SECTORS	3574.2 (1.000)	5294.1 (1.000)	16109.7 (1.000)	31563.9 (1.000)	3574.2 (1.000)	5294.1 (1.000)	16109.7 (1.000)	31563.9 (1.000)	.473	.603	1.048	1.354	.473	.603	1.048	1.354

SOURCE:
Statistical Appendix

greater detail in the next section, with the help of the constructed sectoral net investment and flow of funds tables.

b) The distribution of the aggregate stock of financial liabilities shows a pattern different from the one mentioned in a) above. The figures indicate a greater role on the part of the financial sector, by absorbing 47.1% of the total in 1975 against 38.4% in 1961. Conversely the other sectors have experienced declining relative participations in the holdings of the stock of financial liabilities. The increasing forms of financial intermediation, i.e., the financial sector absorbing larger amounts of the stock of financial liabilities, give way to an interesting conclusion for monetary policy management, given recent theoretical and empirical research on financial intermediation and the effectiveness of monetary policy, e.g., Gurley and Shaw (1960), Tobin and Brainard (1963) and Tobin (1965).[1]

C. THE FINANCING OF ECONOMIC ACTIVITY

The accounting framework developed in Chapter II, introduced a balance sheet identity of the form

$$(2)\quad A_{jk} \cdot i_k + e_j = L'_{kj} + z_j$$

stating that the financial and real assets of any sector j must equal its financial liabilities and net worth. Summing (2) overall sectors in the economy, it is found that

$$(3)\quad \text{Real Assets} = \text{Net Worth}$$

such that financial assets and financial liabilities cancel out, i.e.,

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[1] Namely, the monetary authorities must pay particular attention not only to the quantity of money - as traditionally defined - but to other forms of liquid assets that become available in greater and more varied magnitudes as financial intermediaries expand their activities over time.

every financial asset constitutes someone else's liability, so that the total tangible assets of the whole economy is exactly equal to the aggregate net worth.

As indicated before, equations (2) and (3) are given in stock form, so that it is possible to derive the flow counterpart corresponding to each one of them. Thus, corresponding to (2), one can write

$$(4)\quad \Delta(A_{jk}.i_k) + \Delta e_j = \Delta(L'_{kj}i_k) + \Delta z_j$$

indicating that for each sector, lending ($\Delta A_{jk}.i_k$) plus investment (Δe_j) equal borrowing ($\Delta L'_{kj}i_k$) plus saving (Δz_j). Summing (4) over all sectors of the economy, the flow counterpart of (3) is obtained. Namely,

(4) Aggregate Investment = Aggregate Saving,

implying that, for the whole economy, lending and borrowing take the same magnitude and are cancelled out. It is however, evident that in a monetary economy, the individual sectoral investment and saving magnitudes may be different for any given period. Thus rewriting (3) in a more standard way, yields the identity,

(6) Investment + Lending = Saving + Borrowing

which holds for any given sector. The above implies that whenever investment is greater than saving, the sector must have access to sources of funds other than its own saving to provide the required investment funds. Conversely, whenever saving is greater than investment, the sector has funds that are used in activities other than financing its own investment expenditures. The former case identifies a net deficit sector, i.e., borrowing is greater than lending; the latter refers to a net surplus sector, i.e., lending exceeds borrowing.

A quantitative assessment of the net surplus/deficit positions

of the individual sectors, gives some indication of the magnitude and direction of the flows of funds taking place in the economy. Such an exercise provides policy makers with an indicator of the importance of financial activities in the economy, and possible ways to influence observed trends.

Table 4.4. illustrates the overall sectoral net financial investment (surplus or deficit position) for the period 1962-1975. As indicated in the last column of the table, the aggregate net financial investment must have a zero value. The most striking result coming out of the table is the fact that all domestic sectors (financial, government and private) behaved, in general terms, as deficit spending sectors during the same period. Only the private sector experienced surplus positions in a number of years (1967, 1969, 1972, 1973 and 1975) which did not change its overall deficit position for the complete period. As a result of the above, the importance of the foreign sector as a net source of funds for financing expenditures in Costa Rica should be noted. The sector had a consistent surplus position for each year of the study, with increasing magnitudes towards the latter part of the period. Thus while its overall surplus position amounted to 1575.7 millions of colones, during the period 1962-1969, the corresponding figure for the period 1970-1975 increased to 6502.2 millions of colones. Such a growing dependence[1] of domestic investment expenditures on foreign financing should be of concern to the economic authorities of the country, and appropriate measures to stimulate domestic saving should be implemented in the near future.

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[1]The recent increase in international coffee prices, a main determinant of export revenues for the Costa Rican economy, is likely to be exerting a dampening effect in such a trend.

TABLE 4.4

SECTORAL NET FINANCIAL INVESTMENT: 1962-1975

- millions of colones -

Year	Financial Sector	Gov't Sector	Private Sector	Foreign Sector	Total
1962	-22.2	-42.2	-80.3	144.7	0
1963	-47.3	-120.7	-36.3	204.3	0
1964	-163.1	-48.0	-139.4	350.5	0
1965	-83.5	-110.5	-106.1	300.1	0
1966	-40.2	-162.2	-6.7	209.1	0
1967	62.1	-161.3	49.0	50.2	0
1968	-48.9	-154.1	-73.6	276.6	0
1969	-18.3	-88.2	66.3	40.2	0
1970	-10.2	-141.4	-349.3	500.9	0
1971	-5.3	-394.5	-402.0	801.8	0
1972	--206.4	-311.7	131.0	387.1	0
1973	-321.0	-537.9	171.9	687.0	0
1974	-324.2	-755.8	-1232.0	2312.0	0
1975	-1279.8	-577.1	43.5	1813.4	0

SOURCE:
Statistical Appendix,

A more complete examination of the overall net financial investment of each of the sectors under scrutiny would require the analysis of the surplus/deficit position of each sector vis-a-vis the rest of the sectors. Such an analysis would lead to a better understanding of which sectors are surplus sectors and thus financing the deficits of other sectors. Table 4.5 looks at this question with respect to the financial sector. The last column of the table reproduces the corresponding column of the sector in Table 4.4. Thus it is interesting to observe how, in spite of its consistent overall deficit, the financial sector was a net lender to the government sector but had a net borrower position with the foreign sector. The situation with the private sector is of a mixed nature, with some years showing a net borrower and others a net lending position. On the whole, the foreign sector was vital for the financing of the activities of the financial sector.

The consistent overall deficit position of the government sector, shown in the appropriate column of Table 4.4 and reproduced in the last column of Table 4.6, follows the same pattern with respect to each of the other sectors. Thus, for example, the overall deficit of 577.1 millions of colones observed in 1975 was financed via net borrowing positions of 233.8, 126.1 and 217.2 millions of colones with respect to the financial, private and foreign sectors, respectively. This overall pattern has its main roots in an inefficient system of tax collection and an increasing participation of the sector in the economic activity of the country.

Finally, Tables 4.7 and 4.8 analyze the intersectoral surplus/deficit transactions of the private and foreign sector, respectively.

TABLE 4.5

INTERSECTORAL SURPLUS/DEFICIT TRANSACTIONS

FINANCIAL SECTOR : 1962-1975

Year	Gov't Sector	Private Sector	Foreign Sector	Total Net Finc. Inv.
1962	9.8	-26.7	-5.3	-22.2
1963	49.7	-92.3	-77.9	-47.3
1964	39.5	37.9	-240.5	-163.1
1965	65.4	12.6	-161.5	-83.5
1966	89.8	-63.6	-79.8	-40.2
1967	133.4	-103.9	130.6	62.1
1968	99.3	-61.1	-87.1	-48.9
1969	30.5	-86.5	37.7	-18.3
1970	0.9	183.3	-194.4	-10.2
1971	137.3	-94.5	-48.1	-5.3
1972	223.2	-264.1	-165.5	-206.4
1973	92.9	-206.5	-207.4	-321.0
1974	432.7	211.0	-967.9	-324.2
1975	233.8	-269.5	-1244.1	-1279.8

SOURCE:
Statistical Appendix

TABLE 4.6

INTERSECTORAL SURPLUS/DEFICIT TRANSACTIONS

GOVERNMENT SECTOR: 1962-1975

- millions of colones -

Year	Financial Sector	Private Sector	Foreign Sector	Total Net Finc. Inv't.
1962	-9.8	7.6	-40.0	-42.2
1963	-49.7	-16.0	-55.0	-120.7
1964	-39.5	18.6	-27.1	-48.0
1965	-65.4	-2.5	- 42.6	-110.5
1966	-89.8	-53.6	- 18.8	-162.2
1967	-133.4	-15.1	- 12.8	-161.3
1968	-99.3	-82.4	27.6	-154.1
1969	-30.5	-89.5	31.8	-88.2
1970	-0.9	-84.0	- 56.5	-141.4
1971	-137.3	-116.7	-140.5	-394.5
1972	-223.2	-8.6	-79.9	-311.7
1973	-92.9	-219.2	-225.8	-537.9
1974	-432.7	-19.5	-303.6	-755.8
1975	-233.8	-126.1	-217.2	-577.1

SOURCE:
Statistical Appendix,

On the one hand, the private sector had, generally speaking, surplus positions with the financial and government sectors, in opposition to the consistent deficit with the foreign sector. Its overall position is given in the last colomn of Table 4.7 which shows a mixture of surplus and deficit entries, with an aggregate balance on the deficit side. On the other hand, the foreign sector shows a consistent aggregate surplus position, which repeats itself with each of the interacting sectors. Furthermore, the remark made previously about a growing dependence on foreign financing manifests itself for each of the domestic sectors. Thus the net financial position of the foreign sector vis-a-vis the financial, government and private sectors for the periods 1962-1969 and 1970-1975 were 483.2, 136.9 and 955.6 against 2827.4, 1023.5 and 2651.3 millions of colones. It may be inferred that such an apparent structural change in the pattern of investment financing does call for definite measures to offset potentially undersirable outcomes (e.g., heavy external debt burden and closing of sources of foreign funds) in forthcoming years.

Another complementary tool to analyze developments in the financial markets is the flow of funds statement, which focusses on the particular way - in terms of changes in financial asset and liability holdings - in which economic sectors finance real investment and allocate the financial funds that become available to them. As it has been quite appropriately expressed by Heth[1], this instrument of financial analysis contributes to the understanding of the size and direction of real transactions for two reasons: "first, because decisions about real trans-

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[1] Heth (1970), p.53.

TABLE 4.7

INTERSECTORAL SURPLUS/DEFICIT TRANSACTIONS

PRIVATE SECTOR : 1962-1975

Year	Financial Sector	Government Sector	Foreign Sector	Total Net. Finc. Inv.
1962	26.7	-7.6	-99.4	-80.3
1963	92.3	16.0	-72.0	-36.3
1964	- 37.9	-18.6	-82.9	-139.4
1965	- 12.6	2.5	-96.0	-106.1
1966	63.6	53.6	-110.5	-6.7
1967	103.9	15.1	-168.0	49.0
1968	61.1	82.4	-217.1	-73.6
1969	86.5	89.5	-109.7	66.3
1970	-183.3	84.0	-250.0	-349.3
1971	94.5	116.7	-613.2	-402.0
1972	264.1	8.6	-141.7	131.0
1973	206.5	219.2	-253.8	171.9
1974	-211.0	19.5	-1040.5	-1232.0
1975	269.5	126.1	-352.1	43.5

SOURCE:
Statistical Appendix,

TABLE 4.8

INTERSECTORAL DEFICIT/SURPLUS TRANSACTIONS

FOREIGN SECTOR: 1962-1975

- millions of colones -

Year	Financial Sector	Government Sector	Private Sector	Total Net Finc. Inv.
1962	5.3	40.0	99.4	144.7
1963	77.3	55.0	72.0	204.3
1964	240.5	27.1	82.9	350.5
1965	161.5	42.6	96.0	300.1
1966	79.8	18.8	110.5	209.1
1967	-130.6	12.8	168.0	50.2
1968	87.1	-27.6	217.1	276.6
1969	-37.7	-31.8	109.7	40.2
1970	194.4	56.5	250.0	500.9
1971	48.1	140.5	613.2	801.8
1972	165.5	79.9	141.7	387.1
1973	207.4	225.8	253.8	687.0
1974	967.9	303.6	1040.5	2312.0
1975	1244.1	217.2	352.1	1813.4

SOURCE:
Statistical Appendix,

actions are made simultaneously with decisions about financial transactions (e.g., selling on credit); and second, because many real transactions would not take place were not for the existence of this financial superstructure".

The methodology employed to construct the flow of funds accounts for the periods 1961-1964 and 1972-1975, involving the actual financial and real data was already described in Chapter III and compiled in the statistical appendix. First, the stock holdings of the different financial instruments are organized sectorwise[1] for the relevant years, i.e., 1961,1964,1972 and 1975, as shown in Tables 35 to 42 of the statistical appendix. The financial flows are then obtained by computing the sectoral net change of stock holdings during each of the selected periods. In this way, a detailed account is given of the financial transactions among sectors, in terms of the financial instruments involved in the asset and liability side of each sector. Second, the net surplus/deficit in the current sectoral accounts is calculated from the corresponding tangible assets and net worth data given in tables 34 to 37 of the statistical appendix. As indicated before, the net surplus/deficit positions of the individual sectors (Investment-Saving) should be exactly equal to the net financial investment (Borrowing-Lending) of the corresponding sector.

The flow of funds tables referred to above are organized in two parts. On the one hand, there is a condensed summary of the financial

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[1]Such an organization of the data was actually done for each of the years included in the sample period, in order to conduct the empirical testing of the theoretical models.

and real transactions of each and all sectors for each period. Thus Tables 4.9 and 4.11 refer to such a summary for the periods 1961-1964 and 1972-1975 respectively. On the other hand, Tables 4.10 and 4.12 indicate the particular form (instrument wise) taken by the financial transactions among sectors in the given periods.

Some important observations drawn upon the information contained in those tables are the following:

i) the fundamental source of financial surpluses in the Costa Rican economy during 1961-1964 and 1972-1975 was the foreign sector. In this respect, it is striking to note that, while in the former period the magnitude of the net surplus amounted to 699.5 millions of colones (Table 4.11), in the latter the foreign sector's net surplus was 4812.2 millions of colones (Table 4.9). On the basis of these observations, there appears to exist an increasing resource gap as far as the financing of economic activity by domestic sectors is concerned. This has resulted in a greater contribution to aggregate saving by the foreign sector;

ii) all domestic sectors show a consistent financial deficit which increased by more than 8 times from the period 1961-1964 to 1972-1975, except for the private sector where the magnitude of its financial deficit shows a fourfold increase during the same period. Additonally, the calculation of the ratio foreign sector's surplus/ domestic sectors' investment shows an increasing trend of a considerable magnitude. Thus while during the period 1961-1964 the proportion was 0.471, the corresponding figure for the period 1972-1975 was 0.614.

TABLE 4.9

CONDENSED SUMMARY OF FLOW OF FUNDS

ACCOUNTS: 1972-1975

- millions of colones -

	SECTOR								ALL SECTORS	
	FINANCIAL		GOVERNMENT		PRIVATE		FOREIGN			
	Uses	Sources	Uses	Sources	Uses	Sources	Uses	Sources	Uses	Sources
Saving (Δ Net Worth)		296.7		683.0		2046.6		4919.0		7945.3
Investment (Δ Real Assets)	2221.7		2553.8		3063.0		106.8		7945.3	
Net Change Finc. Assets	6092.1		93.0		4056.7		5212.4		15454.2	
Net Change Finc. Liablts.		8017.1		1963.8		5073.1		400.2		115454.2
U = S	8313.8	8313.8	2646.8	2646.8	7119.7	7119.7	5319.2	5319.2	23399.5	23399.5
Surplus on Current Account (net Finc. Inv't)	-1925.0		-1870.8		-1016.4		4812.2		-0-	

SOURCE:
Statistical Appendix,

TABLE 4.10

FINANCIAL TRANSACTIONS AMONG SECTORS

1972 - 1975

- millions of colones -

NET CHANGE OF:	SECTOR: FINANCIAL		GOVERNMENT		PRIVATE		FOREIGN		ALL SECTORS	
	Assets	Liabts.	Assets	Liabts.	Assets	Liabts.	Assets	Liabts.	Assets	Liabts.
Currency	95.5	428.5			333.0				428.5	428.5
Demand Deposits	339.4	1452.9	-15.5		861.5		567.5		1752.9	1752.9
Time Deposits	54.4	1398.8	38.8		1305.6				1398.8	1398.8
Foreign Curr. Deposits	98.8	405.9	17.6		306.6		-17.1		405.9	405.9
Govt Bonds	301.4			440.8	97.3		42.1		440.8	440.8
Rediscounts	283.6	283.6							283.6	283.6
Loans	4578.4	2562.7	17.6	1331.5	22.8	4118.3	3393.7		8012.5	8012.5
Treasury Cert.	-90.9			-90.9					-90.9	-90.9
Insurance Reserves		741.9			741.9				741.9	741.9
Re-Insurance Claims	11.2	15.9					15.9	11.2	27.1	27.1
Non Bank Bonds	32.0	135.4			106.1		-2.7		135.4	135.4
Gov't Pend Payments				273.8					273.8	273.8
Short Term Int'l Claims	249.3	32.4					32.4	249.3	281.7	281.7
Long Term Int'l Claims	21.4	224.3					224.3	21.4	245.7	245.7
Deposits in For. Banks	5.0							5.0	5.0	5.0
Pending Payments										
Private Sector						274.1	274.1		274.1	274.1
Import Endorsements						60.7	60.7		60.7	60.7
Commercial Obligations						621.5	621.5		621.5	621.5
Other Claims	112.6	34.8	34.5	8.6	8.1	-1.5		113.3	155.2	155.2
TOTAL	6092.1		93.0		4056.7		5212.4		15454.2	15454.2
Net Finc. Inv. (Surplus on Current Acc.	-1925.0		-1870.8		-1016.4		4812.2		-0-	

SOURCE:

Statistical Appendix

The above observations have clearly defined policy implications. On the other hand, there is the question of the increased foreign debt burden on the Costa Rican economy. On the other, the impact of the increased foreign financing on economic development must also be considered. In this respect, the information provided by flows of funds' accounts could provide useful quantitative indicators of these trends, and help policy makers in assessing their economic consequences.

The particular forms of instruments through which the financial transactions among sectors do occur is of particular importance to obtain some insights into the asset and liability preferences of the various sectors during the periods subject to analysis. Thus from Tables 4.10 and 4.12 the following may be noted.

iii) with respect to the financial sector, loans to other domestic sectors (financial claim 7 in the tables) accounted for about 75 percent of the sector's net asset holdings' change during the period 1972-1975, in contrast with 60 percent in 1961-1964. The sector's net liability holdings' change shows a heavy concentration among money market instruments (currency, demand deposits and saving deposits) and loans from the foreign sector in both periods. The former claims accounted for 49.7 and 30.8 percent, whereas the latter represented 32.0 and 45.2 percent in periods 1972-1975 and 1961-1964 respectively. Thus, there is an apparent increased preference for liability holdings in the form of money market instruments relative to liabilities in the form of loans;

iv) the government sector shows a very limited participation insofar as financial asset holdings is concerned. Conversely its role in financial liability holdings is larger, and the net

TABLE 4.11

CONDENSED SUMMARY OF FLOW OF FUNDS

ACCOUNTS: 1961-1964

- millions of colones -

	SECTOR									
	FINANCIAL		GOVERNMENT		PRIVATE		FOREIGN		ALL SECTORS	
	Uses	Sources	Uses	Sources	Uses	Sources	Uses	Sources	Uses	Sources
Saving (Net Worth)		76.9		100.8		607.2		436.3		1221.2
Investment (Real Assets)	309.5		311.7		863.2		-263.2		1221.2	
Net Change Finc. Assets	571.0		19.7		344.1		785.1		1719.9	
Net Change Finc. Liabilities		803.6		230.6		600.1		85.6		1719.9
U = S	880.5	880.5	331.4	331.4	1207.3	1207.3	521.9	521.9	2941.1	2941.1
Surplus on Current Account (Net Finc. Inv't)	-232.6		-210.9		-256.0		699.5		-0-	

SOURCE:
Statistical Appendix.

TABLE 4.12

FINANCIAL TRANSACTIONS AMONG SECTORS

1961-1964

- millions of colones -

NET CHANGE OF:	FINANCIAL		GOVERNMENT		PRIVATE		FOREIGN		ALL SECTORS	
	Assets	Liabts.	Assets	Liabts.	Assets	Liabts.	Assets	Liabts.	Assets	Liabts.
Currency	9.5	52.4	0.0	0.0	42.9	0.0	0.0	0.0	52.4	52.4
Demand Deposits	20.0	144.3	11.6	0.0	78.7	0.0	34.0	0.0	144.3	144.3
Time Deposits	4.3	50.8	3.9	0.0	42.6	0.0	0.0	0.0	50.8	50.8
For. Curr. Deposits	0.1	-5.0	0.0	0.0	-5.8	0.0	0.7	0.0	-5.0	-5.0
Gov't Bonds	67.1	0.0	0.0	127.4	15.8	0.0	44.5	0.0	127.4	127.4
Rediscounts	22.0	22.0	1.8	92.9	0.0	0.0	0.0	0.0	22.0	22.0
Loans	340.5	363.2	0.0	0.0	-7.0	493.4	614.2	0.0	949.5	949.5
Treasury Cert.	25.3	0.0	0.0	25.3	0.0	0.0	0.0	0.0	25.3	25.3
Insur. Reserves	0.0	128.6	0.0	0.0	128.6	0.0	0.0	0.0	128.6	128.6
Re-Insur. Claims	-2.8	-1.3	0.0	0.0	0.0	0.0	-1.3	-2.8	-4.1	-4.1
Non Bank Bonds	1.1	75.8	0.0	0.0	74.7	0.0	0.0	0.0	75.8	75.8
Gov't Pend Paym'ts	0.0	0.0	0.0	-15.1	-15.1	0.0	0.0	0.0	-15.1	-15.1
Short Term Int'l Claims	82.1	-12.3	0.0	0.0	0.0	0.0	-12.3	82.1	69.8	69.8
Long Term Int'l Claims	23.8	0.0	0.0	0.0	0.0	0.0	0.0	23.8	23.8	23.8
Deposits in Foreign Banks	-17.5	0.0	0.0	0.0	0.0	0.0	0.0	-17.5	-17.5	-17.5
Pending Payments Private S.	0.0	0.0	0.0	0.0	0.0	56.8	56.8	0.0	56.8	56.8
Import Endorsements	0.0	0.0	0.0	0.0	0.0	2.8	2.8	0.0	2.8	2.8
Commercial Obligations	0.0	0.0	0.0	0.0	0.0	45.7	45.7	0.0	45.7	45.7
Other Claims	- 4.5	-14.9	2.4	0.1	-11.3	1.4	0.0	0.0	-13.4	-13.4
TOTAL	571.0	803.6	19.7	230.6	344.1	600.1	785.1	85.6	1719.9	1719.9
Net Finc. Investment (Surplus on Current Account)	-232.6		-210.9		-256.0		699.5		-0-	

SOURCE:

Satistical appendix

changes recorded indicate a concentration in bond issuing and direct borrowing from the financial and foreign sectors. The sum of both of these types of financial claims represented 90.2 and 95.5 percent of the sector's net changes in financial liabilities during the periods 1972-1975 and 1961-1964 respectively;

v) the private sector's net change in asset holding is given mainly in the form of money market instruments and insurance reserves. The great bulk of its net change in liability holdings takes the form of loans and various obligations with the foreign sector (pending payments, import endorsements and commercial obligations); and

vi) finally, the foreign sector has had a relatively limited role in the holding of financial liabilities, but quite an active participation in the financial assets' market. Demand deposits, loans to domestic sectors and various obligations of the private sector constitute the major form (approximately 95 percent) of the net changes in its financial assets in both periods.

CHAPTER V

ALTERNATIVE MODELS OF FINANCIAL INTERDEPENDENCE: EMPIRICAL EVIDENCE

1. INTRODUCTION

The theoretical models of financial interdependence formulated in Chapter II are subjected to empirical analysis in this part of the study. The analytical issues under consideration combine two objectives. On the one hand, there is a judgement to be made on the degree to which a multiplier process in financial markets, which affects and is affected by the real variables of the system, is actually taking place. On the other hand, there is the question of what criteria to use in evaluating the different alternative versions of MODEL 1 and MODEL 2. The analysis also illustrates some additional applications of the generated data in efforts to predict and plan financial activity in Costa Rica.

Each alternative model does assume different sectoral behavioural patterns of asset and liability holdings. The relative plausibility of one model over the other is discussed on the basis of the forecasting accuracy of each alternative case outside the sample used for estimation. Theil's U coefficient of inequality is the test applied to evaluate the forecasting ability of each specification. In order to observe the simultaneous operation of the different alternatives, the reduced form solutions, based on the structural parameter estimates, are generated.

In the next section of the chapter the empirical results of the study are discussed in terms of the following issues:

a) The methodology utilized to estimate the structural parameters of each specification.

b) The reduced form solutions corresponding to each alternative version of MODEL 1 and MODEL 2.

c) The criteria employed to discriminate among the alternative models.

d) possible measures of financial interdependence.

The final section of the study elaborates on some applications of the empirical analysis; in particular, financial prediction and planning.

2. EMPIRICAL RESULTS

A. STRUCTURAL PARAMETER ESTIMATES

The individual structural equations defining the alternative behavioural hypotheses of MODEL 1 and MODEL 2 (see tables 2.2 and 2.3) were estimated with an annual time series (1961-1971) using the single equation Ordinary Least Squares (OLS) regression model. It may, of course, have been potentially desirable to have applied an alternative method of estimation (e.g. 2SLS) that accounts for the simultaneous nature of the estimated models. Conventional econometrics literature[1] indicates that the failure to use such methods may result in inconsistent and biased estimates of the structural coefficients, as the desirable properties of the OLS estimators hold only under strict assumptions about the stochastic nature of the sample of observations. However, the assumptions that make other estimators superior are hardly ever met,

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[1] e.g., Christ (1966), Johnston (1972), Kmenta (1971) and Pindyck and Rubinfeld (1976).

thus raising the question of the likely effects that one or several violations may exert on the accuracy and stability of the parameter estimates. In particular most of the current knowledge about the properties of estimators relates, not to small samples (such as the one used in the present context), but to large sets of observations. Additionally, the fact that several theoretical versions of financial interdependence are being estimated, leads to the possible presence of specification errors (i.e., key variables left out) in some of the estimated equations. When these problems do arise, i.e., small sample and likelihood of specification errors, some econometricians[1] are in favour of using OLS methods. Given these observations and the desire to maintain computational simplicity in a project involving a very large number of estimates, the choice to rely on the OLS model was made.

Each structural equation is defined in terms of sectoral holdings of a particular financial claim, as an asset or as a liability. The data distinguish 4 aggregated sectors and 18 financial claims[2]. The above implies that there are approximately 60 structural equation estimates corresponding to each alternative version of MODEL 1 and MODEL 2. Thus there are nearly 960 structural equations whose parameters were subjected to econometric estimation. Rather than reporting the individual structural

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[1] see Christ (1966), pp. 480-481

[2] The original set of data included 28 financial claims. The criteria used to exclude a sub-set of them were twofold. First, some claims were non-existent in a number of years, thus preventing a meaningful statistical test. Second, their magnitudes were generally quite small, amounting to less than 2 percent of the total value of the financial claims outstanding in any year of the sample.

estimates[1], some comments will be made on the overall results and the form in which they were used in the study. First, each estimation was subjected to the conventional statistical tests (R^2, t ratios, Durbin Watson, etc.) to assess the "meaningfulness" of the corresponding estimators. Second, several equations were re-estimated in order to meet a priori judgements[2] about the appropiate sign of the parameter estimates. In general terms the results were regarded as satisfactory, thus providing the basic inputs to further elaborations on the plausibility of each alternative model.

B. REDUCED FORM SOLUTIONS

The major criterion used to evaluate the relative plausibility of the alternative financial models was the forecasting accuracy of each estimated model outside the estimation period. It should be pointed out that although the estimation procedure was conducted via OLS techniques, the forecasting results are based on a solution of the structural model as a whole. In other words, the simultaneous (reduced form) solutions of each model were used to forecast, for the period 1972-1975, the vectors of the balance sheet totals of each sector and the amounts outstanding of each type of financial claim. This method incorporates the interdependent nature of the variables since it provides a simultaneous solution for their final values. Another available option, i.e., estimating the reduced form equations directly and basing the forecasts on these results, was tried but the outcome was not regarded as acceptable (given that many parameter estimates violated expected signs) and, consequently, was dis-

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[1] A complete account of the estimated equations is available upon request from the author.

[2] Based on the theoretical discussion of Chapter II.

carded.

As it is shown in the Appendix to Chapter II, the full derivation of the reduced form solutions does bring about a final expression containing an inverse matrix, generally known as a matrix multiplier. A subset of the estimated matrix multipliers[1] is listed in tables 5.1 to 5.4. The corresponding elements of such matrices do provide an indication of the degree of financial interdependence taking place in the Costa Rican economy, subject to the acceptanceof the underlying structural assumptions. The following discussion provides the framework upon which the different alternative models were evaluated. Once a decision is made about the relative superiority of one model over the other, some further elaborations on measures of financial interdependence will be presented.

C. FORECASTING PERFORMANCE OF THE ALTERNATIVE MODELS

Relatively accurate forecasts are one of the major considerations to judge the quality of economic theories[2]. Given the alternative nature of MODEL 1 and MODEL 2, the forecasting accuracy of each estimated theoretical version stands as the fundamental criterion selected in this study to discriminate among them. Each of the reduced form models were solved for each of the years 1972 to 1975, thus generating a set of forecasted values for each of the elements included in the vectors of sectoral balance sheet totals and the amounts outstanding of each type of financial claim. The forecasted values are compared to the actual ones and evaluated via Theil's U

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[1] The tables containing the remaining estimated matrix multipliers are listed in the Statistical Appendix (Tables 43 to 46).

[2] Theil (1966).

coefficient of inequality which is a measure of the predictive ability of a given model. The mathematical expression of this coefficient is given by:

$$U = \sqrt{\frac{\sum_{1}^{n} (P_i - A_i)^2}{\sum_{1}^{n} A_i^2}}$$

where, P_i = predicted value

A_i = actual value

The smaller its value, the better the forecasting performance of the model. A perfect forecast, i.e., $P_i = A_i$ for all i, would be represented by a U coefficient equal to zero. The coefficient has no upper bound and a judgement on its "critical" value depends very much on the purpose for which the estimated values are to be used. A value of U=1 is regarded as indicative of a poor forecasting power of the model involved.

Tables 5.5 to 5.26 summarize the forecasted values of the vectors of sectoral balance sheet totals (5.5 to 5.8) and amounts outstanding of each financial claim (5.9 to 5.26) for the period 1972-1975. The last column of each table summarizes the coefficient of inequality corresponding to each alternative forecast. The analysis of the tables does permit the following remarks:

i) with respect to the vector of sectoral balance sheet totals (tables 5.5 to 5.8), it can be observed that the forecasted values of various alternatives of both, MODEL 1 and MODEL 2 show remarkably low U coefficients. By way of illustration, the set of forecasted values for Sector 1's balance sheet totals shows a U coefficient of 0.038 corres-

ponding to alternative (1.E), followed by case (1.D) with a forecasting coefficient of 0.040. In the case of Sector 2's balance sheet totals, alternatives 1.E and 1.F show the lowest U coefficient (0.008) followed by alternatives (1.D) and (1.G) with a coefficient of 0.009. In general terms it may be inferred that the elements of the above mentioned vector are better forecasted by a combination of the cases 1.D to 1.F, except in the case of Sector 4's balance sheet total where cases (1.G) and (2.C) show the lowest forecasting coefficients (0.025). It may also be concluded that MODEL 1's forecasting performance is superior to its alternative one (MODEL 2).

ii) Referring to the forecasted values corresponding to each of the elements involved in the vector of financial claims (Tables 5.9 to 5.26) a similar situation to the one noted above is observed. In other words, the best forecasted values (lowest U coefficients) are concentrated among alternatives (1.D), (1.E) and (1.F). In particular, case (1.D) has the lowest U coefficients for currency, insurance reserves, government pending payments and commercial obligations; case (1.E) forecasts best demand deposits, time deposits and foreign currency deposits; and case (1.F) forecasts best rediscounts and deposits in foreign banks and correspondants. In addition, a considerable group (7 financial claims) of "second best" U coefficients are also within these three alternative specifications.

iii) Looking at the complete set of "best" forecasted values, it is evident that some predictions are remarkably good, judging by the low U coefficients. In particular, there should be noted that the best forecasts (U coefficients very close to zero) correspond to each of the

elements of the vector of balance sheet totals, as well as currency, demand deposits, time deposits, loans and insurance reserves. If, in addition, it is noted that these best forecasted values account for the great bulk of the total value of the financial claims outstanding, the corresponding behavioural hypotheses underlying the estimated values may be thought of exerting a significant explanatory power in defining the pattern of financial behaviour taking place in the Costa Rican economy.

iv) Finally, the empirical evidence seems to indicate the superiority of MODEL 1 over MODEL 2. This implies that using the terminology of Chapter II, the hypothesis of sectoral preferences over liabilities defines best the pattern of financial behaviour predominant in Costa Rica.

D. MEASURES OF FINANCIAL INTERDEPENDENCE

An approximate indication of the degree of financial interdependence between the four aggregated sectors defined in the study is obtained by analyzing the reduced form solutions for each alternative specification. This exercise is useful as a way of quantifying the extent to which the decisions to save and/or invest by any sector does provoke indirect financial repercussions (portfolio adjustments) in other sectors not directly involved with the original decisions. In other words, a sector undertaking real decisions may generate by its actions indirect financial consequences in the rest of the economy. Corresponding to alternatives (1.D), (1.E) and (1.F) the specifications with better forecasting performance, than the rest of MODEL 1, tables 5.1, 5.2 and 5.3 summarize the estimated matrix multiplier for each case. By way of comparison with the estimates of MODEL 2, the bottom part of each table includes the

matrix multiplier results for cases (2.D), (2.E) and (2.F).

In order to illustrate the economic content of the matrix multiplier elements, an example of a typical reduced form equation corresponding to case (1.D), is considered. Namely;

$$w_2 = m_{22} \, (b4_{2_{-1}} + f4_{2_{-1}} + c4_2 + d4_2 + e_2)$$

where

w_2 = total wealth of sector 2

e_2 = tangible assets of sector 2

$b4_{2_{-1}}$, $f4_{2_{-1}}$ = compound elements resulting from the combination of structural paramets and sectoral lagged holdings of financial claims[1].

$c4_2$, $d4_2$ = constant terms

The estimated m_{22} is 1.013, located in the intersection of the second row and the second column of the matrix multiplier (1.D) in table 5.1. As may be inferred from the equation above and the colomn of multipliers corresponding to the government sector, a given positive amount of real investment of that sector (Δe_2) would affect the balance sheet total of all sectors in the economy. In the hypothetical case of 1000 colones worth of real investment by the government sector, its total assets will increase by 1013 colones, out of which 1000 colones represent the real investment and the remaining 13 colones constitute financial assets acquired indirectly by the sector, in response to the assumed financial behaviour. Based on the fact that the financial assets of one sector are the financial liabilities of somebody else in the economy, it is possible

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[1] See the Appendix to Chapter II where the full derivation of such elements is explained in detail.

to observe portfolio changes in the other sectors as well. Thus, the financial sector increases its holdings of financial assets by 844 colones, the private sector by 331 colones and the foreign sector by 152 colones, as a consequence of 1000 colones worth of real investment by the government. Such a process of portfolio adjustments comes to an end because, at every round, part of the sectoral portfolio changes is financed by each sector's own saving, rather than by issuing further liabilities. Roe (1973) draws the corresponding parallels between this financial multiplier process of conventional Keynesian economics; e.g., an additional 1000 colones spent on consumption does bring about a finite multiplier effect because at every round there is a leakage, i.e., part of the additional income is not spent but saved.

An intersectoral comparison of the multiplier process generated under the assumptions of case (1.D) shows that the government sector does set in motion the largest financial multiplier effects, given a positive amount of real investment by this sector. The financial sector is second in importance, followed by the foreign sector and the private sector.

A similar analysis of cases (1.E) and (1.F) in tables 5.2 and 5.3 indicates that in the former the government sector continues having the largest financial multiplier effects, followed by the financial sector, the foreign sector and the private sector. In case (1.F), however, it is the financial sector which generates the largest multiplier effects, followed by the government, foreign and private sectors, respectively.

It is important to observe that the final changes, generated by a given amount of real investment in the economy, in sectoral balance sheet totals and amounts outstanding of the financial claims, are expected

to be larger than the ones corresponding to the coefficients of the matrix multipliers (1.D), (1.E) and (1.F). This can be illustrated by referring to the typical equation (1.D) given before, and noting that e.g., changes in sectoral wealth due to a sector's investment decision may be reflected not only through the multipliers but also through indirect changes in the elements involving lagged financial claim holdings.

Finally, table 5.4 summarizes the estimated matrix multipliers corresponding to cases (1.A) and (2.A), the simplest versions of MODEL 1 and MODEL 2, respectively. Case (1.A) is of particular interest because it corresponds to the theoretical structure tested by Stone and Roe (1971) using British data for selected base years. The present test to such a version goes beyond the former because it estimates the relevant parameters via a time series regression model, rather than estimating such parameters on the basis of a single year set of observations. To the extent that these coefficients suffer variations over time, the present empirical formulation provides more solid grounds to test the degree of financial interdependence in a particular monetary economy. The forecasting ability of this specification (see tables 5.5 to 5.26) was rather inferior to the cases previously analyzed (1.D, 1.E and 1.F). In this respect there is justification for the additional effort involved in developing models of financial interdependence of a more sophisticated nature than the simple versions based on fixed proportions suggested by Stone (1966) and Roe (1971).

E. APPLICATIONS OF THE EMPIRICAL ANALYSIS

There are wide applications for this type of financial model building in the context of modern monetary economies. Two fundamental

cases should be outlined even though their practical implementation lies beyond the scope of this study. On the one hand, one important line of research is the prediction of financial flows. This implies the building of forecasted tables of flows of funds (such as the ones built with actual data in Chapter IV), and the drawing of inferences from them about the particular trends that the financing of economic activity would take according to a well defined set of assumptions. The above can be elaborated even further by analyzing the possible influence that structural factors (government policies, the price system and other regulations) could exert on sectoral flows of funds. On the other hand, this type of quantitative analysis of a financial system may be extended into the field of financial policy and planning; i.e., determining the set of preferences that will govern the acquisition and issuing of financial claims by the different sectors of the economy. Problems related to inflation and balance of payments' policies may be fruitfully approached within this context. Examples of financial planning methods are described in Barthelemy (1969), Bhatt (1971) and Dimitrijevic (1969) for France, India and Yugoslavia, respectively.

TABLE 5.1

ESTIMATED MATRIX MULTIPLIERS

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.357	.844	.003	.061
GOV'T SECTOR	.020	1.013	0.00	.001
PRIVATE SECTOR	.276	.331	1.001	.012
FOREIGN SECTOR	.183	.152	.026	1.020

CASE 1.D

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.262	.091	.036	.251
GOV'T SECTOR	.292	1.021	.028	.091
PRIVATE SECTOR	.289	.022	1.011	.4096
FOREIGN SECTOR	.120	.009	.003	1.202

CASE 2.D

TABLE 5.2

ESTIMATED MATRIX MULTIPLIERS

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.104	.201	.001	.163
GOV'T SECTOR	.001	1.000	.000	.000
PRIVATE SECTOR	.103	.031	1.000	.015
FOREIGN SECTOR	.059	.052	.001	1.016

CASE 1.E

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.186	.001	.026	.170
GOV'T SECTOR	.131	1.001	.012	.124
PRIVATE SECTOR	.152	.000	1.002	.276
FOREIGN SECTOR	.153	.001	.003	1.011

CASE 2.E

TABLE 5.3

ESTIMATED MATRIX MULTIPLIERS

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.643	.977	.001	.260
GOV'T SECTOR	.001	1.000	.000	.001
PRIVATE SECTOR	.513	.292	1.000	.081
FOREIGN SECTOR	.276	.068	.001	1.101

CASE 1.F

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.531	.001	.013	.262
GOV'T SECTOR	.604	1.000	.014	.168
PRIVATE SECTOR	.285	.000	1.003	.314
FOREIGN SECTOR	.206	.001	.002	1.069

CASE 2.F

TABLE 5.4

ESTIMATED MATRIX MULTIPLIERS

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.375	.336	.302	.114
GOV'T SECTOR	.012	1.003	.003	.001
PRIVATE SECTOR	.502	.238	1.115	.042
FOREIGN SECTOR	.272	.173	.281	1.040

CASE 1.A

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.421	.020	.353	.446
GOV'T SECTOR	.212	1.003	.102	.172
PRIVATE SECTOR	.451	.007	1.116	.659
FOREIGN SECTOR	.078	.001	.019	1.042

CASE 2.A

TABLE 5.5

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975
TOTAL ASSETS = TOTAL LIABILITIES - SECTOR 1

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	7882.35	7819.92	7365.48	7732.40	
SIMULATIONS MODEL 1	1.A	6129.00	6043.28	5026.84	5284.20	.273
	1.B	6888.11	7290.73	6446.40	7020.30	.105
	1.C	7216.13	7268.42	6836.18	6964.29	.083
	1.D	7607.55	7672.99	6864.54	7567.93	.040
	1.E	7489.14	7525.35	7071.65	7638.92	.038
	1.F	7539.47	7579.44	6176.63	6714.23	.105
	1.G	7138.30	7346.00	6848.67	7384.42	.070
	1.H.	8711.24	8938.14	8762.35	8273.22	.133
SIMULATIONS MODEL 2	2.A	6557.64	6420.26	5099.27	5426.58	.244
	2.B	6701.17	6583.20	5591.09	5465.44	.217
	2.C	7386.69	7448.58	6064.04	6452.88	.125
	2.D	7559.20	7460.78	6377.35	6656.43	.100
	2.E	7618.0	8294.63	7725.77	7262.10	.052
	2.F	7629.60	8458.46	7686.75	7044.02	.066
	2.G	6922.32	6799.43	6123.63	6035.79	.164
	2.H	7240.76	7320.62	6960.96	7089.45	.072

TABLE 5.6

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975
TOTAL ASSETS = TOTAL LIABILITIES - SECTOR 2

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		4007.13	3997.70	3456.44	3219.06	
SIMULATIONS MODEL 1	1.A	3930.39	3938.57	3351.88	3157.31	.021
	1.B	3954.85	3979.40	3398.82	3219.17	.011
	1.C	3955.12	3957.73	3373.21	3128.92	.015
	1.D	3976.45	3978.10	3404.82	3225.15	.009
	1.E	3972.53	3967.85	3419.66	3222.50	.008
	1.F	3970.87	3965.98	3428.08	3227.04	.008
	1.G	3963.27	3980.06	3411.18	3221.78	.009
	1.H	3945.26	3962.89	3404.40	3214.36	.012
SIMULATIONS MODEL 2	2.A	3590.99	3414.73	2987.32	2829.16	.128
	2.B	3702.96	3596.58	2999.03	2890.47	.102
	2.C	3805.38	3606.52	2993.08	2884.97	.098
	2.D	3976.94	3726.14	3194.90	3065.93	.055
	2.E	3932.37	3624.62	3328.17	3018.35	.061
	2.F	3925.13	3990.53	3266.95	2670.84	.079
	2.G	3843.86	3733.24	3263.53	3173.08	.050
	2.H	3857.19	3784.99	3345.78	3294.53	.040

TABLE 5.7

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

TOTAL ASSETS = TOTAL LIABILITIES - SECTOR 3

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	10688.90	10383.10	8801.10	8613.25	
SIMULATIONS MODEL 1	1.A	9319.11	8792.17	7438.47	7029.87	.153
	1.B	10189.18	10220.81	9077.78	9104.47	.040
	1.C	10350.87	9991.30	8493.84	8118.63	.040
	1.D	10539.29	10242.46	8827.21	8573.72	.011
	1.E	10551.37	10469.65	9619.08	8963.20	.047
	1.F	10533.99	10402.35	9103.38	8426.90	.020
	1.G	10247.08	9982.20	9163.00	8962.50	.040
	1.H	11279.22	10984.68	9639.49	9502.98	.077
SIMULATIONS MODEL 2	2.A	9898.18	9605.12	7849.78	7557.08	.093
	2.B	10125.88	9961.27	8303.08	8107.16	.052
	2.C	10593.98	10255.58	8216.17	8278.41	.036
	2.D	10514.92	10212.40	8391.96	8377.06	.027
	2.E	10662.25	10780.10	9392.96	8912.97	.040
	2.F	10642139	10805.25	9342.26	8799.81	.037
	2.G	10175.95	9996.78	8481.73	8303.03	.040
	2.H	10272.79	10163.70	8707.68	8599.20	.025

TABLE 5.8

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

TOTAL ASSETS = TOTAL LIABILITIES - SECTOR 4

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	5479.50	5501.92	5254.79	5167.64	
SIMULATIONS MODEL 1	1.A	4375.56	4199.29	3322.82	3122.41	.307
	1.B	4890.27	5044.81	4300.91	4353.29	.136
	1.C	5449.74	5286.91	4196.48	4596.70	.114
	1.D	5468.60	5291.17	4247.54	4624.66	.109
	1.E	5522.27	5876.35	5450.36	5369.94	.044
	1.F	5546.62	5951.72	5297.73	5224.66	.043
	1.G	5298.30	5440.22	5072.36	5174.10	.025
	1.H	5772.67	5981.12	5603.46	5806.58	.086
SIMULATIONS MODEL 2	2.A	5181.44	5153.15	4949.37	4958.79	.055
	2.B	5240.73	5253.14	5091.11	5132.22	.036
	2.C	5267.41	5399.90	5138.67	5188.90	.025
	2.D	5332.22	5188.91	5178.47	5213.62	.033
	2.E	5267.52	5376.52	5109.05	5093.76	.028
	2.F	5266.39	5381.76	5053.45	5005.72	.033
	2.G	5170.71	5089.82	4820.75	4782.97	.072
	2.H	5233.34	5209.18	5000.84	5018.62	.045

TABLE 5.9

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

1. CURRENCY

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		539.22	582.38	478.90	465.57	
SIMULATIONS MODEL 1	1.A	427.80	421.82	350.87	368.84	.244
	1.B	469.90	491.18	429.77	462.93	.120
	1.C	491.44	498.62	435.66	438.35	.105
	1.D	501.40	508.67	451.03	458.24	.085
	1.E	515.99	557.95	576.84	519.82	.113
	1.F	514.12	549.16	551.94	521.55	.097
	1.G	494.03	507.63	471.03	507.99	.094
	1.H	543.72	564.13	562.64	587.48	.144
SIMULATIONS MODEL 2	2.A	475.67	460.29	376.17	361.28	.194
	2.B	437.72	414.04	332.52	312.12	.279
	2.C	490.92	499.52	439.46	419.91	.109
	2.D	490.88	500.11	443.33	422.17	.107
	2.E	516.83	576.81	605.65	508.24	.131
	2.F	516.32	576.00	616.78	525.75	.147
	2.G	405.44	409.04	395.33	400.18	.235
	2.H	507.13	530.47	555.42	578.27	.144

TABLE 5.10

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

2. DEMAND DEPOSITS

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		1487.52	1475.86	1421.92	1542.27	
SIMULATIONS MODEL 1	1.A	1060.93	1046.09	870.15	914.70	.348
	1.B	1317.03	1466.13	1349.12	1528.72	.063
	1.C	1328.10	1349.84	1116.37	1242.97	.160
	1.D	1469.26	1529.05	1349.20	1578.32	.033
	1.E	1412.87	1469.74	1461.14	1562.17	.029
	1.F	1434.48	1488.22	1280.98	1373.97	.076
	1.G	1365.02	1432.39	1415.29	1521.96	.044
	1.H	1769.98	1835.73	1677.04	1788.22	.195
SIMULATIONS MODEL 2	2.A	1230.01	1196.98	1026.67	997.83	.261
	2.B	1239.39	1236.45	1065.37	1055.68	.234
	2.C	1372.13	1370.52	1142.99	1242.58	.148
	2.D	1416.22	1389.72	1314.76	1380.78	.075
	2.E	1449.43	1515.72	1490.48	1476.63	.037
	2.F	1415.49	1494.63	1465.08	1558.36	.030
	2.G	1402.48	1393.66	1307.63	1406.70	.072
	2.H	1390.72	1449.95	1485.51	1547.96	.040

TABLE 5.11

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

3. TIME DEPOSITS

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	754.01	720.31	803.29	1011.81	
SIMULATIONS MODEL 1	1.A	354.87	349.91	391.05	405.96	.550
	1.B	551.70	672.50	659.42	791.18	.202
	1.C	707.29	780.49	621.46	791.01	.178
	1.D	708.36	786.30	669.65	852.67	.134
	1.E	734.48	784.02	853.95	947.69	.064
	1.F	690.98	748.61	663.11	670.68	.226
	1.G	553.03	600.48	650.42	696.72	.254
	1.H	1193.90	914.43	860.17	956.57	.294
SIMULATIONS MODEL 2	2.A	393.35	380.82	311.20	398.97	.560
	2.B	471.77	489.38	430.44	439.62	.466
	2.C	733.65	816.16	748.29	833.16	.127
	2.D	758.03	845.81	785.03	874.06	.113
	2.E	756.99	818.60	906.46	1015.41	.086
	2.F	771.36	934.17	927.97	1050.40	.151
	2.G	544.34	587.75	629.32	672.82	.274
	2.H	552.82	597.66	639.06	683.72	.263

TABLE 5.12

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

4. FOREIGN CURRENCY DEPOSITS

1970 PRICES

	Stock Values \ Year	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	102.50	105.75	153.97	234.66	
SIMULATIONS MODEL 1	1.A	105.42	103.94	86.46	90.89	.501
	1.B	91.14	84.72	81.80	96.85	.497
	1.C	89.78	99.16	84.97	138.06	.377
	1.D	85.95	113.33	103.10	154.73	.304
	1.E	87.89	111.30	117.79	156.93	.275
	1.F	85.70	116.15	76.60	127.56	.421
	1.G	68.17	72.29	73.57	79.01	.573
	1.H	138.33	140.10	101.33	111.30	.451
SIMULATIONS MODEL 2	2.A	63.83	61.87	51.30	49.44	.693
	2.B	66.38	65.58	65.68	74.68	.601
	2.C	73.11	83.66	78.03	91.43	.524
	2.D	79.04	93.21	90.09	107.54	.457
	2.E	88.34	93.17	101.83	107.81	.437
	2.F	80.61	98.93	107.50	113.31	.416
	2.G	72.49	73.79	70.05	71.47	.595
	2.H	72.32	74.49	72.85	75.14	.581

TABLE 5.13

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

5. GOV'T BONDS

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	1046.35	1050.57	840.0	727.76	
SIMULATIONS MODEL 1	1.A	715.33	716.82	610.04	574.63	.294
	1.B	1004.91	1148.18	1092.54	1106.51	.252
	1.C	813.84	1003.64	838.24	771.17	.130
	1.D	1029.82	1172.69	1023.74	1140.37	.253
	1.E	942.62	822.92	813.78	904.76	.166
	1.F	944.21	813.61	777.25	1124.77	.258
	1.G	902.64	949.87	944.80	973.61	.173
	1.H	900.55	946.15	929.82	953.09	.163
SIMULATIONS MODEL 2	2.A	756.24	728.46	601.72	576.63	.279
	2.B	789.44	788.13	667.04	659.98	.222
	2.C	844.88	788.21	703.20	611.00	.203
	2.D	989.69	791.91	782.74	689.34	.148
	2.E	984.13	833.42	856.76	565.46	.150
	2.F	980.33	834.27	824.36	569.95	.149
	2.G	870.42	856.17	783.58	774.74	.147
	2.H	867.87	851.62	744.11	738.16	.153

TABLE 5.14

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

6. REDISCOUNTS

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	123.00	77.40	275.62	189.86	
SIMULATIONS MODEL 1	1.A	129.32	127.51	206.07	111.50	.319
	1.B	82.78	51.60	119.27	108.73	.500
	1.C	137.34	119.16	179.34	188.78	.290
	1.D	106.07	79.96	41.72	107.20	.682
	1.E	105.31	83.63	37.14	82.04	.719
	1.F	103.89	58.70	177.82	188.32	.278
	1.G	75.11	61.16	110.40	13.58	.677
	1.H	243.73	125.33	155.45	167.72	.489
SIMULATIONS MODEL 2	2.A	138.37	131.70	207.60	101.84	.342
	2.B	85.65	61.92	131.68	113.69	.460
	2.C	138.63	120.54	179.50	186.28	.292
	2.D	106.47	81.26	43.34	112.31	.673
	2.E	110.38	114.42	63.33	67.35	.680
	2.F	115.94	117.69	125.58	145.29	.443
	2.G	63.59	31.32	127.73	57.13	.582
	2.H	76.59	42.14	140.03	69.20	.522

TABLE 5.15

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

7. LOANS

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	6488.41	6703.45	6455.34	6891.89	
SIMULATIONS MODEL 1	1.A	4883.44	4690.63	3957.93	3825.47	.355
	1.B	5641.06	5943.50	5369.04	5580.12	.154
	1.C	6157.22	6014.90	5107.28	5605.54	.152
	1.D	6469.42	6566.15	5703.78	6297.03	.073
	1.E	6472.48	7009.26	7073.64	6899.05	.052
	1.F	6487.75	6974.77	6849.48	6874.04	.036
	1.G	6233.13	6457.36	6471.16	6716.43	.030
	1.H	6811.27	7162.54	7267.22	7755.23	.099
SIMULATIONS MODEL 2	2.A	5561.29	5403.06	4779.20	4659.35	.242
	2.B	5803.10	5829.14	5292.25	5303.87	.170
	2.C	6301.31	6184.65	5370.99	5829.27	.122
	2.D	6302.88	6266.57	5562.72	5940.83	.105
	2.E	6391.05	6802.77	6706.82	6484.03	.038
	2.F	6374.52	6887.70	6733.40	6477.15	.041
	2.G	6005.86	5960.87	5636.44	5635.72	.131
	2.H	6091.94	6285.55	6235.30	6457.90	.057

TABLE 5.16

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

8. TREASURY CERTIFICATES

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		81.10	11.49	909.59	0.0	
SIMULATIONS MODEL 1	1.A	84.11	84.28	71.73	67.57	.924
	1.B	111.11	24.49	116.68	117.16	.878
	1.C	67.97	80.13	37.36	30.55	.959
	1.D	46.08	90.63	49.73	44.19	.948
	1.E	40.03	78.63	26.52	15.05	.971
	1.F	32.70	3.48	1.26	1.98	.996
	1.G	90.95	92.76	83.80	81.81	.913
	1.H	75.58	14.51	1154.47	949.58	1.070
SIMULATIONS MODEL 2	2.A	83.28	79.25	64.76	61.30	.930
	2.B	81.41	8.37	65.06	62.35	.927
	2.C	71.36	84.67	39.02	36.14	.957
	2.D	39.57	81.11	36.94	32.39	.960
	2.E	38.62	84.42	28.11	10.91	.970
	2.F	24.39	36.17	2.89	6.26	.995
	2.G	89.16	87.70	79.92	79.15	.916
	2.H	95.32	6.52	130.12	139.95	.867

TABLE 5.17

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

9. INSURANCE RESERVES

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		1075.76	1083.52	909.42	878.19	
SIMULATIONS MODEL 1	1.A	703.00	693.16	576.58	606.10	.348
	1.B	965.99	1124.90	1069.61	1249.34	.212
	1.C	1016.66	1029.55	862.17	840.77	.051
	1.D	1019.29	1031.87	866.18	844.92	.047
	1.E	1060.75	1166.02	1184.96	1079.47	.177
	1.F	1060.72	1169.50	1188.08	1074.07	.177
	1.G	1006.10	1075.57	1118.89	1200.54	.197
	1.H	1164.21	1231.84	1210.83	1296.41	.274
SIMULATIONS MODEL 2	2.A	790.57	767.16	626.96	603.58	.293
	2.B	851.09	851.69	721.71	715.65	.205
	2.C	1021.93	1033.72	864.45	836.03	.048
	2.D	1014.44	1024.39	855.69	824.36	.058
	2.E	1072.42	1188.38	1199.04	1046.64	.177
	2.F	1060.69	1171.91	1197.66	1078.21	.183
	2.G	1019.77	1082.77	1117.18	1180.19	.187
	2.H	1013.29	1083.47	1144.22	1214.4	.209

TABLE 5.18

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

10. RE-INSURANCE CLAIMS

1970 PRICES

	Stock Values / Year	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	30.30	28.35	28.16	27.49	
SIMULATIONS MODEL 1	1.A	14.89	14.44	11.67	11.53	.541
	1.B	17.51	18.61	16.34	17.28	.392
	1.C	26.84	12.32	11.48	13.05	.481
	1.D	28.03	14.00	13.37	15.26	.421
	1.E	27.65	23.57	21.71	21.07	.186
	1.F	30.27	4.93	6.68	7.07	.661
	1.G	18.02	18.53	17.32	18.08	.372
	1.H	28.39	27.70	17.99	17.52	.252
SIMULATIONS MODEL 2	2.A	16.33	15.76	13.62	13.16	.485
	2.B	20.13	21.50	20.42	21.38	.275
	2.C	23.75	25.58	21.79	22.40	.189
	2.D	18.25	20.10	18.71	20.31	.329
	2.E	25.50	28.12	28.10	26.79	.085
	2.F	24.44	31.02	21.98	13.77	.286
	2.G	20.02	20.88	21.36	22.09	.269
	2.H	19.39	17.91	11.49	10.58	.492

TABLE 5.19

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

11. NON BANK BONDS

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	278.97	245.21	204.66	201.89	
SIMULATIONS MODEL 1	1.A	199.80	197.01	163.88	172.27	.225
	1.B	271.08	313.94	297.36	346.13	.394
	1.C	258.86	258.37	198.39	203.25	.053
	1.D	280.50	286.87	236.89	260.38	.168
	1.E	273.15	290.31	265.13	248.73	.189
	1.F	280.44	288.94	195.21	181.96	.104
	1.G	280.43	298.76	307.94	230.54	.255
	1.H	364.66	381.19	349.88	376.09	.592
SIMULATIONS MODEL 2	2.A	374.52	360.41	295.27	282.35	.410
	2.B	236.74	236.50	201.80	199.99	.092
	2.C	258.76	254.08	192.44	181.76	.069
	2.D	240.41	237.97	185.12	160.61	.128
	2.E	271.43	292.54	268.58	223.62	.176
	2.F	256.24	296.62	266.94	187.98	.181
	2.G	289.87	307.82	317.52	235.43	.285
	2.H	281.64	297.13	306.41	323.24	.355

TABLE 5.20

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

12. GOV'T PENDING PAYMENTS

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	155.35	212.34	217.64	201.94	
SIMULATIONS MODEL 1	1.A	103.37	102.58	188.16	183.15	.316
	1.B	163.11	192.59	187.73	192.71	.095
	1.C	160.56	165.75	145.65	165.60	.235
	1.D	181.77	208.51	211.46	222.98	.087
	1.E	153.98	163.27	180.76	192.66	.157
	1.F	154.09	163.34	180.57	192.34	.157
	1.G	142.77	152.57	158.44	166.86	.232
	1.H	143.35	157.04	190.89	211.84	.160
SIMULATIONS MODEL 2	2.A	112.84	109.50	189.49	186.15	.292
	2.B	124.25	125.41	107.14	107.04	.435
	2.C	154.03	163.76	133.42	149.60	.278
	2.D	159.86	142.90	142.52	159.57	.279
	2.E	150.07	159.42	172.03	182.26	.183
	2.F	152.25	161.43	171.27	180.10	.182
	2.G	140.55	147.82	149.33	156.60	.266
	2.H	141.19	148.49	149.06	156.37	.265

TABLE 5.21

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

13. SHORT TERM INT'L CLAIMS

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		286.36	363.45	282.03	271.74	
SIMULATIONS MODEL 1	1.A	257.65	248.03	197.41	188.14	.277
	1.B	255.20	254.78	212.24	212.16	.240
	1.C	308.54	290.38	228.96	251.78	.157
	1.D	261.42	246.85	177.59	194.28	.291
	1.E	305.21	308.52	184.32	246.93	.192
	1.F	291.58	297.72	160.40	156.17	.297
	1.G	282.71	272.36	204.03	191.45	.238
	1.H	351.72	355.91	304.11	315.39	.135
SIMULATIONS MODEL 2	2.A	251.77	241.08	201.95	192.98	.280
	2.B	257.26	252.77	219.76	215.56	.234
	2.C	280.60	288.21	226.80	249.38	.159
	2.D	271.43	265.49	217.90	229.96	.207
	2.E	272.38	300.37	247.56	238.19	.133
	2.F	279.04	300.83	191.15	154.51	.266
	2.G	256.03	248.52	221.44	216.15	.238
	2.H	271.76	255.62	211.52	199.52	.245

TABLE 5.22

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

14. LONG TERM INT'L CLAIMS

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		382.35	327.13	372.0	304.06	
SIMULATIONS MODEL 1	1.A	193.96	188.13	251.88	149.61	.439
	1.B	282.37	374.40	383.76	371.28	.187
	1.C	297.48	498.12	397.32	458.95	.355
	1.D	397.55	405.88	415.07	418.10	.210
	1.E	331.51	440.30	491.02	447.91	.322
	1.F	337.35	412.84	508.80	474.57	.344
	1.G	219.24	217.60	279.82	193.97	.350
	1.H	440.20	471.15	392.46	435.31	.294
SIMULATIONS MODEL 2	2.A	232.94	225.67	297.70	192.06	.324
	2.B	331.51	400.09	457.80	412.07	.236
	2.C	314.62	578.71	463.51	503.24	.489
	2.D	456.84	357.81	538.39	437.28	.328
	2.E	332.26	464.66	452.37	304.56	.240
	2.F	323.83	486.35	548.40	277.55	.354
	2.G	229.56	245.80	317.60	477.90	.361
	2.H	283.42	296.07	257.61	276.25	.225

TABLE 5.23

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

15. DEPOSITS IN FOREIGN BANKS

1970 PRICES

	Year / Stock Values	1972	1973	1974	1975	THEIL'S U COEFFICIENT
	Actual Value	108.64	140.31	112.44	57.19	
SIMULATIONS MODEL 1	1.A	74.38	71.39	56.49	53.08	.437
	1.B	85.00	88.37	75.81	77.20	.325
	1.C	89.80	92.30	78.39	82.45	.307
	1.D	97.81	102.20	88.88	95.08	.274
	1.E	92.94	104.82	110.47	108.82	.297
	1.F	103.37	122.93	102.81	83.33	.153
	1.G	90.22	92.52	85.96	87.56	.299
	1.H	113.28	113.78	90.01	90.28	.221
SIMULATIONS MODEL 2	2.A	64.20	64.90	53.03	50.28	.487
	2.B	81.14	84.18	75.70	77.48	.346
	2.C	77.59	91.82	88.26	85.92	.316
	2.D	97.58	111.67	108.44	114.31	.298
	2.E	92.30	105.89	116.43	116.82	.326
	2.F	93.23	109.09	117.60	113.90	.307
	2.G	87.29	91.15	92.58	96.70	.319
	2.H	88.72	94.06	98.08	103.56	.321

TABLE 5.24

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

16. PRIVATE SECTOR PENDING PAYMENTS

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		446.15	377.62	473.37	349.12	
SIMULATIONS MODEL 1	1.A	314.05	296.30	250.68	236.91	.354
	1.B	355.94	362.11	326.87	331.75	.209
	1.C	455.21	411.06	301.48	400.41	.220
	1.D	456.42	412.84	304.03	403.99	.219
	1.E	449.43	465.74	458.71	401.51	.125
	1.F	436.04	457.38	463.79	503.66	.210
	1.G	421.68	444.06	460.13	483.25	.184
	1.H	421.71	447.99	469.96	496.89	.200
SIMULATIONS MODEL 2	2.A	408.82	406.58	390.51	391.25	.126
	2.B	427.73	432.39	424.65	431.00	.134
	2.C	413.56	426.47	409.94	408.93	.127
	2.D	427.15	428.02	462.22	441.34	.129
	2.E	413.21	428.70	423.39	418.56	.127
	2.F	405.95	408.09	355.50	298.24	.166
	2.G	415.19	415.73	403.75	407.16	.124
	2.H	424.90	409.40	371.36	360.99	.132

TABLE 5.25

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

17. IMPORT ENDORSEMENTS

1970 PRICES

Stock Values \ Year		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		94.12	80.08	82.19	74.94	
SIMULATIONS MODEL 1	1.A	39.14	36.93	31.24	29.53	.588
	1.B	53.43	58.50	57.04	61.01	.327
	1.C	87.97	107.12	76.79	89.32	.191
	1.D	88.42	107.22	78.29	90.90	.196
	1.E	91.50	122.22	113.82	121.81	.424
	1.F	90.87	118.34	115.24	124.40	.426
	1.G	68.78	83.58	102.86	117.13	.322
	1.H	73.62	88.12	106.61	120.51	.338
SIMULATIONS MODEL 2	2.A	47.15	46.89	45.04	45.13	.449
	2.B	71.10	77.12	83.71	89.07	.164
	2.C	87.63	107.63	78.21	90.62	.196
	2.D	88.15	105.09	854.04	96.78	.204
	2.E	91.63	123.92	116.31	123.56	.444
	2.F	93.31	129.82	127.32	138.30	.555
	2.G	60.66	72.75	87.42	98.92	.253
	2.H	66.54	53.42	30.14	19.33	.513

TABLE 5.26

ACTUAL AND SIMULATED STOCK VALUES, 1972-1975

18. COMMERCIAL OBLIGATIONS

1970 PRICES

Year / Stock Values		1972	1973	1974	1975	THEIL'S U COEFFICIENT
Actual Value		668.98	678.70	599.67	618.34	
SIMULATIONS MODEL 1	1.A	388.61	466.63	310.18	393.15	.395
	1.B	547.09	595.54	577.47	615.36	.116
	1.C	772.59	632.37	534.22	537.71	.120
	1.D	777.31	647.68	554.60	562.01	.104
	1.E	721.81	746.77	691.79	780.32	.160
	1.F	755.77	750.91	789.17	788.76	.217
	1.G	632.39	704.56	786.37	857.41	.239
	1.H	662.09	717.87	761.25	718.90	.151
SIMULATIONS MODEL 2	2.A	521.77	518.92	498.40	499.35	.208
	2.B	696.48	739.85	780.95	820.65	.218
	2.C	765.77	645.82	562.29	570.13	.093
	2.D	763.45	688.96	671.57	693.22	.110
	2.E	728.98	750.66	708.61	703.09	.130
	2.F	767.18	748.34	802.25	795.78	.230
	2.G	642.30	746.39	869.07	868.90	.292
	2.H	658.80	672.27	659.84	679.20	.067

CHAPTER VI

SUMMARY AND CONCLUSIONS

This study was directed towards a formulation of a quantitative framework for financial analysis in the context of the Costa Rican economy. Given the availability of published data with which to conduct such a task, a set of financial and real accounts was constructed for the period 1961-1975. This involved, in addition, the construction of flows of funds statements, a statistical source formerly not available in Costa Rica. The data were in turn used firstly, to analyze financial developments in Costa Rica, and secondly, to test alternative linear financial models which incorporate and extend the initial work done by Stone (1966) in this area.

The analysis of financial developments in Costa Rica during the period 1961-1975 was conducted in Chapter IV. It shed some light on a number of very important issues.

(a) The relative size of the financial superstructure increased quite rapidly during the sample period, as indicated by the financial interrelations ratio which moved from 0.473 in 1961 to 1.354 in 1975. These figures reflect an increasing reliance on indirect (intermediary) financing of real economic activity in Costa Rica. In other words, the separation between savers and investors has become more clearly marked over time.

(b) The Costa Rican economy has experienced a rapid process of

"monetization", judging from the high rates of growth observed in the aggregate stock of financial instruments. However certain individual financial instruments have diminished in relative importance in the total stock of financial claims (e.g., currency), whereas others have increased their relative shares (e.g. time and foreign currency deposits). In general terms there appears to be an increasing relative participation of less liquid forms of financial claims.

(c) There has been a marked increase in the role of the foreign sector in the financial activities of the Costa Rican economy. This is made evident when the analysis of the sectoral net financial investment positions was conducted. It was found there that the foreign sector had an increasing surplus (net saver) position over the years analyzed, combined with an overall increasing deficit position on the part of the domestic sectors.

(d) Looking at the observed asset and liability preferences of the various sectors during the period of analysis, the financial sector shows a heavy concentration on loans as the form of holding its assets, and on money market instruments, insofar as liability issuing is concerned. The government sector shows a very limited activity insofar as financial asset holding is concerned. Its net changes in liability issuing are relatively important and indicate a concentration around bond issuing and direct borrowing from the financial sector and the foreign sector. The private sector's net change in asset holding is given mainly in the form of money market instruments and insurance reserves. Loans and various obligations with the foreign sector constitute, as its main form of net changes in its financial asset holdings.

This sector's relative importance in liability issuing activites is relatively insignificant.

The empirical evidence that emerged from testing the alternative linear financial models allowed a number of additional observations to be made.

(e) MODEL 1's forecasting performance appears to be superior to that of model 2. In particular, alternatives (1.D), (1.E) and (1.F) perform best in that they exhibit the lowest U coefficients. Consequently, there appears to exist empirical support for the hypothesis of sectoral preferences over liabilities (MODEL 1) as the pattern of sectoral financial behaviour predominant in the Costa Rican economy.

(f) Judging from the coefficients of the estimated matrix multipliers, there is evidence of a considerable degree of financial interdependence taking place in Costa Rica. Referring in particular to the multipliers of cases (1.D), (1.E) and (1.F) it is observed that the government sector has the largest financial multiplier effects in the first two cases, followed by the financial, foreign and private sectors. In case (1.F) the financial sector appears to be generating the largest multiplier effects, followed by the government, foreign and private sectors, in order of importance.

(g) For the purpose of illustration, case (1.A) was explicitly considered because of its being the theoretical structure tested by Stone and Row (1971). The forecasting ability of this specification, however, was relatively inferior to most of the other alternatives considered. One point to be made, however, is that, as in the Stone and Roe test, the estimated matrix multiplier parameters provide

evidence of a significant degree of financial interdependence.

It is evident that this type of analysis is highly useful in the context of financial policy and planning. The examples that come to mind include.

(a) the analysis of sources of inflationary and balance of payments problems, which may appropriately be approached within the quantitative framework of this investigation.

(b) the analysis of changing trends in the pattern of financing of economic activity, using the financial data and various indicators of change generated.

(c) within the field of financial planning, the definition of a set of preferences governing the pattern of sectoral asset acquisition and liability issuing. This may prove to be a valuable device to influence desirable trends in the financing of real economic activity. The models of financial interdependence considered in this study lend themselves to this type of elaboration.

The scope for further research in the area covered by this investigation is also wide. Two suggestions are made here. First, further disaggregation of the constructed financial and real accounts would be desirable. This would potentially improve the quality and range of possible uses of the indicators of change suggested in the dissertation. The cost elements involved seem to be relatively low when compared to the potential benefits that may be derived from conducting such a task. Second, the chosen model may potentially be improved by the use of a simultaneous method of parameter estimation. This would entail both an academic and a practical question. The

former refers to testing the relative merits of the OLS regression model vis a vis a more sophisticated method of estimation. The latter involves the possibility of improving the quality of the forecasts and the potential applications of the model.

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STATISTICAL APPENDIX

TABLE 1

FINANCIAL ASSETS OF THE CENTRAL BANK, 1961 - 1975

- STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS -

- Millions of Colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Total F. Assets of Central Bank	490.2	501.7	563.5	651.1	759.6	824.3	813.3	866.6	898.1	1.005.2	1.228.1	1.466.7	1.534.4	2.443.8	2.813.1
With Commercial Banks, Total	221.1	173.5	193.5	215.6	249.9	234.1	129.9	115.8	99.1	224.8	251.9	288.2	270.7	805.5	854.8
1. Loans															
a) Short term	7.8	8.9	9.4	10.6	15.7	15.4	16.3	16.5	17.0	17.8	39.9	91.3	118.9	190.6	231.9
b) Long term	79.4	54.4	55.3	49.1	95.2	79.8	65.8	67.9	78.7	55.8	59.2	59.2	51.0	111.7	201.6
2. Rediscounts	133.9	110.2	128.8	155.9	139.0	138.9	47.8	31.4	3.4	151.2	152.8	137.7	100.8	503.2	421.3
With Non Bank Finc. Intermed., Total	66.8	61.7	57.6	57.7	59.0	55.3	60.4	60.3	60.1	63.7	75.6	96.7	119.2	154.2	228.1
1. Loans															
a) Short Term	55.5	50.6	46.6	46.9	48.3	44.8	50.0	50.0	50.0	53.8	65.8	87.0	109.7	115.2	132.4
b) Long Term	11.3	11.1	11.0	10.8	10.7	10.5	10.4	10.3	10.1	9.9	9.8	9.7	9.5	39.0	95.7
With Private Finc. Intermed., Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Government Sector, Total	44.3	62.7	77.7	114.1	130.9	197.6	267.7	310.1	295.3	331.6	344.7	424.1	375.7	537.9	715.1
1. Loans															
a) Short Term	19.3	28.9	24.6	12.1	14.0	24.3	27.2	37.6	27.3	40.2	62.8	61.8	101.5	258.4	421.7
b) Long Term	4.4	4.4	13.3	15.3	17.7	16.9	28.6	52.0	13.7	155.4	152.8	152.5	152.5	152.5	152.5
2. Treasury Certificates	10.0	18.9	25.0	35.3	50.0	100.6	151.0	151.0	123.5	-	-	90.9	15.0	-	-
3. Government Bonds	10.6	10.5	14.8	51.4	49.2	55.8	60.9	69.5	130.8	136.0	129.1	118.9	106.7	127.0	140.9
With Foreign Sector, Total	158.0	203.8	234.7	263.7	319.8	337.3	355.3	380.4	443.6	385.1	555.9	657.7	768.8	946.2	1.015.1
1. Short Term Int'l Claims	66.5	106.6	122.0	148.4	165.7	155.4	169.5	182.8	223.6	112.0	254.6	255.0	335.6	391.2	502.0
2. Long Term Int'l Claims	17.0	22.7	38.2	40.8	54.8	57.8	61.7	73.5	95.9	114.2	142.4	243.9	274.4	307.2	265.3
3. I.M.F. Quota	74.5	74.5	74.5	74.5	99.3	124.1	124.1	124.1	124.1	158.9	158.9	158.8	158.8	247.8	247.8

SOURCE: ..see sources of data, Chapter III.

TABLE 2

FINANCIAL LIABILITIES OF THE CENTRAL BANK, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Liabilities, Central Bank, Total	401.1	404.8	502.1	670.8	782.1	849.6	837.6	886.5	935.5	1,055.1	1,248.9	1,602.9	1,827.2	2,810.4	3,777.1
With Commerce Banks, Total	78.4	78.0	93.2	99.7	109.2	98.7	161.9	186.9	238.3	211.2	301.2	396.9	429.4	533.0	837.4
1) Currency	31.8	33.0	41.6	41.3	40.9	42.2	50.2	57.6	75.4	68.4	76.1	84.3	115.8	139.3	179.8
2) Demand Deposits	46.6	45.0	51.6	58.4	68.3	56.5	107.6	126.7	161.2	134.6	216.1	301.1	297.3	320.1	544.8
3) Sight deposits	-	-	-	-	-	-	-	-	-	5.3	5.5	6.5	8.0	9.9	12.4
4) Deposits in foreign currency	-	-	-	-	-	-	4.1	2.6	1.7	2.9	3.5	5.0	8.3	63.7	100.4
With Non Bank Finc. Intermed., Total	0.3	0.2	0.3	0.5	0.2	-	0.2	0.6	0.5	-	-	-	-	9.4	7.7
1) Demand Deposits	0.3	0.2	0.3	0.5	0.2	-	0.2	0.6	0.5	-	-	-	-	9.4	7.7
With Private Finc. Intermed., Total	0.1	0.1	0.1	0.5	0.8	0.5	0.7	1.5	0.9	1.2	4.8	0.7	5.5	7.4	14.2
1) Demand Deposits	0.1	0.1	0.1	0.5	0.8	0.5	0.7	1.5	0.9	1.1	4.0	0.4	5.4	4.6	13.6
2) Deposits in Foreign Currency	-	-	-	-	-	-	-	-	-	0.1	0.8	0.3	0.1	2.8	0.6
With Government Sector, Total	3.3	10.3	12.7	19.7	27.5	33.8	24.6	28.5	43.1	136.8	92.8	123.5	122.3	233.3	195.4
1) Demand Deposits	1.1	7.3	7.0	12.5	15.5	21.7	8.3	16.0	21.4	67.5	23.5	70.2	40.8	75.2	49.5
2) Sight Deposits	2.2	3.0	5.3	6.1	9.1	6.9	10.8	9.2	19.7	26.3	24.9	32.9	35.5	52.3	71.7
3) Unclassified deposits	-	-	0.4	1.1	2.9	5.2	5.3	2.9	1.5	42.5	44.2	19.9	45.3	91.0	54.8
4) Deposits in Foreign Currency	-	-	-	-	-	-	0.2	0.4	0.5	0.5	0.2	0.5	0.7	14.8	19.4
With Private Sector, Total	185.4	207.1	223.5	228.1	236.3	252.8	282.4	328.9	390.4	387.0	438.9	521.5	645.5	736.1	854.9
1) Currency	184.9	206.1	223.3	227.8	235.9	252.8	281.8	306.6	350.6	381.0	434.1	520.3	643.8	734.3	853.3
2) Demand Deposits	0.5	1.0	0.2	0.3	0.4	-	0.6	0.6	0.9	0.8	1.1	1.2	1.7	1.8	1.6
3) Bonds	-	-	-	-	-	-	-	21.7	38.9	5.2	3.7	-	-	-	-
With Foreign Sector, Total	133.6	109.1	172.3	322.3	408.1	463.8	367.8	340.1	262.3	318.9	411.2	560.3	624.5	1,291.2	1,867.5
1) Demand Deposits	132.5	107.9	171.1	166.5	247.6	283.6	285.9	259.1	191.5	205.5	249.0	263.6	278.7	624.6	831.1
2) Short Term Int'l Claims	1.1	1.2	1.2	1.4	4.0	3.0	4.8	5.3	2.7	13.2	10.9	32.5	70.7	68.1	51.3
3) Long Term Int'l Claims	-	-	-	-	-	-	-	-	13.2	59.7	82.3	185.1	202.5	371.7	409.4
4) Loans by foreign banks	-	-	-	154.4	156.5	177.2	77.1	75.7	54.9	40.5	69.0	79.1	72.6	226.8	575.7

SOURCE: ..see sources of data, Chapter III.

TABLE 3

FINANCIAL ASSETS OF THE COMMERCIAL BANKS, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F.Assets of Comm.Bank,Total	791,7	797,9	833,3	898,2	1,007,6	1,013,2	1,130,5	1,202,5	1,319,4	1,518,5	1,862,9	2,175,8	2,563,2	3,597,3	4,603.4
With Central Bank, Total	78,4	78,0	93,2	99,7	109,2	98,7	161,9	186,9	238,3	211,2	301,2	396,9	429,4	533.0	837,4
1) Currency	31.8	33.0	41.6	41.3	40.9	42.2	50.2	57.6	75.4	68.4	76.1	84.3	115.8	139.3	179.8
2) Demand Deposits	46.6	45.0	51.6	58.4	68.3	56.5	107.6	126.7	161,2	134.6	216.1	301.1	297.3	320.1	544.8
3) Sight Deposits	-	-	-	-	-	-	-	-	-	5.3	5.5	6.5	8.0	9.9	12.4
4) Foreign Currency Depos.	-	-	-	-	-	-	4.1	2.6	1.7	2.9	3.5	5.0	8.3	63.7	100.4
With Non Bank Finc. Intermed., Total	29,6	39,4	36,1	41,8	65,9	66,1	67,9	67,2	59,0	67,0	133,3	147,4	171,6	265,1	314,2
1) Short Term Loans	6.3	14.3	9.6	3.6	4.7	5.2	6.4	10.1	8.6	7.2	17.0	24.5	42.0	40.4	61.3
2) Long Term Loans	22.0	22.0	21.8	35.8	55.9	51.5	56.8	51.6	44.6	52.3	70.0	83.0	102.9	124.6	174.5
3) Bonds	1.3	3.1	4.7	2.4	5.3	9.4	4.7	5.5	5.8	7.5	46.3	39.9	26.7	100.1	78.4
With Private F.I., Total	-	-	-	-	-	-	-	0,1	0,1	0,1	0,1	-	1,0	-	0,6
1) Long Term Loans	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	-	1.0	-	0.6
With Government Sector,Total	57,6	47,1	41,6	24,3	47,7	42,6	15,8	13,8	10,3	27,7	38,2	79,5	89,0	270,5	348,1
1) Long Term Loans	1.1	0.8	0.5	2.3	2.1	2.3	3.0	2.9	2.6	14.0	14.7	25.9	20.5	22.6	22;2
2) Bonds	56.5	46.3	41.1	22.0	45.6	40.3	12.8	10.9	7.7	13.7	23.5	53.6	68.5	247.9	325.9
With Private Sector, Total	591,1	607,7	629,2	714,7	756,3	777,1	826,5	862,4	947,8	1,137,4	1,307,2	1,426,0	1,681,3	2,322,7	2,981,8
1) Short Term Loans	414.6	423.6	448.4	499.1	476.7	501.0	470.1	507.9	530.4	651.0	732.4	790.1	915.0	1.426.1	1.803.4
2) Long Term Loans	176.1	183.7	179.7	215.2	279.2	275.7	355.1	353.1	416.0	484.9	572.7	635.9	766.3	896.6	1.174 0
3) Equities	0.4	0.4	1.1	0.4	0.4	0.4	1.3	1.4	1.4	1.5	2.1	-	-	-	4 4
With Foreign Sector, Total	35 0	25.7	33,2	17,7	28,5	28,7	58,4	72,1	63,9	75,1	82,9	126,0	190,9	206,0	121,3
1) Deposits in Foreign Banks	33.9	25.1	32.6	16.4	27.5	27.6	53.9	69.4	61.6	72.5	73.0	114.2	176.1	193.5	107.2
2) Short Term Int'l Claims	1.1	0.6	0.6	1.3	1.0	1.1	4.5	2.7	2.3	2.6	9.9	11.8	14.8	12.5	14.1

SOURCE: ..see sources of data, Chapter III.

TABLE 4

FINANCIAL LIABILITIES OF THE COMMERCIAL BANKS, 1961 - 1975

SECTOR RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Liabilities Comm. Banks, Total	614.2	613.3	679.5	730.0	859.7	873.4	966.0	1.048.4	1.174.6	1.372.6	1.918.4	2.292.3	2.715.3	4.067.7	5.571.3
With Central Bank, Total	221.1	173.5	193.5	215.6	249.9	234.1	129.9	115.8	99.1	224.8	251.9	288.2	270.7	805.5	854.8
1) Short Term Loans	7.8	8.9	9.4	10.6	15.7	15.4	16.3	16.5	17.0	17.8	39.9	91.3	118.9	190.6	231.9
2) Long Term Loans	79.4	54.4	55.3	49.1	95.2	79.8	65.8	67.9	78.7	55.8	59.2	59.2	51.0	111.7	201.6
3) Rediscounts	133.9	110.2	128.8	155.9	139.0	138.9	47.8	31.4	3.4	151.2	152.8	137.7	100.8	503.2	421.3
With Non Bank Finc. Intermed. Total	30.4	38.6	44.7	37.5	47.2	47.3	62.4	64,0	85.2	123.7	141,3	158.0	190.4	322,9	290,8
1) Demand Deposits	15.3	25.0	28.5	22.4	30.3	29.5	40.1	38.6	57.5	96.4	98.9	109.4	129.1	241.1	190.6
2) Sight and Term Deposits	10.3	11.6	13.0	14.6	16.4	17.0	19.8	22.5	26.6	26.4	41.7	48.0	59.7	72.6	96.5
3) Foreign Currency deposits	-	0.6	0.5	0.1	-	0.4	0.7	1.2	0.4	0.9	0.7	0.6	1.6	9.2	3.7
4) Bonds	4.8	1.4	2.7	0.4	0.5	0.4	1.8	1.7	0.7	-	-	-	-	-	-
With Private Finc. Intermed, Total	-	-	-	0.5	1.1	2.2	2.0	4.5	4.6	4.0	4,9	8.7	9.5	18.6	2.3
1) Demand Deposits	-	-	-	0.5	1.1	2.2	2.0	4.5	4.6	4.0	4.9	8.7	9.5	18.6	2.3
With Government Sector Total	1.9	2.1	2.1	2.1	2.0	3.1	2.4	2.0	2.1	4,6	6,0	13,9	12.8	25,7	17.8
1) Demand Deposits	1.7	1.9	1.9	1.9	1.8	2.9	2.2	1.8	1.9	4.4	5.8	12.2	8.9	23.2	17.4
2) Sight and Term Deposits	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
3) Foreign Currency Deposits	-	-	-	-	-	-	-	-	-	-	-	1.5	3.7	2.3	0.2
With Private Sector, Total	347.6	387.1	421.3	451.1	487.8	505.0	697.9	760.2	839.7	876.3	1,378.7	1.663.5	1,988.1	2.617.2	4.018.7
1) Demand Deposits	215.5	241.3	266.9	294.4	320.9	329.2	487.2	511.1	571.2	576.4	800.3	902.6	1.154.1	1.276.8	1.763.7
2) Sight and Term Deposits	84.7	99.0	115.6	126.5	133.9	142.8	170.2	202.3	233.3	253.0	520.6	674.0	712.3	1.154.5	1.862.2
3) Foreign Currency Deposits	23.5	22.8	21.5	17.7	18.6	22.2	33.0	41.5	31.2	44.8	56.6	86.2	121.4	185.9	392.8
4) Bonds	23.9	24.0	17.3	12.5	14.4	10.8	7.5	5.3	4.0	2.1	1.2	0.7	0.3	-	-
With Foreign Sector, Total	13.2	12.0	17.9	23.2	71.7	81.7	71.4	101.9	143.9	139.2	135.6	160.0	243.8	277.8	386.9
1) Demand Deposits	-	-	-	-	0.1	0.1	0.1	-	0.1	0.1	0.1	-	-	-	-
2) Foreign Currency Deposits	0.6	0.6	0.6	0.6	0.6	0.5	0.8	0.5	0.9	0.6	3.7	19.5	1.6	1.4	2.5
3) Short Term Int'l Claims	12.6	11.4	17.3	22.6	71.0	47.8	6.7	26.5	6.4	8.3	23.8	22.0	53.2	42.9	35.6
4) Long Term Int'l Claims (Loans)						33.3	63.8	74.9	136.5	130.2	108.0	118.5	189.0	233.5	348.8

SOURCE: ..See sources of data, Chapter III.

TABLE 5

FINANCIAL ASSETS OF THE NON - BANKS, 1961 - 1975

- RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS -

.- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Assets of Non Banks, Total	458.8	536.1	656.8	752.0	876.9	941.8	1.084.4	1.209.5	1.343.0	1.685.7	2.175.0	2.533.9	2.862.6	3,702.5	4.611.9
With Central Bank, Total	0.3	0.2	0.3	0.5	0.2	-	0.2	0.6	0.5	-	-	-	-	9.4	7.7
1) Demand Deposits	0.3	0.2	0.3	0.5	0.2	-	0.2	0.6	0.5	-	-	-	-	9.4	7.7
With Comm. Banks, Total	30.4	38.6	44.7	37.5	47.2	47.3	62.4	64.0	85.2	123.7	141.3	158.0	190.4	322.9	290.8
1) Demand Deposits	15.3	25.0	28.5	22.4	30.3	29.5	40.1	38.6	57.5	96.4	98.9	109.4	129.1	241.1	190.6
2) Sight and term Deposits	10.3	11.6	13.0	14.6	16.4	17.0	19.8	22.5	26.6	26.4	41.7	48.0	59.7	72.6	96.5
3) Foreign Currency Deposits	-	0.6	0.5	0.1	-	0.4	0.7	1.2	0.4	0.9	0.7	0.6	1.6	9.2	3.7
4) Bonds	4.8	1.4	2.7	0.4	0.5	0.4	1.8	1.7	0.7	-	-	-	-	-	-
With Private F.I., Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Government Sector, Total	62.7	71.9	114.6	138.8	168.4	208.1	284.1	341.3	403.5	456.6	516.1	654.2	787.9	984.5	893.6
1) Long Term Loans	16.8	20.8	34.2	35.1	57.9	90.6	128.3	174.3	227.8	286.1	346.6	161.1	289.3	397.0	429.6
2) Bonds	45.9	51.1	80.4	103.7	110.5	117.5	155.8	167.0	175.7	170.5	169.5	493.1	498.6	587.5	464.0
With Private Sector, Total	360.8	422.4	495.8	573.4	657.8	679.9	732.5	798.9	850.4	1.092.0	1.498.4	1.696.5	1.855.4	2.349.5	3.383.4
1) Short Term loans	13.6	14.1	14.7	34.3	48.5	50.0	40.9	35.8	42.2	1.092.0	1.498.4	1.696.5	1.855.4	2.349.5	3.383.4
2) Long Term loans	347.2	408.3	481.1	539.1	609.3	629.9	691.6	763.1	808.2						
With Foreign Sector, Total	4.6	3.0	1.4	1.8	3.3	6.5	5.2	4.7	3.4	13.4	19.2	25.2	28.9	36.2	36.4
1) Re-insurance claims	4.6	3.0	1.4	1.8	3.3	6.5	5.2	4.7	3.4	13.4	19.2	25.2	28.9	36.2	36.4

SOURCE: ..see sources of data, Chapter III.

TABLE 6

FINANCIAL LIABILITIES OF THE NON-BANKS, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Liabilities of Non Banks, Total	356.7	471.8	572.7	773.2	968.2	1.064.9	1.177.4	1.386.6	1.531.1	1.859.1	2.207.4	2.599.9	3.103.3	3.935.2	4.987.5
With Central Bank, Total	66.8	61.7	57.6	57.7	59.0	55.3	60.4	60.3	60.1	63.7	75.6	96.7	119.2	154.2	228.1
1) Short Term Loans	55.5	50.6	46.6	46.9	48.3	44.8	50.0	50.0	50.0	53.8	65.8	87.0	109.7	115.2	132.4
2) Long Term Loans	11.3	11.1	11.0	10.8	10.7	10.5	10.4	10.3	10.1	9.9	9.8	9.7	9.5	39.0	95.7
With Commercial Banks, Total	29.6	39.4	36.1	41.8	65.9	66.1	67.9	67.2	59.0	67.0	133.3	147.4	171.6	265.1	314.2
1) Short Term Loans	6.3	14.3	9.6	3.6	4.7	5.2	6.4	10.1	8.6	7.2	17.0	24.5	42.0	40.4	61.3
2) Long Term Loans	22.0	22.0	21.8	35.8	55.9	51.5	56.8	51.6	44.6	52.3	70.0	83.0	102.9	124.6	174.5
3) Bonds	1.3	3.1	4.7	2.4	5.3	9.4	4.7	5.5	5.8	7.5	46.3	39.9	26.7	100.1	78.4
With Private Finc. Intermed. Total	-	-	-	-	-	-	0.2	0.5	1.6	1.0	1.4	7.0	9.4	0.4	0.5
1) Bonds	-	-	-	-	-	-	0.2	0.5	1.6	1.0	1.4	7.0	9.4	0.4	0.5
With Government Sector, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Private Sector, Total	236.9	281.5	346.3	441.0	533.5	607.6	695.6	789.6	901.6	1.125.2	1.307.0	1.548.8	1.815.0	2.103.3	2.514.2
1) Saving Deposits	2.3	3.3	2.9	3.1	3.8	4.3	5.5	5.3	5.3	36.9	62.7	84.8	124.3	176.4	202.2
2) Insurance Reserves	201.8	235.8	281.3	330.4	388.2	451.9	521.7	604.2	699.9	893.8	1.024.2	1.206.8	1.414.1	1.659.7	1.948.7
3) Bonds	32.8	42.4	62.1	107.5	141.5	151.4	168.4	180.1	196.4	194.5	220.1	257.2	276.6	267.2	363.3
With Foreign Sector, Total	23.4	89.2	132.7	232.7	309.8	335.9	353.3	469.0	508.8	602.2	690.1	800.0	988.1	1.412.2	1.930.5
1) Long Term Loans	20.8	87.7	131.8	231.4	303.9	330.4	349.1	463.6	503.5	590.0	680.0	782.8	972.8	1.391.2	1.900.1
2) Re- insurance claims	2.6	1.5	0.9	1.3	2.4	2.1	0.2	1.2	1.6	9.3	7.2	8.7	8.3	15.2	24.6
3) Bonds	-	-	-	-	3.5	3.4	4.0	4.2	3.7	2.9	2.9	8.5	7.0	5.8	5.8

SOURCE: ..see sources of data, Chapter III.

TABLE 7

FINANCIAL ASSETS OF THE PRIVATE FINC. INTERMEDIARIES, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF FINANCIAL CLAIMS

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Assets Private Finc. Intermed., Total	8.1	8.8	9.3	18,5	48.2	63.9	77.5	156,7	218.8	201,9	325.3	471.7	627.6	703.8	711.8
With Central Bank, Total	0.1	0.1	0.1	0.5	0.8	0.5	0.7	1.5	0,9	1.2	4.8	0.7	5.5	7.4	14,2
1) Demand Deposits	0.1	0.1	0.1	0.5	0.8	0.5	0.7	1.5	0.9	1.1	4.0	0.4	5.4	4.6	13.6
2) Foreign Currency Deposits	-	-	-	-	-	-	-	-	-	0.1	0.8	0.3	0.1	2.8	0.6
With Commerce Banks, Total	-	-	-	0,5	1.1	2.2	2,0	4,5	4.6	4,0	4.9	8.7	9.5	18,6	2.3
1) Demand Deposits	-	-	-	0.5	1.1	2.2	2.0	4.5	4.6	4.0	4.9	8.7	9.5	18.6	2.3
With Non Bank Finc. Intermed. Total	-	-	-	-	-	-	0.2	0,5	1.6	1,0	1.4	7.0	9.4	,0,4	0.5
1) Bonds	-	-	-	-	-	-	0.2	0.5*	1.6	1.0	1.4	7.0	9.4	0.4	0.5
With Government Sector, Total	0.5	0.4	0.3	3.5	6.8	2.7	6.9	12,1	13.4	3.7	15.3	18.3	14.1	30.4	54.5
1) Bonds	0.5	0.4	0.3	3.5	6.8	2.7	6.9	12.1	13.4	3.7	15.3	18.3	14.1	30.4	54.5
With Private Sector, Total	7,5	8.3	8.9	14.0	39.4	58.3	66.8	137.2	197.0	186.9	290.6	414.4	566.8	620.0	581.4
1) Short Term Loans	7.5	8.3	8.9	9.7	16.2	20.7	22.9	83.7	120.0	178.9	282.8	399.5	561.2	609.3	572.0
2) Long Term Loans	-	-	-	4.2	22.6	36.5	42.6	49.4	66.7						
3) Equities	-	-	-	0.1	0.6	1.1	1.3	4.1	10.3	8.0	7.8	14.9	5.6	10.7	9.4
With Foreign Sector, Total	-	-	-	-	0.1	0.2	0.9	0.9	1.3	5,1	8.3	22.6	22.3	27.0	58.9
1) Deposits in Foreign Banks	-	-	-	-	0.1	0.2	0.9	0.9	1.3	3.6	4.4	7.7	7.0	11.7	19.7
2) Equities of Foreign Companies	-	-	-	-	-	-	-	-	-	1.5	3.9	14.9	15.3	15.3	15.3
3) Bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.9

SOURCE: ..see sources of data, Chapter III.

TABLE 8

FINANCIAL LIABILITIES OF THE PRIVATE FINC. INTERMEDIARIES, 1961 - 1975

- STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS -

- Millions of Colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Liabilities, Private Financ. Intermed., Total	0.9	0.8	2.2	2.5	22.5	35.7	43.0	81.0	123.6	120.2	217.6	360.4	470.4	486.7	536.7
With Central Bank, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Commercial Bank, Total	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	-	1.0	-	0.6
1) Long Term Loans	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	-	1.0	-	0.6
With Non Bank Finc. Intermed., Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Government Sector, Total	-	-	-	-	-	-	*	-	-	-	-	-	-	-	-
With Private Sector, Total	0.7	0.6	0.4	1.6	3.0	7.2	9.1	40.1	70.3	51.3	89.6	185.2	243.5	213.2	205.9
1) Short Term Loans	0.7	0.6	0.4	1.6	3.0	7.2	9.1	32.4	60.0	50.5	87.7	170.9	233.3	203.4	191.4
2) Long Term loans	-	-	-	-	-	-	-	7.7	10.3						
3) Bonds	-	-	-	-	-	-	-	-	-	0.8	1.9	14.3	10.2	9.8	14.5
With Foreign Sector, Total	0.2	0.2	1.8	0.9	19.5	28.5	33.9	40.8	53.2	68.8	127.9	175.2	225.9	273.5	330.2
1) Foreign Currency Deposits	0.2	0.2	1.8	0.9	0.3	0.2	0.6	0.3	0.8	0.7	1.0	1.2	0.6	1.0	1.1
2) Long Term Loans	-	-	-	-	19.2	28.3	33.3	40.5	52.4	68.1	126.9	174.0	225.3	272.5	329.1

SOURCE: ..see sources of data, Chapter III.

TABLE 9

FINANCIAL ASSETS OF THE GOVERNMENT SECTOR, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Assets Government Sector, Total	8.6	17.2	21.0	28.3	39.1	46.5	38.1	39.0	69.8	147.7	106.0	147.7	146.8	272.6	240.7
With Central Bank, Total	3.3	10.3	12.7	19.7	27.5	33.8	24.6	28.5	43.1	136.8	92.8	123.5	122.3	233.3	195.4
1) Demand Deposits	1.1	7.3	7.0	12.5	15.5	21.7	8.3	16.0	21.4	67.5	23.5	70.2	40.8	75.2	49.5
2) Sight Deposits	2.2	3.0	5.3	6.1	9.1	6.9	10.8	9.2	19.7	26.3	24.9	32.9	35.5	52.3	71.7
3) Unclassified Deposits	-	-	0.4	1.1	2.9	5.2	5.3	2.9	1.5	42.5	44.2	19.9	45.3	91.0	54.8
4) Foreign Currency Deposits	-	-	-	-	-	-	0.2	0.4	0.5	0.5	0.2	0.5	0.7	14.8	19.4
With Commerce Banks, Total	1.9	2.1	2.1	2.1	2.0	3.1	2.4	2.0	2.1	4.6	6.0	13.9	12.8	25.7	17.8
1) Demand Deposits	1.7	1.9	1.9	1.9	1.8	2.9	2.2	1.8	1.9	4.4	5.8	12.2	8.9	23.2	17.4
2) Sight and Term Deposits	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
3) Foreign Currency Deposits	-	-	-	-	-	-	-	-	-	-	-	1.6	3.7	2.3	0.2
With Non Bank Finc. Intermed., Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Private Finc. Intermed., Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Private Sector, Total	3.4	4.8	6.2	6.5	9.6	9.6	11.1	8.5	24.6	6.3	7.2	10.3	11.7	13.6	27.5
1) Long Term Loans	1.6	2.7	2.3	3.4	5.3	3.8	3.1	4.0	3.2	4.2	5.0	7.9	9.1	11.1	25.5
2) Taxes to be collected	1.8	2.1	3.9	3.1	4.3	5.8	8.0	4.5	21.4	2.1	2.2	2.4	2.6	2.5	2.0
With Foreign Sector, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOURCE: ..see sources of data, Chapter III.

TABLE 10

FINANCIAL LIABILITIES OF THE GOVERNMENT SECTOR, 1961 - 1975

- STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS -

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Liabilities, Government, Total	550.4	601.2	725.7	781.0	902.3	1,071.9	1,224.8	1,379.8	1,498.8	1,718.1	2,070.9	2,424.3	2,961.3	3,842.9	4,388.1
With Central Bank, Total	44.3	62.7	77.7	114.1	130.9	197.6	267.7	310.1	295.3	331.6	344.7	424.1	375.7	537.9	715.1
1) Short Term Loans	19.3	28.9	24.6	12.1	14.0	24.3	27.2	37.6	27.3	40.2	62.8	61.8	101.5	258.4	421 7
2) Long Term Loans	4.4	4.4	13.3	15.3	17.7	16.9	28.6	52.0	13.7	155.4	152.8	152.5	152.5	152 5	152.5
3) Treasury certificates	10.0	18.9	25.0	35.3	50.0	100.6	151.0	151.0	123.5	-	-	90.9	15.0	-	-
4) Government Bonds	10.6	10.5	14.8	51.4	49.2	55.8	60.9	69.5	130.8	136.0	129.1	118.9	106.7	127.0	140 9
With Comm. Banks, Total	57.6	47.1	41.6	24.3	47.7	42.6	15.8	13.8	10.3	27.7	38.2	79.5	89.0	270.5	348.1
1) Long Term Loans	1.1	0.8	0.5	2.3	2.1	2.3	3.0	2.9	2.6	14.0	14.7	25.9	20.5	22.6	22.2
2) Bonds	56.5	46.3	41.1	22.0	45.6	40.3	12.8	10.9	7.7	13.7	23.5	53.6	68.5	247.9	325.9
With Non Bank Finc. Intermed., Total	62.7	71.9	114.6	138.8	168.4	208.1	284.1	341.3	403.5	456.6	516.1	654.2	787.9	984.5	893.6
1) Long Term Loans	16.8	20.8	34.2	35.1	57.9	90.6	128.3	174.3	227.8	286.1	346.6	161.1	289.3	397.0	429.6
2) Bonds	45.9	51.1	80.4	103.7	110.5	117.5	155.8	167.0	175.7	170.5	169.5	493.1	498.6	587.5	464.0
With Private F.I., Total	0.5	0.4	0.3	3.5	6.8	2.7	6.9	12.1	13.4	3.7	15.3	18.3	14.1	30.4	54.5
1) Bonds	0.5	0.4	0.3	3.5	6.8	2.7	6.9	12.1	13.4	3.7	15.3	18.3	14.1	30.4	54.5
With Private Sector, Total	216.8	210.6	228.0	209.7	215.3	268.9	285.5	365.3	470.9	536.6	654.2	665.9	886.5	907.9	1,047.9
1) Bonds	145.6	160.0	178.4	161.4	153.3	197.6	214.3	264.3	361.6	423.2	460.0	481.7	600.3	497.7	579.0
2) Long Term Loans	18.9	16.7	12.6	11.0	10.1	9.3	8.5	8.3	8.3	8.4	0.8	0.8	2.6	2.6	3.1
3) Anticipated Payments	1.3	0.5	0.7	1.4	1.4	0.9	3.5	4.7	4.6	6.7	8.2	9.1	6.5	10.4	17.7
4) Pending Payments	51.0	33.4	36.3	35.9	50.5	61.1	59.2	88.0	96.4	98.3	185.2	174.3	277.1	397.2	448.1
With Foreign Sector, Total	168.5	208.5	263.5	290.6	333.2	352.0	364.8	337.2	305.4	361.9	502.4	582.3	808.1	1,111.7	1,328.9
1) Long Term Loans	168.5	208.5	235.0	246.1	273.3	291.5	310.2	302.4	293.2	348.8	483.6	573.8	725.3	1.069.1	1.278.3
2) Bonds	-	-	28.5	44.5	59.9	60.5	54.6	34.8	12.2	13.1	18.8	8.5	82.8	42.6	50.6

SOURCE: ..see sources of data, Chapter III.

TABLE 11

FINANCIAL ASSETS OF THE PRIVATE SECTOR, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Assets, Private Sector, Total	987.4	1.086.9	1.219.5	1.331.5	1,475.9	1.641.5	1.970.5	2.284.1	2.672.9	2,976.4	3.868.4	4,584.9	5.578.6	6.577.7	8,641.6
With Central Bank, Total	185.4	207.1	223.5	228.1	236.3	252.8	282.4	328.9	390.4	387.0	438.9	521.5	645.5	736.1	854.9
1) Currency	184.9	206.1	223.3	227.8	235.9	252.8	281.8	306.6	350.6	381.0	434.1	520.3	643.8	734.3	853.3
2) Demand Deposits	0.5	1.0	0.2	0.3	0.4	-	0.6	0.6	0.9	0.8	1.1	1.2	1.7	1.8	1.6
3) Bonds	-	-	-	-	-	-	-	21.7	38.9	5.2	3.7	-	-	-	-
With Commerce Banks, Total	347.6	387.1	421.3	451.1	487.8	505.0	697.9	760.2	839.7	876.3	1.378.7	1.663.5	1,988.1	2.617.2	4.018.7
1) Demand Deposits	215.5	241.3	266.9	294.4	320.9	329.2	487.2	511.1	571.2	576.4	800.3	902.6	1.154.1	1.276.8	1.763.7
2) Sight and Term Deposits	84.7	99.0	115.6	126.5	133.9	142.8	170.2	202.3	233.3	253.0	520.6	674.0	712.3	1.154.5	1.862.2
3) Foreign Currency Deposits	23.5	22.8	21.5	17.7	18.6	22.2	33.0	41.5	31.2	44.8	56.6	86.2	121.4	185.9	392.8
4) Bonds	23.9	24.0	17.3	12.5	14.4	10.8	7.5	5.3	4.0	2.1	1.2	0.7	0.3	-	-
With Non Bank Finc. Intermed, Total	236.9	281.5	346.3	441.0	533.5	607.6	695.6	789.6	901.6	1.125.2	1,307.0	1,548.8	1.815.0	2,103.3	2.514.2
1) Saving Deposits	2.3	3.3	2.9	3.1	3.8	4.3	5.5	5.3	5.3	36.9	62.7	84.8	124.3	176.4	202.2
2) Insurance Reserves	201.8	235.8	281.3	330.4	388.2	451.9	521.7	604.2	699.9	893.8	1.024.2	1.206.8	1.414.1	1.659.7	1.948.7
3) Bonds	32.8	42.4	62.1	107.5	141.5	151.4	168.4	180.1	196.4	194.5	220.1	257.2	276.6	267.2	363.3
With Private Finc. Intermed. Total	0.7	0.6	0.4	1.6	3.0	7.2	9.1	40.1	70.3	51.3	89.6	185.2	243.5	213.2	205.9
1) Short Term Loans	0.7	0.6	0.4	1.6	3.0	7.2	9.1	32.4	60.0	50.5	87.7	170.9	233.3	203.4	191.4
2) Long Term Loans	-	-	-	-	-	-	-	7.7	10.3						
3) Bonds	-	-	-	-	-	-	-	-	-	0.8	1.9	14.3	10.2	9.8	14.5
With Government Sector, Total	216.8	210.6	228.0	209.7	215.3	268.9	285.5	365.3	470.9	536.6	654.2	665.9	886.5	907.9	1.047.9
1) Bonds	145.6	160.0	178.4	161.4	153.3	197.6	214.3	264.3	361.6	423.2	460.0	481.7	600.3	497.7	579.0
2) Long Term Loans	18.9	16.7	12.6	11.0	10.1	9.3	8.5	8.3	8.3	8.4	0.8	0.8	2.6	2.6	3.1
3) Anticipated Tax Payments	1.3	0.5	0.7	1.4	1.4	0.9	3.5	4.7	4.6	6.7	8.2	9.1	6.5	10.4	17.7
4) Pending Payments	51.0	33.4	36.3	35.9	50.5	61.1	59.2	88.0	96.4	98.3	185.2	174.3	277.1	397.2	448.1
With Foreign Sector, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOURCE: ..see sources of data, Chapter III.

FINANCIAL LIABILITIES OF THE PRIVATE SECTOR, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

TABLE 12

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Liabilities Private Sect. Tot.	1.453.3	1.633.1	1.802.0	2.053.4	2.303.9	2.476.2	2.756.2	3.143.4	3.465.9	4.118.7	5.412.7	5.998.4	6.820,0	9.051,1	11.071.5
With Central Bank, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Commercial Banks, Total	591.1	607.7	629.2	714.7	756.3	777.1	826.5	862.4	947.8	1.137.4	1.307.2	1.426.0	1.681.3	2.322.7	2.981.8
1) Short Term Loans	414.6	423.6	448.4	499.1	476.7	501.0	470.1	507.9	530.4	651.0	732.4	790.1	915.0	1.426.1	1.803.4
2) Long Term Loans	176.1	183.7	179.7	215.2	279.2	275.7	355.1	353.1	416.0	484.9	572.7	635.9	766.3	896.6	1.174.0
3) Equities	0.4	0.4	1.1	0.4	0.4	0.4	1.3	1.4	1.4	1.5	2.1	-	-	-	4.4
With Non Bank Finc. Intermed Total	360.8	422.4	495.8	573.4	657.8	679.9	732.5	798.9	850.4	1,092.0	1,498.4	1,696,5	1,855.4	2.349.5	3.383.4
1) Short Term Loans	13.6	14.1	14.7	34.3	48.5	50.0	40.9	35.8	42.2	1.092.0	1.498.4	1.696.5	1.855.4	2.349.5	3.383.4
2) Long Term Loans	347.2	408.3	481.1	539.1	609.3	629.9	691.6	763.1	808.2						
With Private Finc. Intermed.total	7.5	8.3	8.9	14.0	39.4	58.3	66.8	137.2	197.0	186,9	290.6	414.4	566.8	620.0	581,4
1) Short Term Loans	7.5	8.3	8.9	9.7	16.2	20.7	22.9	83.7	120.0	178.9	282.8	399.5	561.2	609.3	572.0
2) Long Term Loans	-	-	-	4.2	22.6	36.5	42.6	49.4	66.7						
3) Equities	-	-	-	0.1	0.6	1.1	1.3	4.1	10.3	8.0	7.8	14.9	5.6	10.7	9.4
With Governmente Sector, Total	3.4	4.8	6.2	6.5	9.6	9.6	11.1	8.5	24,6	6.3	7.2	10.3	11.7	13.6	27.5
1) Long Term Loans	1.6	2.7	2.3	3.4	5.3	3.8	3.1	4.0	3.2	4.2	5.0	7.9	9.1	11.1	25.5
2) Taxes to be collected	1.8	2.1	3.9	3.1	4.3	5.8	8.0	4.5	21.4	2.1	2.2	2.4	2.6	2.5	2.0
With Foreign Sector, Total	490.5	589.9	661.9	744.8	840.8	951.3	1.119.3	1.336.4	1.446.1	1.696.1	2.309.3	2.451.2	2.704,8	3.745.3	4,097.4
1) Loans	363.4	427.0	468.0	512.4	560.7	614.3	696.0	754.2	748.8	809.6	940.5	1.094.4	1.221,8	1.637.0	1.784.3
2) Pending Payments	89.5	110.6	127.1	146.3	168.8	194.0	231.5	248.8	276.9	311.8	484.4	500.6	492.8	863.9	774.7
3) Direct Obligations-Commerce	36.4	50.3	64.2	82.1	105.3	134.4	178.1	319.4	406.2	521.7	811.2	750.6	885.7	1.094.4	1.372.1
4) Import endorsements	1.2	2.0	2.6	4.0	6.0	8.6	13.7	14.0	14.2	53.0	73.2	105.6	104.5	150.0	166.3

SOURCE: ..see sources of data, Chapter III.

FINANCIAL ASSETS OF THE FOREIGN SECTOR, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

TABLE 13

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Assets Foreign Sector, Total	829.4	1.008.9	1.250.1	1.614.5	1.983.1	2.213.2	2.310.5	2.625.4	2.719.7	3.187.1	4.176.5	4.729.0	5.595.2	8.111.7	9.941.4
With Central Bank, Total	133.6	109.1	172.3	322.3	408.1	463.8	367.8	340.1	262.3	318.9	411.2	560.3	624.5	1.291.2	1.867.5
1) Demand Deposits	132.5	107.9	171.1	166.5	247.6	283.6	285.9	259.1	191.5	205.5	249.0	263.6	278.7	624.6	831.1
2) Short Term Int'l Claims	1.1	1.2	1.2	1.4	4.0	3.0	4.8	5.3	2.7	13.2	10.9	32.5	70.7	68.1	51.3
3) Long Term Int'l Claims	-	-	-	-	-	-	-	-	13.2	59.7	82.3	185.1	202.5	371.7	409.4
4) Loans by Foreign Banks	-	-	-	154.4	156.5	177.2	77.1	75.7	54.9	40.5	69.0	79.1	72.6	226.8	575.7
With Commercial Banks, Total	13.2	12.0	17.9	23.2	71.7	81.7	71.4	101.9	143.9	139.2	135.6	160.0	243.8	277.8	386.9
1) Demand Deposits	-	-	-	-	0.1	0.1	0.1	-	0.1	0.1	0.1	-	-	-	-
2) Foreign Currency Deposits	0.6	0.6	0.6	0.6	0.6	0.5	0.8	0.5	0.9	0.6	3.7	19.5	1.6	1.4	2.5
3) Short Term Int'l Claims						47.8	6.7	26.5	6.4	8.3	23.8	22.0	53.2	42.9	35.6
4) Long Term Loans	12.6	11.4	17.3	22.6	71.0	33.3	63.8	74.9	136.5	130.2	108.0	118.5	189.0	233.5	348.8
With Non Banks, Total	23.4	89.2	132.7	232.7	309.8	335.9	353.3	469.0	508.8	602.2	690.1	800.0	988.1	1.412.2	1.930.5
1) Long Term Loans	20.8	87.7	131.8	231.4	303.9	330.4	349.1	463.6	503.5	590.0	680.0	782.8	972.8	1.391.2	1.900.1
2) Re-insurance claims	2.6	1.5	0.9	1.3	2.4	2.1	0.2	1.2	1.6	9.3	7.2	8.7	8.3	15.2	24.6
3) Bonds	-	-	-	-	3.5	3.4	4.0	4.2	3.7	2.9	2.9	8.5	7.0	5.8	5.8
With Private Finc. Intermed. Total	0.2	0.2	1.8	0.9	19.5	28.5	33.9	40.8	53.2	68.8	127.9	175.2	225.9	273.5	330.2
1) Foreign Currency Deposits	0.2	0.2	1.8	0.9	0.3	0.2	0.6	0.3	0.8	0.7	1.0	1.2	0.6	1.0	1.1
2) Long Term Loans	-	-	-	-	19.2	28.3	33.3	40.5	52.4	68.1	126.9	174.0	225.3	272.5	329.1
With Government Sector, Total	168.5	208.5	263.5	290.6	333.2	352.0	364.8	337.2	305.4	361.9	502.4	582.3	808.1	1.111.7	1.328.9
1) Long Term Loans	168.5	208.5	235.0	246.1	273.3	291.5	310.2	302.4	293.2	348.8	483.6	573.8	725.3	1.069.1	1.278.3
2) Bonds	-	-	28.5	44.5	59.9	60.5	54.6	34.8	12.2	13.1	18.8	8.5	82.8	42.6	50.6
With Private Sector, Total	490.5	589.9	661.9	744.8	840.8	951.3	1.119.3	1.336.4	1.446.1	1,696.1	2.309.3	2.451.2	2.704.8	3.745.3	4.097.4
1) Loans	363.4	427.0	468.0	512.4	560.7	614.3	696.0	754.2	748.8	809.6	940.5	1.094.4	1.221.8	1.637.0	1.784.3
2) Pending Payments	89.5	110.6	127.1	146.3	168.8	194.0	231.5	248.8	276.9	311.8	484.4	500.6	492.8	863.9	774.7
3) Direct obligations-Commerce	36.4	50.3	64.2	82.1	105.3	134.4	178.1	319.4	406.2	521.7	811.2	750.6	885.7	1.094.4	1.372.1
4) Import endorsements	1.2	2.0	2.6	4.0	6.0	8.6	13.7	14.0	14.2	53.0	73.2	105.6	104.5	150.0	166.3

SOURCE: ..see sources of data, Chapter III.

FINANCIAL LIABILITIES OF THE FOREIGN SECTOR, 1961 - 1975

STOCK RELATIONS BY SECTORS AND MAIN TYPES OF CLAIMS

TABLE 14

- Millions of colones -

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
F. Liabilities, Foreign Sector, Total	197.6	232.5	269.3	283.2	351.7	372.7	419.8	458.1	512.2	478.7	666.3	831.5	1.010.9	1.215.4	1.231.7
With Central Bank, Total	158.0	203.8	234.7	263.7	319.8	337.3	355.3	380.4	443.6	385.1	555.9	657.7	768.8	946.2	1.015.1
1) Short Term Int'l Claims	66.5	106.6	122.0	148.4	165.7	155.4	169.5	182.8	223.6	112.0	254.6	255.0	335.6	391.2	502.0
2) Long Term Int'l Claims	17.0	22.7	38.2	40.8	54.8	57.8	61.7	73.5	95.9	114.2	142.4	243.9	274.4	307.2	265.3
3) I.M.F. quota, colones	74.5	74.5	74.5	74.5	99.3	124.1	124.1	124.1	124.1	158.9	158.9	158.8	158.8	247.8	247.8
With Comm. Banks, Total	35.0	25.7	33.2	17.7	28.5	28.7	58.4	72.1	63.9	75.1	82.9	126.0	190.9	206.0	121.3
1) Deposits in foreign banks	33.9	25.1	32.6	16.4	27.5	27.6	53.9	69.4	61.6	72.5	73.0	114.2	176.1	193.5	107.2
2) Short Term Int'l Claims	1.1	0.6	0.6	1.3	1.0	1.1	4.5	2.7	2.3	2.6	9.9	11.8	14.8	12.5	14.1
With N.B.F.I., Total	4.6	3.0	1.4	1.8	3.3	6.5	5.2	4.7	3.4	13.4	19.2	25.2	28.9	36.2	36.4
1) Re-insurance claims	4.6	3.0	1.4	1.8	3.3	6.5	5.2	4.7	3.4	13.4	19.2	25.2	28.9	36.2	36.4
With Private F.I., Total	-	-	-	-	0.1	0.2	0.9	0.9	1.3	5.1	8.3	22.6	22.3	27.0	58.9
1) Deposits of Foreign banks	-	-	-	-	0.1	0.2	0.9	0.9	1.3	3.6	4.4	7.7	7.0	11.7	19.7
2) Equieties of Foreign Companias	-	-	-	-	-	-	-	-	-	1.5	3.9	14.9	15.3	15.3	15.3
3) Bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.9
With Government Sector, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
With Private Sector, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SOURCE: ..see sources of data, Chapter III.

TABLE 15

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1961

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	221.1	66.8	-	44.3	-	158.0	490.2	89.1
Commercial Banks	78.4	-	29.6	-	57.6	591.1	35.0	791.7	177.5
Non Bank Financial Intermediaries	0.3	30.4	-	-	62.7	360.8	4.6	458.8	102.1
Private F.I.	0.1	-	-	-	0.5	7.5	-	8.1	7.2
Government Sector	3.3	1.9	-	-	-	3.4	-	8.6	-541.8
Private Sector	185.4	347.6	236.9	0.7	216.8	-	-	987.4	-465.9
Foreign Sector	133.6	13.2	23.4	0.2	168.5	490.5	-	829.4	631.8
Total Liabilities (T.L.)	401.1	614.2	356.7	0.9	550.4	1.453.3	197.6	3.574.2	0

Source: ..see sources of data, Chapter III.

TABLE 16

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1962

FROM \ TO	Central Bank	Commer - cial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	173.5	61.7	-	62.7	-	203.8	501.7	96.9
Commercial Banks	78.0	-	40.7	-	47.1	607.7	25.7	799.2	185.9
Non Bank Financial Intermediaries	0.2	38.6	-	-	71.9	422.4	3.0	536.1	62.9
Private F.I.	0.1	-	-	-	0.4	8.3	-	8.8	8.0
Government Sector	10.3	2.1	-	-	-	4.8	-	17.2	-584.0
Private Sector	207.1	387.1	281.5	0.6	210.6	-	-	1.086.9	-546.2
Foreign Sector	109.1	12.0	89.3	0.2	208.5	589.9	-	1.009.0	776.5
Total Liabilities (T.L.)	404.8	613.3	473.2	0.8	601.2	1.633.1	232.5	3.958.9	0

Source: ..see sources of data, Chapter III.

TABLE 17

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1963

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	193.5	57.6	-	77.7	-	234.7	563.5	61.4
Commercial Banks	93.2	-	36.1	-	41.6	629.2	33.2	833.3	153.8
Non Bank Financial Intermediaries	0.3	44.7	-	-	114.6	495.8	1.4	656.8	84.1
Private F.I.	0.1	-	-	-	0.3	8.9	-	9.3	7.1
Government Sector	12.7	2.1	-	-	-	6.2	-	21.0	-704.7
Private Sector	223.5	421.3	346.3	0.4	228.0	-	-	1.219.5	-582.5
Foreign Sector	172.3	17.9	132.7	1.8	263.5	661.9	-	1.250.1	980.8
Total Liabilities (T.L.)	502.1	679.5	572.7	2.2	725.7	1.802.0	269.3	4.553.5	0

Source: ..see sources of data, Chapter III.

TABLE 18

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1964

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	215.6	57.7	-	114.1	-	263.7	651.1	-19.7
Commercial Banks	99.7	-	41.8	-	24.3	714.7	17.7	898.2	168.2
Non Bank Financial Intermediaries	0.5	37.5	-	-	138.8	573.4	1.8	752.0	-21.2
Private F.I.	0.5	0.5	-	-	3.5	14.0	-	18.5	16.0
Government Sector	19.7	2.1	-	-	-	6.5	-	28.3	-752.7
Private Sector	228.1	451.1	441.0	1.6	209.7	-	-	1.331.5	-721.9
Foreign Sector	322.3	23.2	232.7	0.9	290.6	744.8	-	1.614.5	1.331.3
Total Liabilities (T.L.)	670.8	730.0	773.2	2.5	781.0	2.053.4	283.2	5.294.1	0

Source: ..see sources of data, Chapter III.

TABLE 19

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1965

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	249.9	59.0	-	130.9	-	319.8	759.6	-22.5
Commercial Banks	109.2	-	65.9	-	47.7	756.3	28.5	1.007.6	147.9
Non Bank Financial Intermediaries	0.2	47.2	-	-	168.4	657.8	3.3	876.9	-91.3
Private F.I.	0.8	1.1	-	-	6.8	39.4	0.1	48.2	25.7
Government Sector	27.5	2.0	-	-	-	9.6	-	39.1	-863.2
Private Sector	236.3	487.8	533.5	3.0	215.3	-	-	1.475.9	-828.0
Foreign Sector	408.1	71.7	309.8	19.5	333.2	840.8	-	1.983.1	1.631.4
Total Liabilities (T.L.)	782.1	859.7	968.2	22.5	902.3	2.303.9	351.7	6.190.4	0

Source: ..see sources of data, Chapter III.

TABLE 20

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1966

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	234.1	55.3	-	197.6	-	337.3	824.3	- 25.3
Commercial Banks	98.7	-	66.1	-	42.6	777.1	28.7	1.013.2	139.8
Non Bank Financial Intermediaries	-	47.3	-	-	208.1	679.9	6.5	941.8	-123.1
Private F.I.	0.5	2.2	-	-	2.7	58.3	0.2	63.9	28.2
Government Sector	33.8	3.1	-	-	-	9.6	-	46.5	-1.025.4
Private Sector	252.8	505.0	607.6	7.2	268.9	-	-	1.641.5	- 834.7
Foreign Sector	463.8	81.7	335.9	28.5	352.0	951.3	-	2.213.2	1.840.5
Total Liabilities (T.L.)	849.6	873.4	1.064.9	35.7	1.071.9	2.476.2	372.7	6.744.4	0

Source: ..see sources of data, Chapter III.

TABLE 21

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1967

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	129.9	60.4	-	267.7	-	355.3	821.9	-24.3
Commercial Banks	161.9	-	67.9	-	15.8	826.5	58.4	1.130.5	164.5
Non Bank Financial Intermediaries	0.2	62.4	-	-	284.1	732.5	5.2	1.084.4	-93.0
Private F.I.	0.7	2.0	0.2	-	6.9	66.8	0.9	77.5	34.5
Government Sector	24.6	2.4	-	-	-	11.1	-	38.1	-1.186.7
Private Sector	282.4	697.9	695.6	9.1	285.5	-	-	1.970.5	- 785.7
Foreign Sector	367.8	71.4	353.3	33.9	364.8	1.119.3	-	2.310.5	1.890.7
Total Liabilities (T.L.)	837.6	966.0	1.177.4	43.0	1.224.8	2.756.2	419.8	7.424.8	0

Source: ..see sources of data, Chapter III.

TABLE 22

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1968

FROM \ TO	Central Bank	Commer - cial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	115.8	60.3	-	310.1	-	380.4	866.6	- 19.9
Commercial Banks	186.9	-	67.2	0.1	13.8	862.4	72.1	1.202.5	154.1
Non Bank Financial Intermediaries	0.6	64.0	-	-	341.3	798.9	4.7	1.209.5	-177.1
Private F.I.	1.5	4.5	0.5	-	12.1	137.2	0.9	156.7	75.7
Government Sector	28.5	2.0	-	-	-	8.5	-	39.0	-1.340.8
Private Sector	328.9	760.2	789.6	40.1	365.3	-	-	2.284.1	- 859.3
Foreign Sector	340.1	101.9	469.0	40.8	337.2	1.336.4	-	2.625.4	2.167.3
Total Liabilities (T.L.)	886.5	1.048.4	1.386.6	81.0	1.379.8	3.143.4	458.1	8.383.8	0

Source: ..see source of data, Chapter III.

TABLE 23

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1969

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	99.1	60.1	-	295.3	-	443.6	898.1	-37.4
Commercial Banks	238.3	-	59.0	0.1	10.3	947.8	63.9	1.319.4	144.8
Non Bank Financial Intermediaries	0.5	85.2	-	-	403.5	850.4	3.4	1.343.0	-188.1
Private F.I.	0.9	4.6	1.6	-	13.4	197.0	1.3	218.8	95.2
Government Sector	43.1	2.1	-	-	-	24.6	-	69.8	-1.429.0
Private Sector	390.4	839.7	901.6	70.3	470.9	-	-	2.672.9	- 793.0
Foreign Sector	262.3	143.9	508.8	53.2	305.4	1.446.1	-	2.719.7	2.207.5
Total Liabilities (T.L.)	935.5	1.174.6	1.531.1	123.6	1.498.8	3.465.9	512.2	9.241.7	0

Source: ..see sources of data, Chapter III.

TABLE 24

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1970

FROM \ TO	Central Bank	Commer - cial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	224.8	63.7	-	331.6	-	385.1	1.005.2	-49.9
Commercial Banks	211.2	-	67.0	0.1	27.7	1.137.4	75.1	1.518.5	145.9
Non Bank Financial Intermediaries	-	123.7	-	-	456.6	1.092.0	13.4	1.685.7	-173.4
Private F.I.	1.2	4.0	1.0	-	3.7	186.9	5.1	201.9	81.7
Government Sector	136.8	4.6	-	-	-	6.3	-	147.7	-1.570.4
Private Sector	387.0	876.3	1.125.2	51.3	536.6	-	-	2.976.4	-1.142.3
Foreign Sector	318.9	139.2	602.2	68.8	361.9	1.696.1	-	3.187.1	2.708.4
Total Liabilities (T.L.)	1.055.1	1.372.6	1.859.1	120.2	1.718.1	4.118.7	478.7	10.723.5	0

Source: ..see sources of data, Chapter III.

TABLE 25

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1971

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	251.9	75.6	-	344.7	-	555.9	1.228.1	20.8
Commercial Banks	301.2	-	133.3	0.1	38.2	1.307.2	82.9	1.862.9	-55.5
Non Bank Financial Intermediaries	-	141.3	-	-	516.1	1.498.4	19.2	2.175.0	-32.4
Private F.I.	4.8	4.9	1.4	-	15.3	290.6	8.3	325.3	107.7
Government Sector	92.8	6.0	-	-	-	7.2	-	106.0	-1.964.9
Private Sector	438.9	1.378.7	1.307.0	89.6	654.2	-	-	3.868.4	-1.544.3
Foreign Sector	411.2	135.6	690.1	127.9	502.4	2.309.3	-	4.176.5	3.510.2
Total Liabilities (T.L.)	1.248.9	1.918.4	2.207.4	217.6	2.070.9	5.412.7	666.3	13.742.2	0

Source: ..see sources of data, Chapter III.

TABLE 26

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1972

FROM \ TO	Central Bank	Commer - cial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	288.2	96.7	-	424.1	-	657.7	1.466.7	-136.2
Commercial Banks	396.9	-	147.4	-	79.5	1.426.0	126.0	2.175.8	-116.5
Non Bank Financial Intermediaries	-	158.0	-	-	654.2	1.696.5	25.2	2.533.9	- 66.0
Private F.I.	0.7	8.7	7.0	-	18.3	414.4	22.6	471.7	111.3
Government Sector	123.5	13.9	-	-	-	10.3	-	147.7	-2.276.6
Private Sector	521.5	1.663.5	1.548.8	185.2	665.9	-	-	4.584.9	-1.413.3
Foreign Sector	560.3	160.0	800.0	175.2	582.3	2.451.0	-	4.728.8	3.897.3
Total Liabilities (T.L.)	1.602.9	2.292.3	2.599.9	360.4	2.424.3	5.998.2	831.5	16.109.5	0

Source: ..see sources of data, Chapter III.

TABLE 27

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1973

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	270.7	119.2	-	375.7	-	768.8	1.534.4	-292.8
Commercial Banks	429.4	-	171.6	1.0	89.0	1.681.3	190.9	2.563.2	-152.1
Non Bank Financial Intermediaries	-	190.4	-	-	787.9	1.855.4	28.9	2.862.6	-240.7
Private F.I.	5.5	9.5	9.4	-	14.1	566.8	22.3	627.6	157.2
Government Sector	122.3	12.8	-	-	-	11.7	-	146.8	-2.814.5
Private Sector	645.5	1.988.1	1.815.0	243.5	886.5	-	-	5.578.6	-1.241.4
Foreign Sector	624.5	243.8	988.1	225.9	808.1	2.704.8	-	5.595.2	4.584.3
Total Liabilities (T.L.)	1.827.2	2.715.3	3.103.3	470.4	2.961.3	6.820.0	1.010.9	18.908.4	0

Source: ..see sources of data, Chapter III.

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1974

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	805.5	154.2	-	537.9	-	946.2	2.443.8	- 366.6
Commercial Banks	533.0	-	265.1	-	270.5	2.322.7	206.0	3.597.3	- 470.4
Non Bank Financial Intermediaries	9.4	322.9	-	-	984.5	2.349.5	36.2	3.702.5	- 232.7
Private F.I.	7.4	18.6	0.4	-	30.4	620.0	27.0	703.8	217.1
Government Sector	233.3	25.7	-	-	-	13.6	-	272.6	-3.570.3
Private Sector	736.1	2.617.2	2.103.3	213.2	907.9	-	-	6.577.7	-2.473.4
Foreign Sector	1.291.2	277.8	1.412.2	273.5	1.111.7	3.745.3	-	8.111.7	6.896.3
Total Liabilities (T.L.)	2.810.4	4.067.7	3.935.2	486.7	3.842.9	9.051.1	1.215.4	25.409.4	0

Source: ..see sources of data, Chapter III.

TABLE 29

FINANCIAL STOCKS INTERRELATION MATRIX

- Millions of Colones -

1975

FROM \ TO	Central Bank	Commercial Banks	NBFI	Private F.I.	Government Sector	Private Sector	Foreign Sector	TOTAL ASSETS (T.A.)	TA - TL
Central Bank	-	854.8	228.1	-	715.1	-	1.015.1	2.813.1	-964.0
Commercial Banks	837.4	-	314.2	0.6	348.1	2.981.8	121.3	4.603.4	-967.9
Non Bank Financial Intermediaries	7.7	290.8	-	-	893.6	3.383.4	36.4 k	4.611.9	-375.6
Private F.I.	14.2	2.3	0.5	-	54.5	581.4	58.9	711.8	175.1
Government Sector	195.4	17.8	-	-	-	27.5	-	240.7	-4.147.4
Private Sector	854.9	4.018.7	2.514.2	205.9	1.047.9	-	-	8.641.6	-2.429.9
Foreign Sector	1.867.5	386.9	1.930.5	330.2	1.328.9	4.097.4	-	9.941.4	8.709.7
Total Liabilities (T.L.)	3.777.1	5.571.3	4.987.5	536.7	4.388.1	11.071.5	1.231.7	31.563.9	0

Source:.. see sources of data, Chapter III.

TABLE 30

SUMMARY BALANCE SHEET STATEMENT: TOTAL ECONOMY
1961-1975
millions of colones

Year	F. Assets = F. Liabilits	Tang Assets = Net Worth	T.A.=T.L.
1961	3574.2	7551.7	11125.9
1962	3958.9	7980.2	11939.1
1963	4553.5	8414.6	12968.1
1964	5294.1	8772.9	14067.0
1965	6190.4	9300.9	15491.3
1966	6744.4	9862.4	16606.8
1967	7424.8	10474.6	17899.4
1968	8383.8	11075.1	19458.9
1969	9241.7	11854.3	21096.0
1970	10722.5	12778.6	23501.1
1971	13742.2	14065.9	27808.1
1972	16109.5	15371.9	31481.4
1973	18908.4	17243.2	36151.6
1974	25409.4	19992.1	45401.5
1975	31563.9	23317.2	54881.1

SOURCE: Tables 1 to 14 of statistical appendix and Appendix to Chapter III.

TABLE 31

SUMMARY BALANCE SHEET STATEMENT: FINANCIAL SECTOR
1961-1975
millions of colones

Year	Financial Assets	Tangible Assets	T.A.=T.L.	Financial Liabilities	Net Worth
1961	1748.8	1260.8	3009.6	1372.9	1636.7
1962	1844.5	1313.5	3158.0	1490.7	1667.3
1963	2062.9	1386.9	3449.8	1756.5	1693.3
1964	2319.8	1570.3	3890.1	2176.5	1713.6
1965	2692.3	1661.9	4354.2	2632.5	1721.7
1966	2779.3	1728.4	4507.7	2787.9	1748.0
1967	3105.7	1684.0	4789.7	3024.0	1765.7
1968	3435.3	1770.9	5206.2	3402.5	1803.7
1969	3779.3	1831.3	5610.6	3764.8	1845.8
1970	4411.3	1882.5	6293.8	4407.0	1886.8
1971	5591.3	1935.5	7526.8	5592.3	1934.5
1972	6648.1	2196.3	8844.4	6855.5	1988.9
1973	7587.8	2617.2	10205.0	8116.2	2088.8
1974	10447.4	2994.7	13442.1	11300.0	2142.1
1975	12740.2	4418.0	17158.2	14872.6	2285.6

SOURCE: Tables 1 to 14 of statistical appendix and Appendix to Chapter III.

TABLE 32

SUMMARY BALANCE SHEET STATEMENT: GOVERNMENT SECTOR
1961-1975
millions of colones

Year	Financial Assets	Tangible Assets	T.A.=T.L.	Financial Liabilities	Net Worth
1961	8.6	2161.3	2169.9	550.4	1619.5
1962	17.2	2252.9	2270.1	601.2	1668.9
1963	21.0	2396.0	2417.0	725.7	1691.3
1964	28.3	2473.0	2501.3	781.0	1720.3
1965	39.1	2593.3	2632.4	902.3	1730.1
1966	46.5	2794.4	2840.9	1071.9	1769.0
1967	38.1	2965.6	3003.7	1224.8	1778.9
1968	39.0	3158.8	3197.8	1379.8	1818.0
1969	69.8	3296.9	3366.7	1498.8	1867.9
1970	147.7	3514.8	3662.5	1718.1	1944.4
1971	106.0	3961.7	4067.7	2070.9	2996.8
1972	147.7	4348.6	4496.3	2424.3	2072.0
1973	146.8	5069.7	5216.5	2961.3	2255.2
1974	272.6	6035.5	6308.1	3842.9	2465.2
1975	240.7	6902.4	7143.1	4388.1	2755.0

SOURCE: Tables 1 to 14 of statistical appendix and Appendix to Chapter III.

TABLE 33

SUMMARY BALANCE SHEET STATEMENT: PRIVATE SECTOR
1961-1975
millions of colones

Year	Financial Assets	Tangible Assets	T.A.=T.L.	Financial Liabilities	Net Worth
1961	987.4	3670.8	4658.2	1453.3	3204.9
1962	1086.9	3982.2	5069.1	1633.1	3436.0
1963	1219.5	4236.6	5456.1	1802.0	3654.1
1964	1331.5	4534.0	5865.5	2053.4	3812.1
1965	1475.9	4705.3	6181.2	2303.9	3877.3
1966	1641.5	4915.1	6556.6	2476.2	4080.4
1967	1970.5	5106.7	7077.2	2756.2	4321.0
1968	2284.1	5403.5	7687.6	3143.4	4544.2
1969	2672.9	5674.9	8347.8	3465.9	4881.9
1970	2976.4	6324.8	9301.2	4118.7	5182.5
1971	3868.4	7112.4	10980.8	5312.7	5568.1
1972	4584.9	7408.2	11993.1	5998.4	5994.7
1973	5578.6	7971.2	13549.8	6820.0	6729.8
1974	6577.7	9483.9	16061.6	9051.1	7010.5
1975	8641.6	10471.2	19112.8	11071.5	8041.3

SOURCE: Tables 1 to 14 of statistical appendix and Appendix to Chapter III.

TABLE 34

SUMMARY BALANCE SHEET STATEMENT: FOREIGN SECTOR
1961-1975
millions of colones

Year	Financial Assets	Tangible Assets	T.A.=T.L.	Financial Liabilities	Net Worth
1961	829.4	458.8	1288.2	197.6	1090.6
1962	1008.9	431.6	1440.5	232.5	1208.0
1963	1250.1	395.1	1645.2	269.3	1375.9
1964	1614.5	195.6	1810.1	283.2	1526.9
1965	1983.1	340.4	2323.5	351.7	1971.8
1966	2213.2	424.5	2637.7	372.7	2265.0
1967	2310.5	718.3	3028.8	419.8	2609.0
1968	2625.4	741.9	3367.3	458.1	2909.2
1969	2719.7	1051.2	3770.9	512.2	3258.7
1970	3187.1	1056.5	4243.6	478.7	3764.9
1971	4176.5	1056.3	5232.8	666.3	4566.5
1972	4729.0	1418.8	6147.8	831.5	5316.3
1973	5595.2	1585.1	7180.3	1010.9	6169.4
1974	8111.7	1478.0	9589.7	1215.4	8374.3
1975	9941.4	1525.6	11467.0	1231.7	10235.3

SOURCE: Tables 1 to 14 of statistical appendix and Appendix to Chapter III.

TABLE 35

SECTORAL FINANCIAL STOCK HOLDINGS, 1961

ASSET COMPOSITION

millions of colones

Financial Claim \ Sector	Financial	Government	Private	Foreign	Finc.Instr. Total
Currency	31.8	--	184.9	--	216.7
Demand Deposits	62.3	2.8	216.0	132.5	413.6
Time Deposits	10.3	2.4	87.0	--	99.7
Foreign Curr.Depsts.	--	--	23.5	0.8	24.3
Gov't Bonds	113.5	--	145.6	--	259.1
Rediscounts	133.9	--	--	--	133.9
Loans	1182.9	1.6	19.6	552.7	1756.6
Treasury Certific	10.0	--	--	--	10.0
Insurance Reserves	--	--	201.8	--	201.8
Re-Insurance Claims	4.6	--	--	2.6	7.2
Non Bank Bonds	1.3	--	32.8	--	34.1
Gov't Pend. Paymts.	--	--	51.0	--	51.0
Short Term Int'l Cl.	67.6	--	--	13.7	81.3
Long Term Int'l Cl.	17.0	--	--	--	17.0
Dep. in Foreign Bk.	33.9	--	--	--	33.9
Pending Paymts. Private Sector	--	--	--	89.5	89.5
Import Endorsements	--	--	--	1.2	1.2
Commercial Obligation	--	--	--	36.4	36.4
Other Claims	79.9	1.8	25.2	--	106.9
Total Sectoral Holdings	1748.8	8.6	987.4	829.4	3574.2

Source:

Statistical Appendix, Tables 1 to 14

TABLE 36

SECTORAL FINANCIAL STOCK HOLDINGS, 1961

LIABILITY COMPOSITION

millions of colones

Financial Claim \ Sector	Financial	Government	Private	Foreign	Finc.Instr. Total
Currency	216.7	--	--	--	216.7
Demand Deposits	413.6	--	--	--	413.6
Time Deposits	99.7	--	--	--	99.7
Foreign Curr.Depsts.	24.3	--	--	--	24.3
Gov't Bonds	--	259.1	--	--	259.1
Rediscounts	133.9	--	--	--	133.9
Loans	203.6	229.0	1324.0	--	1756.6
Treasury Certific	--	10.0	--	--	10.0
Insurance Reserves	201.8	--	--	--	201.8
Re-Insurance Claims	2.6	--	--	4.6	7.2
Non Bank Bonds	34.1	--	--	--	34.1
Gov't Pend. Paymts.	--	51.0	--	--	51.0
Short Term Int'l Cl.	13.7	--	--	67.6	81.3
Long Term Int'l Cl.	--	--	--	17.0	17.0
Dep. in Foreign Bk.	--	--	--	33.9	33.9
Pending Paymts. Private Sector	--	--	89.5	--	89.5
Import Endorsements	--	--	1.2	--	1.2
Commercial Obligation	--	--	36.4	--	36.4
Other Claims	28.9	1.3	2.2	74.5	106.9
Total Sectoral Holdings	1372.9	550.4	1453.3	197.6	3574.2

Source:

Statistical Appendix, Tables 1 to 14

TABLE 37

SECTORAL FINANCIAL STOCK HOLDINGS, 1964

ASSET COMPOSITION

millions of colones

Sector / Financial Claim	Financial	Government	Private	Foreign	Finc.Instr. Total
Currency	41.3	--	227.8	--	269.1
Demand Deposits	82.3	14.4	294.7	166.5	557.9
Time Deposits	14.6	6.3	129.6	--	150.5
Foreign Curr.Depsts.	0.1	--	17.7	1.5	19.3
Gov't Bonds	180.6	--	161.4	44.5	386.5
Rediscounts	155.9	--	--	--	155.9
Loans	1523.2	3.4	12.6	1166.9	2706.1
Treasury Certific	35.3	--	---	--	35.3
Insurance Reserves	--	--	330.4	--	330.4
Re-Insurance Claims	1.8	--	---	1.3	3.1
Non Bank Bonds	2.4	--	107.5	--	109.9
Gov't Pend. Paymts.	--	--	35.9	--	35.9
Short Term Int'l Cl.	149.7	--	--	1.4	151.1
Long Term Int'l Cl.	40.8	--	--	--	40.8
Dep. in Foreign Bk.	16.4	--	--	--	16.4
Pending Paymts. Private Sector	--	--	--	146.3	146.3
Import Endorsements	--	--	--	4.0	4.0
Commercial Obligation:	--	--	--	82.1	82.1
Other Claims	75.4	4.2	13.9	--	93.5
Total Sectoral Holdings	2319.8	28.3	1331.5	1614.5	5294.1

Source:

Statistical Appendix, Tables 1 to 14

TABLE 38
SECTORAL FINANCIAL STOCK HOLDINGS, 1964

LIABILITY COMPOSITION

millions of colones

Financial Claim \ Sector	Financial	Government	Private	Foreign	Finc.Instr. Total
Currency	269.1	--	--	--	269.1
Demand Deposits	557.9	--	--	--	557.9
Time Deposits	150.5	--	--	--	150.5
Foreign Curr.Depsts.	19.3	--	--	--	19.3
Gov't Bonds	--	386.5	--	--	386.5
Rediscounts	155.9	--	--	--	155.9
Loans	566.8	321.9	1817.4	--	2706.1
Treasury Certific	--	35.3	--	--	35.3
Insurance Reserves	330.4	--	--	--	330.4
Re-Insurance Claims	1.3	--	--	1.8	3.1
Non Bank Bonds	109.9	--	--	--	109.9
Gov't Pend. Paymts.	--	35.9	--	--	35.9
Short Term Int'l Cl.	1.4	--	--	149.7	151.1
Long Term Int'l Cl.	--	--	--	40.8	40.8
Dep. in Foreign Bk.	--	--	--	16.4	16.4
Pending Paymts. Private Sector	--	--	146.3	--	146.3
Import Endorsements	--	--	4.0	--	4.0
Commercial Obligation	--	--	82.1	--	82.1
Other Claims	14.0	1.4	3.6	74.5	93.5
Total Sectoral Holdings	2176.5	781.0	2053.4	283.2	5294.1

Source:
Statistical Appendix, Tables 1 to 14

TABLE 39
SECTORAL FINANCIAL STOCK HOLDINGS, 1972

ASSET COMPOSITION

millions of colones

Financial Claim \ Sector	Financial	Government	Private	Foreign	Finc.Instr. Total
Currency	84.3	--	520.3	--	604.6
Demand Deposits	419.6	82.4	903.8	263.6	1669.4
Time Deposits	54.5	33.1	758.8	--	846.4
Foreign Curr.Depsts.	5.9	2.0	86.2	20.7	114.8
Gov't Bonds	683.9	--	481.7	8.5	1174.1
Rediscounts	137.7	--	--	--	137.7
Loans	4278.4	7.9	171.7	2822.6	7280.6
Treasury Certific	90.9	--	--	--	90.9
Insurance Reserves	--	--	1206.8	--	1206.8
Re-Insurance Claims	25.2	--	--	8.7	33.9
Non Bank Bonds	46.9	--	257.2	8.5	312.6
Gov't Pend. Paymts.	--	--	174.3	--	174.3
Short Term Int'l Cl.	266.8	--	--	54.5	321.3
Long Term Int'l Cl.	243.9	--	--	185.1	429.0
Dep. in Foreign Bk.	121.9	--	--	--	121.9
Pending Paymts. Private Sector	--	--	--	500.6	500.6
Import Endorsements	--	--	--	105.6	105.6
Commercial Obligation	--	--	--	750.6	750.6
Other Claims	188.2	22.3	24.1	--	234.6
Total Sectoral Holdings	6648.1	147.7	4584.9	4729.0	16109.7

Source:

Statistical Appendix, Tables 1 to 14

TABLE 40

SECTORAL FINANCIAL STOCK HOLDINGS, 1972

LIABILITY COMPOSITION

millions of colones

Financial Claim \ Sector	Financial	Government	Private	Foreign	Finc.Instr. Total
Currency	604.6	--	--	--	604.6
Demand Deposits	1669.4	--	--	--	1669.4
Time Deposits	846.4	--	--	--	846.4
Foreign Curr.Depsts.	114.8	--	--	--	114.8
Gov't Bonds	--	1174.1	--	--	1174.1
Rediscounts	137.7	--	--	--	137.7
Loans	1680.4	975.9	4624.3	--	7280.6
Treasury Certific	--	90.9	--	--	90.9
Insurance Reserves	1206.8	--	--	--	1206.8
Re-Insurance Claims	8.7	--	--	25.2	33.9
Non Bank Bonds	312.6	--	--	--	312.6
Gov't Pend. Paymts.	-----	174.3	--	--	174.3
Short Term Int'l Cl.	54.5	--	--	266.8	321.3
Long Term Int'l Cl.	185.1	--	--	243.9	429.0
Dep. in Foreign Bk.	--	--	--	121.9	121.9
Pending Paymts.	--	--	500.6	--	500.6
Private Sector	--	--	105.6	--	105.6
Import Endorsements	--	--	750.6	--	750.6
Commercial Obligation					
Other Claims	+ 34.5	9.1	17.3	173.7	234.6
Total Sectoral Holdings	6855.5	2424.3	5998.4	831.5	16109.7

Source:

Statistical Appendix, Tables 1 to 14

TABLE 41

SECTORAL FINANCIAL STOCK HOLDINGS, 1975

ASSET COMPOSITION

millions of colones

Financial Claim \ Sector	Financial	Government	Private	Foreign	Finc.Instr. Total
Currency	179.8	--	853.3	--	1033.1
Demand Deposits	759.0	66.9	1765.3	831.1	3422.3
Time Deposits	108.9	71.9	2064.4	--	2245.2
Foreign Curr.Depsts.	104.7	19.6	392.8	3.6	520.7
Gov't Bonds	985.3	--	579.0	50.6	1614.9
Rediscounts	421.3	--	--	--	421.3
Loans	8856.8	25.5	194.5	6216.3	15293.1
Treasury Certific	--	--	--	--	- -
Insurance Reserves	--	--	1948.7	--	1948.7
Re-Insurance Claims	36.4	--	--	24.6	61.0
Non Bank Bonds	78.9	--	363.3	5.8	448.0
Gov't Pend. Paymts.	--	--	448.1	--	448.1
Short Term Int'l Cl.	516.1	--	--	86.9	603.0
Long Term Int'l Cl.	265.3	--	--	409.4	674.7
Dep. in Foreign Bk.	126.9	--	--	--	126.9
Pending Paymts. Private Sector	--	--	--	774.7	774.7
Import Endorsements	--	--	--	166.3	166.3
Commercial Obligation	--	--	--	1372.1	1372.1
Other Claims	300.8	56.8	32.2	--	389.8
Total Sectoral Holdings	12740.2	240.7	8641.6	9941.4	31563.9

Source:

Statistical Appendix, Tables 1 to 14

TABLE 42

SECTORAL FINANCIAL STOCK HOLDINGS, 1975

LIABILITY COMPOSITION

millions of colones

Financial Claim \ Sector	Financial	Government	Private	Foreign	Finc.Instr. Total
Currency	1033.1	--	--	--	1033.1
Demand Deposits	3422.3	--	--	--	3422.3
Time Deposits	2245.2	--	--	--	2245.2
Foreign Curr.Depsts.	520.7	--	--	--	520.7
Gov't Bonds	--	1614.9	--	--	1614.9
Rediscounts	421.3	--	--	--	421.3
Loans	4243.1	2307.4	8742.6	--	15293.1
Treasury Certific	--	--	--	--	--
Insurance Reserves	1948.7	--	--	--	1948.7
Re-Insurance Claims	24.6	--	--	36.4	61.0
Non Bank Bonds	448.00	--	--	--	448.0
Gov't Pend. Paymts.	--	448.1	--	--	448.1
Short Term Int'l Cl.	86.9	--	--	516.1	603.0
Long Term Int'l Cl.	409.4	--	--	265.3	674.7
Dep. in Foreign Bk.	--	--	--	126.9	126.9
Pending Paymts. Private Sector	--	--	774.7	--	774.7
Import Endorsements	--	--	166.3	--	166.3
Commercial Obligation	--	--	1372.1	--	1372.1
Other Claims	69.3	17.7	15.8	287.0	389.8
Total Sectoral Holdings	14872.6	4388.1	11071.5	1231.7	31563.9

Source:

Statistical Appendix, Tables 1 to 14

TABLE 43

ESTIMATED MATRIX MULTIPLIERS

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.737	1.213	.287	.109
GOV'T SECTOR	.033	1.024	.006	.002
PRIVATE SECTOR	1.076	1.074	1.185	.068
FOREIGN SECTOR	.598	.658	.343	1.067

CASE 1.B

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.764	.111	.474	.618
GOV'T SECTOR	.403	1.026	.161	.226
PRIVATE SECTOR	.686	.044	1.192	.804
FOREIGN SECTOR	.129	.008	.035	1.096

CASE 2.B

TABLE 44

ESTIMATED MATRIX MULTIPLIERS

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.062	.039	.001	.051
GOV'T SECTOR	.003	1.000	.000	.000
PRIVATE SECTOR	.084	.011	1.001	.004
FOREIGN SECTOR	.025	.012	.017	1.005

CASE 1.C

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.025	.011	.028	.036
GOV'T SECTOR	.070	1.001	.016	.023
PRIVATE SECTOR	.023	.001	1.001	.166
FOREIGN SECTOR	.035	.001	.001	1.011

CASE 2.C

TABLE 45

ESTIMATED MATRIX MULTIPLIERS

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.201	.141	.174	.146
GOV'T SECTOR	.001	1.001	.000	.001
PRIVATE SECTOR	.201	.058	1.028	.024
FOREIGN SECTOR	.156	.070	.096	1.027

CASE 1.G

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.306	.042	.083	.587
GOV'T SECTOR	.126	1.004	.032	.238
PRIVATE SECTOR	.375	.013	1.023	.636
FOREIGN SECTOR	.121	.004	.008	1.152

CASE 2.G

TABLE 46

ESTIMATED MATRIX-MULTIPLIERS

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.704	1.044	.018	.225
GOV'T SECTOR	.013	1.001	.00	.001
PRIVATE SECTOR	.798	.449	1.009	.106
FOREIGN SECTOR	.314	.105	.020	1.090

CASE 1.H

	FINANC. SECTOR	GOV'T SECTOR	PRIVATE SECTOR	FOREIGN SECTOR
FINANC. SECTOR	1.604	.001	.035	.155
GOV'T SECTOR	.314	1.000	.018	.102
PRIVATE SECTOR	.585	.001	1.015	.475
FOREIGN SECTOR	.180	.010	.004	1.071

CASE 2.H