External Financial Intermediation and the Composition of the Money Stock

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Abstract

This thesis is intended as a contribution to the literature referred to as the "optimum currency area literature". The purpose of the analysis developed in the thesis is to gain an understanding of the monetary and financial implications of the actual currency area structure of the international economy. The analysis can then be used for the purpose of assessing whether changes in this currency area structure might be desirable.

The theoretical material falls into three parts. Cross-country data are used in the theoretical chapters to assess the explanatory value of the ideas. The theoretical analysis is then applied to the historical experience of an individual country, Argentina. Time series data are offered for the application to the Argentine case.

The first theoretical section of the thesis is concerned with the structure of the money supply in an economy as between its imported and domestic components. A central tenet of the thesis is that there are cross-country differences in the size of the imported share of the money supply which is required for monetary and exchange rate stability, and that these cross-country differences can be related to structural characteristics of an economy. It is shown that the structure of incremental money demand has important balance of payments implications.

A theoretical framework for the analysis of the structure of the money supply is developed. This framework is then used to argue that an economy which makes more extensive use of external financial intermediation will require a larger share of foreign exchange reserves in the monetary base.

The second part of the theoretical analysis studies some relationships between the currency area structure of the international economy and patterns of international financial intermediation. It is argued that we can identify certain structural features of a currency area which would give rise to a tendency for residents to make use of

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foreign financial centres. The theoretical considerations lead to an explanation, in terms of currency area structure, of certain cross-country differences in financial development.

In the third theoretical section, the analytical framework which was developed in previous chapters is used to address three specific questions. These questions serve to bring out some answers to the more general question of what are the implications for an economy of using an imported money supply. The analysis yields some new perspectives on the monetary and financial implications of import substitution industrialization policies, as well as on other problems and policy issues.

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This Thesis is dedicated to:

Norman Thomas di Giovanni,

and to the memory of

Jorge Luis Borges,

who taught me to love the English language.

Certificate of Originality

I declare that all unreferenced work in this thesis is my own, and that this thesis has never previously been submitted at this or any other university. The views expressed in the thesis are those of the author and not of the University of Bristol.

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Chapter I

This thesis is intended as a contribution to the literature referred to as the "optimum currency area literature". It does not, however, directly address the question "what is the optimum currency area?", but instead approaches issues concerning currency area structure from a slightly different direction. Instead of attempting to identify the "optimum currency area", the purpose of the analysis developed in this thesis is to gain an understanding of some of the monetary and financial implications of the actual currency area structure of the international economy. The analysis can then be used for the purpose of assessing whether changes in this currency area structure might be desirable for particular countries or groups of countries. Governments of certain types of economy, for instance, might conclude that national priorities could be more successfully pursued by joining with other economies in a larger currency area, while in other cases the policy conclusions drawn from the analysis would point to a need for greater regional monetary independence. The intention of this thesis is to improve our understanding of the implications of the actual currency area structure of the international economy.

The theoretical material offered in this thesis falls into three parts, and is covered in Chapters II-IV. The theoretical analysis developed in these three chapters is then applied to the specific case of Argentina, in Chapter V, with the help of statistical material on the variables identified by the previous analysis.

The concept of "external financial intermediation", referred to as "EFI", is defined in Chapter II and has an important role throughout the thesis. Briefly, EFI refers to the use by residents of one currency area of financial instruments denominated in a foreign currency, or issued by non-resident financial intermediaries, or both. "External financial intermediation", or EFI, is distinguished from "domestic financial intermediation", which is defined analogously, and which is referred to as "DFI".

The central theoretical core of the thesis is concerned with the

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structure of the money supply in an economy as between its imported and domestic components, and is developed in Chapter II. It will be recalled that the literature on optimum currency areas had originally emerged in the context of the debate on the relative merits of fixed versus flexible exchange rates, prior to the breakdown of the "Bretton Woods" system of fixed exchange rates. Here some of the same key issues are approached from a different direction. Instead of asking whether fixed exchange rates may be desirable for a particular type of currency area, we ask the following questions: If a currency area is to be successful in maintaining a fixed exchange rate, what share of the domestic money supply must be comprised of, or backed by, the imported component of the money supply? What structural characteristics of a currency area can we identify that would enable it to successfully maintain a fixed exchange rate, over an indefinite period, with a lower ratio of foreign exchange reserves to the total money supply than would be required for another currency area to be successful in maintaining a fixed exchange rate? We then go on to analyze some of the implications for an economy of using an imported money supply, and of changes in the share of the imported component of the money supply which is compatible with the maintenance of exchange rate stability. The analysis developed in this thesis thus addresses issues raised by exchange rate policy by means of first analyzing the implications of currency area structure for the structure of the money supply, and then analyzing the implications for the economy of a particular structure of the money supply.

Determination of the relative shares of the domestic credit and imported components of the monetary base is a subject which has been treated in a variety of open economy monetary models, from quite a different perspective. In standard textbook models the composition of the monetary base, as between the domestic credit and imported components, is commonly treated as a sort of residual, to which no particular importance is attached, except that the danger of exhausting foreign exchange reserves is usually pointed out. It is also regularly

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acknowledged that increasing the domestic credit component of the monetary base by "sterilizing" foreign exchange reserve losses can not continue ad infinitum, but at some stage will precipitate a crisis, when the maintenance of a fixed exchange rate becomes impossible. It is also regularly acknowledged that there are very great cross country differences in the level of foreign exchange reserves at which reserves begin to be perceived as inadequate, and a crisis may be precipitated. One way of looking at the theory developed in Chapter II of this thesis is that it provides an approach to analysis of cross-country and historical differences in the relative share of the imported component of the money supply which is perceived as "adequate" by wealth-holders.

The view taken here is that over the long run wealth-holders will impose on an economy their view of what constitutes an adequate share of the imported component of the money supply, via the mechanism of exchange rate changes. If a government persists in attempting to maintain in circulation a stock of money in which the share of the imported component is lower than that which is considered "adequate" by wealth-holders, the result will be repeated devaluations (or persistent depreciation) of the currency in question. The question of whether there can be national independence in monetary policy thus will be seen from a new perspective through the analysis offered in this thesis.

A key argument developed in Chapter II is that the relative predominance of external financial intermediation (EFI), in relation to domestic financial intermediation (DFI), is one of the important factors influencing the structure of the money supply. The arguments developed in Chapter II lead to the conclusion that currency areas in which EFI is relatively important will require the share of the imported component of the monetary base to be larger, relative to the domestic component, than would be required for the maintenance of a fixed exchange rate in a currency area where DFI predominates more strongly.

Policy measures which influence the relative shares of EFI and DFI in the total financial intermediation activity of a currency area

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therefore also influence the structure of the money supply which is compatible with exchange rate stability. Disagreeable consequences of using an imported monetary base can thus be successfully combatted by policies which lead to a strengthening of the relative share of DFI in the financial structure. Policies which are devised for the purpose of strengthening domestic financial development therefore also have implications for the structure of the money supply.

It follows from this analysis that characteristics of currency area structure which have an influence on patterns of international financial intermediation will also have a bearing on the required structure of the money supply. In particular, characteristics of currency area structure which tend to lead residents in certain types of currency area to make relatively strong use of EFI, such that the DFI share in the domestic financial structure is relatively weak, will tend to cause this type of currency area to require a relatively large imported component in its monetary base for the maintenance of monetary stability and a fixed exchange rate regime. In Chapter III the implications of certain characteristics of currency area structure for patterns of international financial intermediation are examined.

The analysis developed in Chapters II and III have a direct bearing on exchange rate policy. This is because the manner in which exchange rate policy is conducted is one of the factors identified as influencing the relative shares of EFI and DFI, and therefore also the required structure of the money supply. Policies which lead to repeated devaluations, or persistent depreciation, of a currency, are seen to cause EFI to increase relative to DFI, which in turn leads to an increase in the share of the imported component of the monetary base which would be required for the successful maintenance of a fixed exchange rate. Policies of exchange controls and restrictions on international transactions, implemented for the purpose of holding the exchange rate at levels which are perceived by the public as overvalued, are seen to cause similar tendencies. The phenomenon commonly referred to as "dollarization" is seen as a manifestation of

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these tendencies.

In Chapter II the theoretical framework for the analysis of the structure of the money supply is developed. Three types of base money are distinguished for use in the analysis. Four types of monetary system are then identified analytically by the types of money used in each system. An algebraic formulation of the structure of the money supply is used in an identity which enables us to characterise the four types of monetary system by the range of values taken by various terms in the identity. This identity is then used to develop the analysis of the factors determining the relative share of the imported component of the money supply which would be required for the successful maintenance of monetary and exchange rate stability. The identity serves to draw together various concepts of reserve adequacy which have appeared in different contexts in the economics and economic history literatures.

The distinctions between the three types of base money are in part taken from the distinctions between "inside" money and "outside" money developed by Gurley and Shaw [1960]. The definition of "inside" money used in this thesis is taken directly from Gurley and Shaw. However, their term "outside" money is not used here, because the term as they use it includes both of the other two types of money distinguished here, "imported" money, and paper money issued without any asset backing, referred to in this thesis as "fiat" money. The precise meaning attached to these three terms in this thesis is explained in detail in Chapter II.

The distinction which is of primary interest in this thesis is that between the imported and the domestic components of the money supply, where the domestic components may be either "fiat" or "inside" money. Therefore the distinction between "imported" money and the other two types of base money is vital to the analysis.

Historically and geographically, the number of economies in which two distinguishable types of money, or two currencies, are used for the performance of the functions of money far outnumber the cases of

economies in which a single currency has been used for all monetary functions. Historical problems of monetary chaos, when a great many different currencies or forms of money were in simultaneous use, to the detriment of the efficient performance of monetized markets, do not concern us particularly here, nor do the supposed advantages of multiple competing monies. With multiple competing monies the concept of a currency area would in any case seem to lose its meaning. There has been however, a persistent pattern, which can be observed in many of the world's economies, for much of modern economic history, in the use of two monies, which is captured in the analytical framework developed in this thesis. One of the two monies is a "hard" money, in the sense that stocks of it are used as reserves, and it is usually imported; the other money is of domestic origin, is the standard medium of exchange for the currency area, and may be quite "soft". The use of two monies, one hard and one soft, is standard practice in many of the world's countries at present; dollarization is one form of this practice.

The case of economies in which a single currency is used for all monetary functions by private residents, and stocks of the imported money are held only by official monetary institutions, is portrayed in the analytical framework used here as a special case, within a broader picture.

The analytical formulation of the structure of the money supply which is used here thus enables us to analyze a diverse range of monetary structure, along a spectrum in which the imported component of the money supply has a relatively smaller or larger share. At one extreme the entire money stock may be imported, as for instance in an economy in which the sole form of money is imported silver or gold coin. At another extreme, an economy might hold only a very small stock of the imported money, as reserves in the official monetary institutions, with domestic forms of money serving all monetary functions for the private sector, including reserves for private sector banks. The formulation of the structure of the money supply which is normally used in

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textbooks on money and banking, or on basic international monetary economics, for instance, portrays an economy of this latter type, which is here identified as a special case.

The analytical framework developed in Chapter II can be applied to a wide range of policy issues and problems. For instance, it will enable us to analyze the proposal that countries with soft currencies and intractable inflation problems should change to using an imported monetary base, as in the currency board system. Many of the world's poorer countries have experienced intractable problems of monetary instability and capital flight in the post-WWII period, in association with unsuccessful attempts to manage a monetary system based on a larger domestic credit component of the monetary base than had been maintained during gold standard or currency board days. It is often argued that such economies should adopt, or return to, a currency board type of monetary system. Eastern European countries are confronting similar questions of monetary system. Western banks which some of these economies might like to attract may prefer to deal in hard currencies, and may perceive a system which uses an exclusively hard currency base as in everyone's best interest. The analytical framework developed in this thesis can be used to address all of these policy questions.

The analysis offered in this thesis is also pertinent to economies which have undergone significant changes in any of the factors which have been identified by the theoretical arguments developed here as contributing to the determination of the required structure of the money supply. For instance, this analysis can be used to identify implications for an economy of changes in the relative share of the domestic financial system which is conducted through the use of financial instruments denominated in a foreign currency, or in the tendency for residents to use EFI.

The theoretical approach developed in this thesis thus has a very wide application.

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The question addressed in Chapter III of the thesis concerns the implications of the currency area structure of the international economy for patterns of international financial intermediation. What features of a currency area might we be able to identify as giving rise to a tendency for residents of that currency area to make use of external financial intermediation rather than domestic financial intermediation? That is, are there identifiable structural features of a currency area which would tend to cause resident savers to prefer to hold their saving abroad, or in foreign denominated financial instruments, or both?

If we can identify structural characteristics of a currency area which would give rise to this tendency, then we can gain some understanding of ways in which the present currency area structure of the international economy is contributing to the determination of the observed patterns of international financial intermediation. We can then identify certain types of currency area as being confronted, because of the influence of these structural characteristics, with particular problems in the development of a domestic financial structure which would not tend to arise in other types of currency area. Policy measures can then be directed either towards changing the structure of such currency areas, or towards overcoming these particular problems in the domestic economy while remaining within the existing currency area structure.

Analysis of the influence of currency area structure on patterns of international financial intermediation thus has an important application to the formulation of national policies concerning the development of the domestic financial structure. If an economy is characterised by structural features which give rise to a tendency for residents to use financial instruments issued in foreign financial centres, or denominated in a foreign currency, the implementation of policies which have been successful in other types of currency areas may have quite disappointing results if the influence of these

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structural features on the financial structure is not taken into account. The achievement of successful domestic financial development in economies characterised by these features may require policy measures which were not needed in the financial development of other types of currency area. Analysis of the financial implications of currency area structure thus has important applications to the formulation of national policy on financial development.

The structural features identified in Chapter III as giving rise to this tendency for residents of a currency area to use foreign, or foreign denominated, financial instruments, are features which are characteristic of many of the world's poorer countries, i.e. those commonly referred to as "less developed", or "LDCs". The analysis developed here thus has particular pertinence to the formulation of policies attempting to foster financial development in these countries. It also offers a means of explaining some of the observed patterns of cross-country differences in the type of financial structure which has developed. Some of the cross-country data on financial structure given by Raymond Goldsmith in his books on financial structure and development will be used in Chapter III in assessing the influence of the currency area structure of the international economy on the observed pattern of cross-country differences in financial structure.

In Chapter IV the theoretical analysis developed in the preceding chapters will be used to address three specific questions. These questions have been chosen for their pertinence to policy issues of current interest. The third of these questions was chosen with specific reference to the case of Argentina, and the theoretical analysis developed in Chapter IV serves as the basis for the statistical study presented in Chapter V. Application of the analysis to these three specific questions serves to bring out the main points of the answers offered in the thesis to the more general question of what are the implications for an economy of using an imported money supply.

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The following three questions are addressed:

(1) What are the implications of using a completely imported monetary base, as in a currency board type system, as is sometimes advocated for "soft currency" countries?

(2) What are the implications for an economy of significant increase in the required share of the imported component of the money supply?

(3) What are the implications for an economy of a fall in the traded share of national output unaccompanied by a fall in the required share of the imported component of the money supply?

The implications of using a completely imported monetary base are also discussed to some extent in Chapter II, since two of the four types of monetary system identified in that context are characterised by the use of a completely imported monetary base.

The first of these three questions was chosen for analysis because it is pertinent to policy issues facing a great many countries at present. It also serves to bring out some new perspectives on certain historical phenomena which emerge through the theoretical approach developed in this thesis.

The second of these questions may be pertinent to the case of Post-WWII Britain. The analysis offers some new perspectives on Britain's post-WWII balance of payments difficulties and struggles with unemployment and inflation.

The third question I believe to be pertinent to the case of Argentina. I believe this question to be also more generally pertinent to many countries which have been pursuing import substitution industrialization policies associated with substantial restrictions on trade and capital flows. The pertinence to the Argentine case of the analysis developed in Chapter IV will be tested against statistical material in Chapter V.

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The application of the theoretical framework developed in Chapter II to the questions analyzed in Chapter IV required some assumptions to be made about the real structure of the economy being analyzed. A basic structure of perfect competition is used, in a fairly standard "dependent economy", i.e. two sector, model, with "traded" and "non-traded" goods and services. The new perspectives which emerge from the analysis result from two alterations to the basic dependent economy model with perfect competition. The first of these two alterations is that imported money is distinguished from domestic types of money, and imported money is a traded good. It is a traded good because it is, by definition, imported. Changes in the structure of incremental money demand as between the imported and the domestic components of the money supply, therefore alters the aggregate structure of demand for traded as opposed to non-traded goods. Incremental money demand can be large relative to total export earnings, so that the relative share of this incremental money demand which is for the imported money can have a large influence on the aggregate structure of demand as between traded and non-traded goods. The structure of the money supply therefore is shown through this analysis to have important implications for the structure of relative prices between traded and non-traded goods.

The second alteration to the basic dependent economy model concerns the structure of the production function. The alteration to the production function is that it includes a liquidity term as well as the standard factor inputs. The inclusion of the liquidity term follows the analysis given by Gurley and Shaw [1960], in which liquidity for firms is seen as making some real contribution to the efficiency with which factor inputs can be transformed into output. This formulation of the production function also gives expression to some of the main lines of argument developed in the economic history literature in explaining the historical development of banking and financial intermediation. Real money, or liquidity, thus enters into the production function and has a real marginal product, as do other factor

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inputs. The marginal product of liquidity is assumed to be diminishing in relevant ranges, as are marginal products of other factors; the marginal product of liquidity is assumed to fall to zero quite rapidly at some level of liquidity, to avoid the implausible implication that an increase in the real money supply could by itself generate increases of output beyond some level of liquidity. The basic analysis of perfect competition theory of distribution is then used to derive conclusions concerning the implications for the two sectors of changes in the structure of incremental money demand. Implications of such changes for trends in relative prices of traded and non-traded goods, and in returns to fixed factors within the currency area are given particular attention.

The combination of these two alterations to the standard dependent economy model with perfect competition yields some very interesting new perspectives on old problems and policy issues, as will be seen.

Chapter II
EFI and the relative shares of the

imported and domestic credit based components of the money supply

1 Introduction

This section of the thesis develops the idea that the relative shares of the imported and domestic components of the money supply which are compatible with monetary and exchange rate stability depend upon the relative predominance of External Financial Intermediation (EFI) in the financial structure of an economy. It is argued that in a currency area in which EFI is relatively predominant a larger share for the imported component of the monetary base will be required for monetary and exchange rate stability. By contrast, in a currency area in which Domestic Financial Intermediation (DFI) predominates strongly over EFI monetary and exchange rate stability will be compatible with a much smaller share for the imported component of the monetary base. The concept of External Financial Intermediation is explained in detail below.

The concept of "the relative shares of the imported and domestic components of the money supply which are compatible with monetary and exchange rate stability" requires some clarification. A central tenet of this section of the thesis is that there are cross country differences in the relative shares of the imported and domestic components of the money supply which are compatible with monetary and exchange rate stability. In this section of the thesis I first provide a framework for the analysis of these cross-country differences; I then go on to make use of this framework in order to analyze the contribution of various factors to the determination of these cross country differences. I will explain what is meant by "compatible with monetary and exchange rate stability" more fully below.

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As a first step in developing this analytical framework, three types of base money are distinguished. The use of combinations of these types of money in different monetary systems is then discussed. Four types of monetary system are discussed, these being identified analytically by the types of money used. Particular attention is given to the implications of the composition of the money supply for the nature of the lender of last resort function in the different regimes. Costs of the various systems are also given attention.

The distinctions between the three types of money are in part based on the distinctions between "inside" and "outside" money developed by Gurley and Shaw [1960]. Their definition of "inside" money is retained. However, their term "outside" money includes both of the other two types of money distinguished here: "imported" money is one of these two types; domestic paper fiat money is the third type used here, and it is referred to as "fiat" money.

This section makes use of an algebraic identity which enables us to characterise the four types of monetary system in terms of the range of values taken by various terms in the identity. Some of the claim that an EFI economy must have a larger share of imported money in the money supply is revealed through the use of this identity to be true by definition, and the identity is thus serving the useful, if modest, role of clarification. The algebraic formulation is then used to draw together various concepts of what constitutes "adequacy" of foreign exchange reserves, and to develop the argument that a smaller share of imported money can be compatible with monetary and exchange rate stability when DFI is stronger relative to EFI.

Historically, the relative shares of the imported and domestic components of the money supply have been very different in different countries. Within individual countries, these relative shares have also differed over time. At one extreme are economies which use an entirely imported circulating medium, such as silver and gold coins, or an imported paper money such as US$ (in countries outside the USA).

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For instance, in 1803, 94.7% of the circulating medium in France was specie, which, since France had no gold or silver mines, was entirely imported.[1] For England and Wales, in 1800, the equivalent figure was 40%; in 1913 it was only 11.5%.[2] In France, the share of specie in the circulating medium also fell during the 19th century, but not as far; in 1910 this share was still 32.9%.

Not only are there sharp historical and national contrasts in the imported share in the circulating medium, but there are equally sharp contrasts in the proportion of the paper monetary instruments which are "covered" by specie or foreign exchange reserves. At one extreme, for example, we have the currency board economies, in which the local paper note issue was "covered" 100% (or sometimes even more) by foreign exchange reserves. Similarly, in Argentina, between 1893 and 1930, paper note issue was solely against gold. However, commercial banks in these economies also made a contribution to the circulating medium, by deposit creation; a very much smaller share of this component of the circulating medium was usually "covered" by reserves of notes or foreign exchange, so that even if the coverage of the notes themselves was 100%, the gold (or foreign exchange) coverage of the total circulating medium was substantially less than 100%. In Argentina, for instance, the share of the total money supply which was "covered" by gold was 35.6% in 1913. The figure for France, in 1910, was nearly identical to that for Argentina, at 35.9%, whereas the figure for France had been 97.4% in 1803. An extreme case at the opposite end of the spectrum may be offered by the case of Scotland, towards the end of the 19th century, when "...it is unusual for specie reserves [of the big banks of note issue] to exceed 5% of total liabilities to the public; more often they are less than 1%..."[3]

The analysis of these cross-country and historical differences in the structure of the money supply, in terms of the relative shares of the imported and domestic components, is the subject of this section of the thesis.

The following contrasting quotations may serve to clarify the nature

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of the questions being addressed. The first quotation is from A. G. Ford :

"Throughout the nineteenth century the history of the Argentine currency had been a melancholy tale of the over-issue of paper money usually to provide funds for national or provincial governments, interspersed with temporary attempts at stabilization, the printing press being the favourite source of revenue for bankrupt, and at times corrupt, administrations."[4]

This quote from Ford expresses a very well known perspective, in which the use of the inflation tax is portrayed in a strongly negative manner. Note however that Ford makes no mention of the richness or poverty of the inflation tax base, i.e., of the success (or otherwise) of the government in profitably putting this paper money into circulation. Emilio Hansen, on the other hand, writes about the same epoch in Argentine monetary history from a strikingly different perspective:

"...In whatever [budgetary] emergency arose, there was the Bank of the Province of Buenos Aires... with credit always growing, and power to issue a paper circulating medium which was accepted and circulated without resistance in commerce and among the people... The people did not concern themselves particularly with knowing whether this paper money appreciated or depreciated, but were satisfied with the knowledge that this money was a standard of value and could be used to cancel debts..."[5]

Hansen goes on to contrast the position of the Buenos Aires government, which has just been described, with that of less fortunate neighbouring governments:

"...Buenos Aires [province and city] was able to maintain a long and costly war without putting burdensome pressure on its financial contributors, while their adversary could barely manage to scrape puny sums from lenders at usurious rates... While Buenos Aires flourished with a circulating medium of 14 or 15 million pesos of absolutely inconvertible paper money, [their adversary] the Parana government

could not manage to keep in circulation even a single million pesos, despite covering them with all sorts of promises and guarantees..."[6]

The city and province of Buenos Aires made habitual use of paper money as the circulating medium, whereas the neighbouring nations, including that under the Parana government, used a metallic circulating medium, largely silver, which was imported.

Whereas Ford has expressed the familiar negative view concerning the use, and governmental abuse, of the inflation tax, Hansen draws attention to the great advantages for a government, and for its populace, in being able to make use of the inflation tax in financial "emergencies" instead of being forced to such extremities as borrowing at usurious rates of interest and to giving up their best sources of revenue to pay foreign creditors. Hansen stresses differences between the Buenos Aires government and surrounding (independent) governments in this respect, and draws attention to the question of what factors may determine these differences in the richness of the inflation tax base.

Hansen asks a question which is very close to that which I am addressing in this section of the thesis, since the alternative form of money in question was imported (metallic money):

"...What are the circumstances or situations which enable a paper money to take root and prosper, and what factors oppose this success?"

The central point in Hansen's answer is as follows:

"...paper money...can not exist except in the context of commerce...it is the invention of commerce, for the purpose of giving wings to credit, the life and power of commerce..."[7]

This is not so very far from the argument which I will develop here, that a larger domestic share in the money supply can be compatible with monetary and exchange rate stability when this domestic money is used extensively in the process of financial intermediation. Hansen, however, formulated his questions in terms of the use of paper money as opposed to metallic money, whereas in this thesis the focus is on the distinction between imported money and money of domestic creation.

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Hansen's perspectives are pertinent because of the circumstance that the two types of money he discusses correspond to my categories: the paper money was of domestic creation, whereas the metallic money was imported. His questions can therefore be re-interpreted in terms of the distinction which concerns us here.

Determination of the relative shares of the domestic credit and imported components of the monetary base is a subject which has been treated in a variety of open economy monetary models, from quite a different perspective. In these models the composition of the monetary base, as between the domestic credit and imported components, is commonly treated as a sort of residual, to which no particular importance is attached, except that the danger of exhausting foreign exchange reserves is usually pointed out. It is, however, regularly acknowledged that increasing the domestic credit component of the monetary base by "sterilizing" foreign exchange reserve losses can not continue ad infinitum, but at some stage will precipitate a crisis, when the maintenance of a fixed exchange rate becomes impossible. It is also regularly acknowledged that there are very great cross country differences in the level of foreign exchange reserves at which reserves begin to be perceived as inadequate, and a crisis may be precipitated. The theory developed in this section of the thesis provides an approach to analysis of cross-country and historical differences in the relative share of the imported component of the money supply which is perceived as "adequate" by wealth-holders. The concept of the relative share of the imported component of the money supply being "compatible with monetary and exchange rate stability" thus means that the share of this imported component is perceived as "adequate" by wealth-holders. The view taken here is that over the long run wealth-holders will impose on an economy their view of what constitutes an adequate share of the imported component of the money supply, via the mechanism of exchange rate changes. If a government persists in attempting to maintain in circulation a stock of money in which the share of the imported

component is lower than that which is considered "adequate" by wealth-holders, the result will be repeated devaluations (or persistent depreciation) of the currency in question and the erosion of the inflation tax base.

The question of whether there can be national independence in monetary policy thus is seen from a new perspective through this analysis. The total stock of money which can be maintained successfully in circulation depends upon the relative shares of the imported and domestic components of the money supply which are perceived as adequate by wealth holders, as well as on the level of foreign exchange reserves. Sterilization of fluctuations in foreign exchange reserves for the purpose of maintaining some desired level of the money stock can therefore be a successful policy only when it does not involve persistence in reducing the ratio of foreign exchange reserves to the total money supply below that "adequate" level. National monetary policy independence is therefore a reality only within the range which may be permitted by these reserve fluctuations.

There is, however, the possibility of a stronger form of national monetary independence which emerges from the analysis: Governments can operate on some of the factors which determine the cross-country differences in these "adequate" relative shares of the imported and domestic components in the money supply.

Indeed, if governments ignore the factors which determine these cross-country differences, and attempt to maintain some desired level of the money stock simply by expanding the domestic credit component of the money supply, they run the risk of reducing their inflation tax base and making matters worse, as will be seen.

The questions addressed in this section of the thesis are particularly pertinent to the many economies in the world in which there has been a problem of currency "softening". In response to this problem, the suggestion has sometimes been made that a currency board type of monetary system might be more successful. Eastern European economies

are facing these same issues as they are being opened up to market activity. The analytical framework developed in this section enables us to identify some of the factors which determine cross-country differences in the structure of the money supply, and thereby gives us a means of analyzing these issues.

From the argument that the imported share of the money supply will need to be larger in an economy dominated by EFI, the conclusion will be derived that there is a role for government in economies of this type in actively fostering the development of DFI. This might include the establishment and development of financial intermediary institutions for the purpose of building up DFI business.

This conclusion supports, and extends, the view expressed by R.S. Sayers[8] that central banks in underdeveloped countries should cultivate active banking business. It also offers support, from a new perspective, to the view that development of the financial structure has an important contribution to make to real economic development. On the other hand, this conclusion opposes the view that the best way to monetary stability and financial development in an economy suffering the destructive effects of persistent inflations is simply to abandon the domestic currency altogether and use an imported "hard" currency instead. It also opposes the extreme view that everything should be left to the private sector in financial development.

I will begin the analysis of this chapter of the thesis by explaining the concept of External Financial Intermediation.

2 Clarification of concepts

External Financial Intermediation

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I use the term "external financial intermediation" (EFI) to refer to the use, by residents of a given currency area, either of foreign denominated financial instruments or of non-resident financial intermediary institutions. This is distinguished from "domestic financial intermediation" (DFI), in which the process of financial intermediation is carried out by domestic financial intermediaries using financial instruments denominated in the domestic currency.

Two types of "external financial intermediation" are distinguished: (1) "currency type EFI", which refers to financial intermediation using instruments denominated in a foreign currency; and (2) "geographical EFI", which refers to financial intermediation carried out through non-resident financial institutions. Geographical EFI usually also involves currency type EFI, but not invariably. The pure currency type EFI does not involve geographical EFI, but is financial intermediation carried out by domestic resident financial institutions. Pure currency type EFI involves the channelling of domestic savings to domestic borrowers, through the financial intermediation services of domestic resident intermediaries; the only "external" element is that the financial instruments involved are denominated in a foreign currency.

These concepts may be clarified with the help of some examples. A case of pure currency type EFI occurs, for instance, when a London bank accepts dollar denominated deposits from one group of UK residents, and extends dollar denominated loans to other UK residents; in the geographical sense, since UK residents are using a UK resident financial institution, this constitutes domestic financial intermediation, or "geographical DFI". When the Argentine government sells US$ denominated bonds through local Argentine financial intermediaries to Argentine residents, we have another case of pure currency type EFI (and geographical DFI); domestic savers are lending to a domestic borrower through the intermediation of domestic resident financial intermediaries. On the other hand, when residents of Venezuela hold dollar assets in New York, and the Venezuelan government (or any other Venezuelan resident) simultaneously borrows dollars in

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New York, we have EFI in both the geographical and currency sense. Here again, we have domestic savers lending to a domestic borrower, but the financial intermediary services employed to achieve this effect are in this case provided by non-resident institutions. If the Venezuelan government is borrowing in New York more than Venezuelan residents have invested in New York, we have a case of net capital movements from New York to Venezuela as well as a case of EFI. The distinction between net capital movements and geographical EFI is a very important one, and will be clarified further below.

In this terminology, a branch of a foreign bank operating within a given currency area is engaging in "domestic financial intermediation" (DFI) to the extent that it performs financial intermediation between domestic resident savers and borrowers using financial instruments denominated in the domestic currency. For other purposes of study, the "domestic" and "foreign" elements of a country's financial structure have often been distinguished in different categories. For instance, the study of financial development has had reason to be concerned with differences between the roles played by branches and subsidiaries of foreign financial institutions and the role of domestic banks. For this reason, among others, information about an economy's banking structure sometimes distinguishes between "domestic banks" and "foreign banks"; this distinction is usually given by residence of head office, but it is also sometimes given by source of capital. Information about the currency denomination of the banking activity, rather than about residence of head office, is what the distinction between currency type EFI and ordinary DFI requires.

It might turn out to be generally the case, as I discovered it to be in Argentina, that "domestic" banks lead in DFI, while "foreign" banks tend to use the currency type EFI to a much larger extent. In the Argentine case, prior to WWI, banking data sometimes enables us to distinguish between banks with gold denominated capital and banks with domestic paper denominated capital; this is not exactly the same as what is usually meant by "foreign" and "domestic" banks, but the

categorizations do overlap substantially. Banks with gold denominated capital had 31.6% of their loans, by value, denominated in gold (currency type EFI) in 1900, whereas the figure for banks with paper denominated capital was only 7.72%. By 1910 these figures had fallen to 13.04% and 1.74% respectively (See tables in Chapter V for further details.) The role of foreign banks in the economic development of a country may be quite different from that of domestic banks if foreign banks do tend to use EFI substantially more than domestic banks do.

The currency type EFI is the focus of interest in this study. As indicated above, the general concept "currency type EFI" includes all foreign denominated financial instruments used by resident savers and investors, whether the financial intermediary institution is resident or non-resident. That is, it includes both the pure currency type EFI and the cases of currency type EFI which are also EFI in the geographical sense. Analytically, I would treat financial instruments which are indexed to the exchange rate as foreign currency denominated, and these are therefore to be included in currency type EFI. The measurement of the relative importance of currency type EFI thus involves looking at the currency denomination of domestic resident financial intermediation, as well as at foreign assets and liabilities held by residents. Data on the currency denomination of the banking system for the case of Argentina is offered in Chapter V, for the period 1900-1931.

The balance of payments implications of the pure currency type EFI differ from those of geographical EFI, as follows: In the case of pure currency type EFI, we have domestic resident savers and borrowers being served by domestic resident financial intermediaries. The pure currency type EFI therefore involves no transactions with non-residents, and does not show up in the external balance of payments; the financial intermediation services being performed are part of domestic GDP. Geographical EFI, on the other hand, involves the use by resident savers and borrowers of non-resident financial intermediary institutions; it therefore involves the import of foreign financial

services. Geographical EFI thus does involve flows of payments which figure in the balance of external payments, in contrast with pure currency type EFI.

The balance of payments implications of geographical EFI may be clarified with an example. Consider the case of an economy which has zero net external debt, but which makes use of geographical EFI, using the standard formulation of the balance of payments, as follows: X - M - S + K = dG, where dG is the change in official reserves, X, M, and K are exports, imports, and net capital movements, respectively, and S is net debt service. By assumption K = 0, and net foreign debt is also zero. The use of geographical EFI involves resident savers in holding assets in non-resident financial institutions; there will therefore be a flow of interest and dividends to the holders of these assets, which figures as a credit item within S. Resident borrowers from abroad, on the other hand, have to pay out interest and dividends on their foreign loans. The net debt service item, S, thus represents the difference between the average borrowing and lending rates charged by the non-resident financial institutions involved, multiplied by the value of the stock of financial instruments involved.

In other words, S is in this case the flow of payments made for the use of foreign financial services. If the use of non-resident financial intermediaries involves large volumes of savings and borrowing, the value for net debt service could be quite large, even though we have assumed net debt to be zero. In this case the large net debt service item represents extensive use of non-resident financial services; this case may be contrasted with a case in which net debt service represents interest and amortization on net foreign borrowing. To put it another way, geographical EFI involves "consumption" of financial services performed by non-resident intermediaries, in the same way that the use of non-resident shipping companies or the services of any other non-resident company does. If the consumption of services performed by non-residents is on a substantial scale, the payment for these services can give rise to a substantial figure for S

even when net capital movements are not involved.

It should be also be noted that an economy which uses geographical EFI extensively will have a substantial GROSS external debt, without necessarily being a NET foreign debtor. As is well known, the external debt side of geographical EFI is usually visible (and legal) while the asset side of the process is often hidden. It can therefore be quite impossible to distinguish properly between external debt which is part of a process of geographical EFI, and external debt which represents net international capital movements.

Nevertheless, the distinction between external debt which represents net capital movements and external debt which is part of a process of geographical EFI is a very important one, and needs to be clear analytically whatever the difficulties besetting empirical distinction. The reason the analytical distinction is so important is that the factors which determine net international capital movements are by no means identical with factors which determine the use of geographical EFI. Kindleberger [1987] has stressed this distinction with particular force, and has expressed the view that there has been excessive focus on explaining capital movements as if they were net capital movements, and inadequate attention to explaining the gross flows which characterize international financial intermediation.

In this thesis the focus is on EFI, and not on net capital movements. The arguments presented in this section of the thesis provide a line of explanation for the use of EFI, but are not concerned with explaining net capital movements.

The term "cross-border" financial intermediation is used by Bryant [1987]; his use of this term appears to be synonymous with what I have here termed "geographical EFI". Bryant also makes reference, in the same book, to the distinction between "domestic-currency and external-currency assets and liabilities".[9] The terms "external financial intermediation" and "domestic financial intermediation" as I have used them here evolved in my own thought over a period of time, but clearly

owe a significant debt to Bryant's formulation of questions concerning international financial intermediation in the book cited.

Currency area structure of the international economy

The term "currency area" may be defined in various ways for various purposes. Here, for the purpose of looking at patterns of international financial intermediation, I am using a definition in terms of national boundaries: A "currency area" is here defined as the geographical domain within which a particular currency has legal (or customary) tender status. In general it may be taken as the monopolized domain of the currency in question (even though the use of foreign currencies may not be outlawed), and for the most part this is taken as coinciding with national boundaries. A "currency" is here understood as a denomination, such as sterling, dollars, pesos, etc., so that I will refer to a broad range of financial instruments issued in a particular currency which will include notes and coins but also other instruments such as treasury bills, bonds, etc. This usage coincides with standard journalistic practice and is more suited conceptually to my purposes than the narrower definition of currency as notes and coin.

The term "currency area" is commonly used to refer to a group of countries which maintain fixed exchange rates. For the purpose of distinguishing between currency type EFI and DFI, however, it is necessary to use the narrower definition which has just been explained.

The phrase "the currency area structure of the international economy" refers to the pattern in which the international economy is divided up into currency areas. Characteristics of this pattern which are pertinent to this section of the thesis include, for example, the size distribution of the world's currency areas, and the distribution among currency areas of other structural characteristics which might give rise to EFI. This phrase could sensibly be used with either the broader or the narrower meaning of the term "currency area". Since the focus of this section of the thesis is on the currency type EFI,

however, the narrower meaning will generally be intended.

The "Two money strategy"

The term "two money strategy", or, synonymously, "dual currency strategy", refers to the practice within a currency area of using two currencies (in the sense of the word "currency" just defined) to fulfil the functions of money rather than one. It refers in particular to the practice of using a foreign currency to fulfil the store of value function, while using the domestic currency as the medium of exchange. The types of financial instruments used to fulfil the "store of value function of money", as the phrase is used here, includes financial instruments normally classed as "non-monetary" as well as "monetary" financial instruments in the narrower sense of the word "monetary".

I use the word "strategy" in the sense of a practice which is continued through a period of time, as for instance the practice, or habit, of using some usual combination of bank deposits and cash tends to be continued through time, as opposed to the sort of decision which might be made afresh every day. The notion of "strategy" will receive more precise explanation in Chapter III; in this section it may be understood as meaning customary practice.

The practice of using two currencies to fulfil the functions of money requires further explanation. We may begin by recalling that I have been defining "currency" as a denomination, which includes a wide range of financial instruments. A currency performs the functions of money through the medium of the range of financial instruments denominated in that currency. Thus the dollar, for instance, performs the medium of exchange function through bills and cheques denominated in dollars: It performs the standard of deferred payment function through contracts denominated in dollars; it performs the store of value function through financial instruments denominated in dollars which are held in wealth portfolios; and it performs the unit of account function when values of goods or wealth are measured in terms of dollars. The dollar is an example of a currency in which the full range of monetary functions is

widely performed.

The USA is an example of a currency area in which the functions of money are nearly always all carried out in the same currency, the US$. This is the simplest case, and the one which is commonly assumed in US (or UK) textbook portrayals of money and banking. However, very few of the currency areas comprising the international economy are actually in this position, nor have been in this position in modern economic history. Far more numerous are the countries in which the domestic currency has legal tender status (or customary status), and is used as the normal medium of exchange, but in which the other functions of money are shared with some other currency (or currencies). Moreover, the expansion of "Euro-markets" has been extending the use of multiple currencies in some monetary functions, in some countries, while the increase of "dollarization" has been extending it in others. The use of both a "soft" domestic money and a "hard" foreign money is a familiar phenomenon in much of the world, and it is this practice in particular to which I refer with the term the "two money strategy".

In the case of a currency area in which two currencies are being used, the exercise of the functions of money is carried out through financial instruments denominated in a variety of ways. It will be recalled that I have been defining "currency area" as the geographical domain within which a particular currency has legal tender (or customary tender) status. The legal (or customary) tender status of the domestic currency supports its use as a medium of exchange, and this function is normally carried out through notes and coins and cheques denominated in the domestic currency. On the other hand when longer term financial instruments, such as bonds, are issued, these may be denominated in the foreign, "hard", currency, although payable in the domestic currency. We then have a mixed case, in which the foreign currency is serving as a unit of account, standard of deferred payment, and store of value, but the domestic currency remains the medium of exchange.

The range of financial instruments denominated in the domestic

currency reflects the range of monetary functions performed by that currency.

In the "two money strategy" we have the domestic currency serving as the medium of exchange, and a "hard" foreign currency serving the store of value function. Sometimes the foreign currency is used in the form of hoards of imported cash, and sometimes, as in the case of the bond issue described above, it serves as the denomination for financial instruments issued through local financial intermediaries. In the latter case we have the pure currency type EFI. In a strict, or pedantic, sense, the holding of hoards of imported cash would constitute geographical (as well as currency type) EFI in cases when the foreign cash is a paper money which was issued by a foreign government through a process of financial intermediation, as opposed, for example, to hoards of gold coins. The two money strategy thus, these days, normally involves the use of currency type EFI in some form or other. It could, however, take the form of the use of a metallic money as the "hard" money, as indeed was the common practice in earlier times, in which case EFI would not be involved.

Textbooks stress the interdependence of the functions of money, and the advantages of versatility, as explanations for the use of a single currency, and with good reason. For example, for a currency to function as a medium of exchange it must also serve as a store of value for at least long enough to take the holder from one transaction to another. It will serve better as a medium of exchange if it serves longer for a store of value, since it thereby gives the holder a wider range of choice for his next purchases. If the holder of a purse full of notes knows that prices denominated in these notes are rising daily, he has little time in which to choose what to buy before the rise in prices has removed his opportunity to buy anything at all. "Dollarization" usually refers to inroads made by the dollar against the domestic currency in the medium of exchange function which have occurred for precisely this reason.

In economies where dollarization is important, dollars have usually

been sharing the functions of money with the local currency for some time, in the manner described above as the "two money strategy"; they have been serving as the unit of account and standard of deferred payment in a variety of contracts and financial instruments, and as a store of value for holders of dollar bills or financial assets denominated in dollars and held at home or abroad. Acceleration of inflation has then eroded the ability of the domestic currency to perform the store of value function even to the extent required by the medium of exchange function.

In view of the interdependence of monetary functions, and the advantages of versatility, why is it that the use of two (or more) monies has been the much more common phenomenon, both historically and among the currency areas of the present time? Since the "two money strategy" is in fact much more common than the single money case, we are confronted with the question of whether there are advantages to this practice which offset the better known advantages of using the same currency for all monetary functions. This question is another way of looking at the question which is addressed in Chapter III of this thesis. The structural characteristics of certain types of currency area which give rise to currency type EFI also imply advantages to the "two money strategy" in the broader sense, as will be seen.

3 Analytical Framework

Types of money

Three types of base money are distinguished. The distinctions are in part based on the distinctions between "inside" and "outside" money developed by Gurley and Shaw,[10] and their definition of "inside" money is retained. However, their term "outside" money includes both of the other two types of base money distinguished here: "Imported" money is one of these two types; domestic paper fiat money is the third type

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used here, and it is referred to as "fiat" money.

Inside money

The term and concept of "inside" money are taken from Gurley and Shaw, as noted above. The concept will be reviewed briefly, and then set in the context of our distinction between EFI and DFI. In this section of the thesis it is the currency type EFI and DFI which are the focus of interest. Unless otherwise indicated in a particular context, the terms EFI and DFI should be understood throughout this section as referring to the currency types. In most instances the reference will be to the pure currency type EFI and DFI, moreover, and this should be assumed unless it is made clear in a particular case that the joint geographical and currency form is intended.

"Inside" money is money created in a process of financial intermediation, as described by Gurley and Shaw. The financial intermediary purchases assets from those to whom it lends, and issues liabilities of its own which it sells to those from whom it borrows. When these liabilities are such as fall into any of the categories called money, such as sight deposits or paper bank notes, the money thus created is "inside" money.

In common usage, the term "inside money" is often understood as referring only to "low-powered" money created by commercial banks, and not to the "high-powered" forms of monetary liabilities issued by central banks. Here however, the term refers to monetary liabilities issued by any bank (or any financial intermediary acting in this respect as a bank), regardless of whether the bank has official status or not. Thus the term "inside" money will be used here also to refer to notes issued (or deposits created) by a central bank in the process of acquiring any interest bearing financial assets, whether these be government bonds or private commercial bills. The defining characteristic of "inside" money, as I am using the term, is that the quantity of outstanding monetary liabilities corresponds on the balance

sheet of the issuer to an equal value of earning assets; in other words, that it is money issued in a process of financial intermediation.

The definition of "inside" money offered by Karl Brunner in "The New Palgrave: Money" differs only slightly from the definition used here: "...'Inside money' matches in a consolidated balance sheet of 'money-producers' a corresponding amount of private debt..."[11] The difference between the two definitions is in the qualification "private" applied to the debt. As I am using the term here, "inside" money includes money issued against government debt as well as against private debt. The definition used here will enable us to relate the concept of money created in a process of financial intermediation to a wide range of banks in a variety of geographical and historical contexts, and is therefore more suitable to the theoretical framework to be developed here.

As a matter of historical fact, banks of issue with official status have frequently issued monetary liabilities against private debt or commercial bills, as well as against government debt, while banks of commercial type, whose liabilities are of the "low-powered" type, have created monetary deposits in the process of lending to governments (and thereby acquiring some form of government debt). Analytically, the element to be distinguished by the term "inside" money in the theoretical framework developed here is the creation of money in the process of financial intermediation; a more restricted definition of inside money which excludes either certain types of financial earning assets or certain types of institutions, is therefore not suitable in this context. The category "inside" money will thus include notes (as well as deposits) issued by commercial banks, private banks, banks with semi-official status, and official central banks, etc., regardless of whether the earning assets thus acquired are private or government or some mixture of the two.

A feature of inside money is that it can be "high-powered" base money or "low-powered" money, depending on the nature of the issuer and the

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context. This feature turns out to be of considerable interest: the question of the context in which inside money acquires the characteristics of high-powered base money instead of just low-powered money will be explored more fully later on. When a Central Bank buys government securities or rediscounts commercial paper for another bank, issuing its own liabilities or notes in exchange, the "inside" money which is created is referred to as "high-powered", and is part of the monetary base. "Low-powered" inside money is that which is created by the rest of the banking system.

The liabilities of the Central Bank normally have this "high-powered" status because of legal restrictions governing the composition of reserves held by the rest of the banking system. However, the phenomenon of multiple expansion of monetary liabilities on the basis of some asset which is thereby in fact "high-powered", serving the function of a monetary base, is a also a market phenomenon, and as such has a much longer history than that of central banking as we now know it. As part of a market phenomenon, this "high-powered" status is conferred upon a particular asset by a combination of factors, among which are various legal factors. Characteristics of currency area structure which may contribute to market forces influencing the quality of this "high-powered" status are the particular focus of interest in this thesis.

The concept of "inside" money is developed by Gurley and Shaw in a closed economy context; the financial intermediation process described is thus necessarily one of domestic financial intermediation in the geographical sense. Implicitly, since no mention is made of currency denomination, it is also DFI in the currency sense. However, in the present context of distinguishing between EFI and DFI the currency denomination of what is termed "inside" money must be specified. By "inside" base money, i.e. inside money issued by a central bank or other issuer of high-powered inside money, we will be referring to money created in the process of DFI only (i.e. the denomination of the financial assets acquired is that of the domestic currency being

issued), unless otherwise indicated in a specific instance. When a banking system conducts its business in more than one currency simultaneously, "low-powered" inside money will actually be a mixture of EFI and DFI inside money, and will accordingly be identified as such in that context.

Imported money (or foreign money)

The concept of "imported" money used here includes both foreign exchange and precious metals. The term "foreign" money will be used interchangeably with "imported" money. For analytical purposes the assumption is made that the currency area does not have domestic mines of monetary metals.[12] Imported money is denoted G, as indicated in the discussion of (G/F)* above.

The characteristic of interest is that "imported" money has to be imported, and consequently requires the export of something - goods, services, or assets, real or financial - in exchange. (The theoretically possible case of a currency area receiving its imported monetary base as a gift from another currency area is ignored.) Whether the imported money in question is foreign exchange in a form which pays interest, or is gold or some other commodity money, or cash, which does not pay interest, does of course impinge seriously on the balance of payments, but analytically that distinction is not the focus of our present interest.

Changes in the currency area's stock of "imported" money thus show up in the balance of payments, and interact in that context with other sources of demand and supply of foreign exchange. This element in the balance of payments is now commonly treated as an "accommodating" item, changes in official reserves being seen as the passive consequence of decisions giving rise to demands and supplies of foreign exchange in other categories. In other contexts, changes in official reserves are viewed as reflecting attempts by residents to adjust the total aggregate quantity of real money to that which they desire to hold. Neither of these treatments will serve our present purpose.

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In the present context, "imported" money will instead be treated as an item in the balance of payments which is subject to its own specific demand influences. These influences are not identical with general influences on the aggregate demand for money, except in the special cases in which all money is of the imported type, or in which the various types of money are perfect substitutes. When the different types of money distinguished here are reliably convertible into one another at permanently fixed rates of exchange, they may become perfect substitutes, and private specific demand for imported money balances may effectively cease to exist. Under these circumstances the aggregate net imports of foreign money may be correctly viewed, as in simple monetary models, as reflecting general influences on the aggregate demand for money in the currency area. However, since we want to analyze the relationships between the different types of money, the assumption of convertibility at permanently fixed rates of exchange will not be made here.

The total stock of imported money, G, is the sum of the stocks held by three categories of holder:

$$(2.1)\quad G = Gp + Gb + Go$$

where Gp is the stock of imported money held by private individuals, Gb is the stock of imported money held by commercial (deposit) banks, and Go is the stock held by the official monetary authorities or central bank. The term "central bank" will henceforth be used interchangeably with "monetary authorities", to refer to any institution which issues legal tender money; it would thus include such institutions as conversion offices which issue notes in exchange for gold or foreign exchange, currency boards, etc., as well as any private or semi-private bank whose note issue is accepted as legal tender, or even as well established customary tender accepted by government in cancellation of debts.

The following treatment of the balance of payments categories will be

used here:

(2.2) X - M + K - S - (dGb+dGp) = dGo

where (dGp + dGb + dGo) = dG; and dG is total net imports of foreign money into the currency area. X - M includes both the trade account and the factor services account except for net debt service. S is net debt service, K is net capital imports. dGp is net increases in private individuals' stocks of imported money, dGb is net increases in commercial banks' stocks of imported money, and dGo is net changes in official reserves of foreign money. If there were no net imports or exports of foreign money by private individuals, this formulation would be identical with the standard simple form, dG in that case being the change in official reserves: X - M - S + K = dGo = dG. The private (both individuals and commercial banks) holding of imported money implies the possibility that changes in official reserves are reflecting purely domestic movements of imported money between the official reserves and private holdings.[13]

The reason for using this formulation is that it is easily related to a broad range of historical contexts, among which we can identify the cases when dGp = 0, or dGp = dGb = 0, as special cases. As noted above, this could be the case when private demand for imported money has faded out because imported and domestic types of money have become perfect substitutes. In earlier periods, when both gold and domestic paper money were in private use in many countries, private imports of gold, "imported" money, figured as an item in analyses of the behaviour of balances of payments and exchange rate movements, and those analyses are more clearly portrayed in this formulation. For example, this specific demand for imported money was one of the factors discussed by Alfred Marshall in relation to the case of the Indian balance of payments.[14] Now that private demand for balances of imported money has been regaining importance even in countries where it had almost faded out, an analytical formulation which makes it easier to draw on the

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understanding offered by the these earlier analyses seems useful.

Historically, the private demand for stocks of imported forms of money, gold and silver for instance, had been an important factor influencing the balance of payments in most countries. In the days of the operation of the international gold standard, for instance, domestic private demand for gold was an important factor to reckon with in defending convertibility of the note issue. This factor had faded in importance in some countries, notably in countries with strong financial centres. However, in the form of "dollarization", it is currently a major factor influencing the exchange rates and balances of payments of a great many countries, as the private holding of dollars is very widespread.

In the major developed countries with sophisticated financial centres the private holding of imported monies is now again also a factor on a significant scale; in these countries the practice of holding stocks of foreign currencies is (as yet) not very widespread among the population, but since the magnitude of the money portfolios involved is large, the practice does have quantitative importance. As may be observed in Table II.2, below, Gb assets and liabilities are in the case of many countries very much larger than the corresponding figures for Go, so that net changes in Gb can be large relative to those in Go.

The diversity of literatures in which the subject of some form of "imported" money is treated reflects the antiquity of the phenomenon and the variety of its forms. The literature on the operation of the international gold standard, for example, has as its subject the use of a monetary base which is at least partly imported, in a regime in which convertibility between the imported and domestic types of money at a fixed rate of exchange is maintained. The use of imported money is also the subject of the literature on the currency board system. Described as "currency portfolio diversification", the holding of imported money (as well as of domestic types of money) is the subject of the currency substitution literature. The "dollarization"

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literature is concerned with currency areas in which the imported money is tending to displace domestic types of money. The phenomenon of dollarization will be discussed further below.

Fiat money

The third type of money is domestic paper note issue, "fiat" money. As the term is used here, the defining characteristic of "fiat" money is that there are no assets held against this type of money, either in the form of income earning assets, such as held in the "inside" money case, or of gold or other commodity or any other asset. In this respect this type of money corresponds to the description given by Gurley and Shaw of the creation of what they call "outside" money. However, in subsequent discussion Gurley and Shaw refer also to gold and foreign exchange with the same term "outside" money, whereas gold and foreign exchange are here termed "imported money".

What may be yet more confusing to the reader is that the term "fiat money", is actually used, in the literature on monetary and financial history, for both what I am calling fiat money and what I am calling high-powered inside money. This occurs because both are paper forms of money, as opposed to metallic money, and both have been given legal tender status by government decree (or by government "fiat", hence the use of the term) in historical instances. Nevertheless, the distinction must absolutely be made, because it is a distinction which has immense practical importance, as will become apparent below.

The crucial difference between these two types of money may be further clarified as follows: Fiat money is here treated as being issued in exchange for current goods and services, as for instance in financing current government expenditure, if issued on behalf of the government. High-powered inside money, on the other hand, is issued in exchange for financial assets of some sort, which then form part of the asset portfolio of the issuing institution, and are expected to yield a stream of income. The analytical distinction of interest here is that between the issue of money in payment for current goods and services,

and the issue of money in acquisition of a financial asset. If it happens that the assets acquired by the issuing institution subsequently fall in value below the nominal value of the monetary liabilities issued in their acquisition, the difference between the actual value of the earning assets and that of the outstanding monetary liabilities constitutes "fiat" money in the terminology used here. It frequently did happen, in historical cases, that commercial banks would issue their own bank notes in the course of extending loans, and that the earning assets thus acquired "went bad", so that the nominal value of the outstanding notes was greater than the value of these assets; the difference between these two values would here be termed "fiat money".

Paper note issues which become established in use by custom rather than by any government decree are here also treated as fiat money if they are issued in payment for current goods and services as opposed to being issued in the purchase of financial earning assets. Thus, for example, notes issued by a manufacturer in payment of wages to his workers, which then may enter into circulation, would be here considered fiat money even if their use was entirely customary, and never given government support as legal tender.

It has sometimes happened, historically, that primary securities have been sold by the borrower (usually the government) to the public as earning assets, but have subsequently served as a form of paper money, circulating like bank notes. This occurred, for instance, in 19th century Argentina.[15] These would here be treated as a form of interest bearing fiat money, since they were issued in exchange for current goods and services, like the manufacturer's notes mentioned above, instead of in the acquisition of financial assets.

Analytically, the provision of payments services, which is described by Gurley and Shaw in their portrayal of "outside" money, constitutes the provision of a range of financial services which could be performed by various types of institution. At a minimum, the issuer of the "fiat" money is providing the service of the issue of notes; only to

this very limited is the term fiat money as used here necessarily associated with the provision of any payments services. Other payments services, such as running a clearing house, may also be provided by the institution issuing fiat money, but the identification of the money as of the fiat type is independent of the range of services provided. Payments services of all sorts may also be (and commonly are) provided by institutions which create "inside money".

In the discussion that follows, these notes are not assumed to be guaranteed to be convertible at any particular rate into either of the other two types of money, unless specifically indicated in a particular context. They are simply paper notes, providing a medium of exchange; to what extent they serve other functions of money will differ in different circumstances. Fiat money is assumed to be legal tender within the currency area only. Moreover, within the currency area contracts may be denominated in one of the other two types of money, and in such cases the legal tender status of the note issue does not extend to fixing a rate of exchange.

Historically, the conditions under which paper money has been accepted as money are closely related to those under which inside money has been high-powered instead of just low-powered money. The legal provision that notes are legal tender, the legal basis of what is normally referred to as a fiat regime, is only one factor. The best known case of paper money serving as money, and indeed even as high-powered money, the basis for credit expansion by other banks, while being neither convertible into gold nor given legal tender status, must be the case of Bank of England notes during the Napoleonic Wars. Hawtrey's point that "....convention took the place of law, and the Bank of England note became a customary standard..."[16] brings out the well-known social custom factor, which gives externalities to private holdings of any particular type of money. People are willing to accept paper money in discharge of a debt when they know that their creditors, actual or

potential, will accept the paper money in turn. Each person's willingness to hold the paper money contributes to the usefulness of everyone else's holdings of the money, or vice versa.

In some historical cases of successful paper money circulation, an important factor in gaining public acceptance of the paper money has been the willingness of a large creditor to accept the paper money at a fixed nominal value in cancellation of debts. For this to be successful, the creditor concerned must, of course, be able to control the quantity of the paper money issue; the commitment gives the creditor a motive to maintain the value of the paper money by restricting the quantity issued. Governments as creditors in the collection of tax debts, may be large enough creditors to use this technique for gaining the acceptance of a government note issue. For example, in the case of 19th century Buenos Aires, the successful establishment of a paper note circulation was assisted by the government commitment to the acceptance of the paper notes at their nominal value in payment of customs duties.[17] The same technique has sometimes been used, successfully, by large issuers of other types of financial instruments, for the same purpose of improving the liquidity and market acceptance of their liabilities.[18]

A feature of fiat money is that its acceptance may be voluntary or forced. A government with good powers to collect taxes may be able to gain voluntary acceptance for a government note issue by accepting its own notes in tax payments. At another extreme, governments have very often faced stronger pressures to spend than their powers to tax can accommodate by other means, and have attempted to make up the difference by forcing acceptance of their notes (or other liabilities) and imposing the "inflation tax". This feature of fiat money is a crucial factor affecting the relationships between fiat money and the other types of money.

Notes on high-powered money

As concerns high-powered money, I am treating as "imported money" any

asset held by the monetary institution which is denominated in a foreign currency. Thus, in this framework, there is no category for EFI high-powered inside money. If, for example, the government issues bonds which are denominated in a foreign currency and sells them to the central bank, the assets thus acquired by the central bank are here treated as part of its holdings of foreign denominated assets, in the same category as gold and foreign exchange held in other forms. However, any discrepancy between the foreign exchange market value of these assets and the purchase price imposed upon the bank by the government is treated either as a form of government levy on the bank or as a fiat issue, depending upon whether or not the creation of money is involved. If paper money or deposits are created by the central bank on the government's account in the purchase of these bonds, the difference between the real foreign exchange market value of the assets thus acquired and the quantity of money created in exchange for them, would constitute the creation of fiat money in the terms of the framework used here. It has frequently happened, in actual historical circumstances (and continues to happen) that the foreign exchange market value of such assets is well under the nominal price the bank is required to pay, so that money creation which takes the nominal form of an asset purchase by the central bank in reality has a substantial "fiat" issue component, as the term is defined here.

Structure of the money supply, algebraic formulation

The following identity will be used for the purpose of analyzing the structure of the money supply in the various monetary systems:

(2.3) $F = kY = Gp + [(Go / W) + Gb] / g$, or:

(2.3a) $F = kY = Gp + [H + Gb] / g$

where:

(i) F is the total money supply, cash in the hands of the public (Hp),

plus commercial bank deposits, (D), plus private individuals stocks of imported money, Gp. Thus we have another expression for F as follows:

(2.3b) $F = Gp + Hp + D$

This formulation (2.3b) corresponds to standard definitions of the money supply except for the inclusion of Gp; i.e., if Gp=0, we are back to the standard definition.

(ii) Y is nominal income, and k is therefore defined as $k = F/Y$.

(iii) Go is monetary gold and foreign exchange reserves held by the central bank or other official monetary institution; Gb is gold and foreign exchange reserves held by the commercial banks. Gp is any of these forms of imported money held privately, such as dollars under the mattress or gold coins.

(iv) The monetary base is comprised of H + Gb +Gp. If private individuals and the commercial banks hold no gold or foreign exchange reserves (i.e., if Gp = Gb=0), then H forms the whole of the monetary base.

(v) W is the ratio of Go to the sight liabilities of the central bank, e.g. cash, and deposits at the central bank belonging to the commercial banks, which are here jointly denoted H. W is thus the proportion of central bank sight liabilities "covered" by gold and foreign exchange.[19]

Fluctuations in the domestic currency value of the central banks' stocks of gold and foreign exchange which may be occasioned by fluctuations in exchange rates or in the foreign exchange market value of foreign denominated assets held, can cause W to change without any change in H. For instance, suppose the central bank has issued 100 units of domestic currency, i.e. 100H, half of which was a purely fiat issue of paper notes, and half of which was issued against the purchase of gold at the current exchange rate. If this 100H constituted the total note issue, H, we would have W=1/2. Suppose then that the domestic currency H depreciated against gold, so that the gold stock Go held by the central bank doubled its value in terms of H, from 50H to

100H. W would have risen to W = 1, without any change in H. Similarly, if our central bank had issued its 100H against the purchase of, say, US$ denominated foreign exchange assets, so that we had W = 1, but the US$ then depreciated , we would have W < 1, assuming H constant; if the value of the US$ in terms of H had halved, we would again have W = 1/2, the remaining 50H having been transformed into a mere fiat issue.

This treatment of H differs from that of the standard international monetary economics textbook treatment of the central bank's contribution to the monetary base, H, as follows: In the standard textbook treatment, the central bank's contribution to the monetary base, H, is treated as identically equal to the sum of the central bank's foreign exchange reserves, Go, and a domestic credit component, C. This formulation implies either that there are no fluctuations in the value of the assets held in either of the categories, Go or C, or that any fluctuations which might occur are simply being defined as causing alterations in C (or in H). For instance, if the central bank had issued 100H as above, 50H against gold and 50H in the purchase of domestic currency (H) denominated government bonds, and the value of gold in terms of H doubled, the central bank would be holding 100 H worth of gold, and 50H worth of bonds; the outstanding note issue H remains fixed at 100H. In the formulation used here, W would have risen to W = 1, and the bank has made foreign exchange gains. Or, to look at another case, it may be that some event, such as for instance the loss of a source of tax revenues, caused the value of the domestic government bonds to halve, so that the central bank is holding gold, Go, still worth 50H by assumption, and domestic government bonds worth now only 25H; the outstanding note issue remains fixed at 100H. In the formulation used here, W remains unchanged at W = 1/2, while the original 50H of high-powered inside money has fallen to 25H, and we now also have a fiat issue of 25 H. In such cases as these, definitions can be stretched, or assumptions made, which would enable the standard textbook formulation of H as identically equal to Go+C. However, such

methods of fitting an identity to reality would obscure precisely those changes which will be important in the analysis to be developed here; it therefore will not suit present purposes.

(vi) g is defined by the above identity (2.3a), as follows:

(2.3c) $g = (H + Gb) / (F - Gp)$.

It therefore reflects both the average reserve ratio held by commercial banks and the share of official monetary liabilities held by the banks (Hb), as opposed to those held as cash in the hands of the public (Hp). g falls as the public entrusts a larger share of H to the banks, and as the average reserve ratios of banks falls.

It may be seen from (2.3a) and (2.3b) above that g is the inverse of the standard "money multiplier". The standard version of the monetary base, as noted above, is a special case of the version given here, as follows: The standard version of the monetary base has Gp = Gb = 0, so that H is the whole of the monetary base, which would leave us with F = (1/g) H. In this form (1/g) is clearly recognizable as the standard money multiplier; as such, it depends, as has just been indicated above, on the commercial banks' cash/deposit ratio (which would be Hb/D, with Gb = 0), and on the public's cash/deposit ratio (which is Hp/D, with Gp = 0).

The ratio, k, of the total (nominal) money supply, F, to nominal income, Y, will be treated as a constant for much of the discussion, and unless otherwise specifically indicated, in this section of the thesis.

Monetary Systems

Except in the Type I system, where there are no banks, none of the systems make any assumptions about the relative size of Go and Gb. If banks hold no foreign exchange reserves (or other form of imported

money), Gb = 0, but in Types II-IV this is not assumed.

Type I: Imported money only

This monetary system uses only imported money, supported by no banks at all. In terms of the above identity, W=1, and g=1, such that the total money supply F = kY = Go + Gp.

A monetary system which uses only imported money would be like a currency board system without the support of any banks at all. This is also the position of individual households and of any small towns or regions within larger currency areas which lack local banks. The entire local stock of money has to be bought in or borrowed from outside, and paid for by the sale of goods and services to non-residents. Fluctuations in the total stock of money caused by the vicissitudes of export earnings or capital inflows can not be compensated for by offsetting increases in other types of money, since we have assumed these not to be in use. Individuals can defend themselves from the full harshness of these fluctuations by holding precautionary stocks of money, or a central institution can perform a similar function for the community as a whole, in precisely the same manner that individuals and households within large currency areas normally hold precautionary balances. However, there can be no multiple expansion of credit based on any of these stocks of imported money, because that would constitute the creation of inside money which has been ruled out by assumption.

Two important features of this type of monetary system are (1) its costs, and (2) its dependence upon export earnings. The costs may be substantially reduced if the form of imported money used pays interest, as has often been pointed out in connection with the trend towards holding interest bearing forms of foreign exchange instead of stocks of gold.

It is instructive to consider the relationship between the costs of holding money balances and the share of export earnings in total

income. Since income and exports are flows, while the supply of money is a stock, once the desired money stock is achieved no further flows of money imports (or exports) would be required. If income is growing however, and the desired money stock is in some constant ratio to income, as in the formulation above (F = kY), then this desired stock will also be growing. If all income derives from exports, then the maintenance of some desired ratio of money to income will accordingly require a proportionate share of export earnings to be set aside each period for increases in this stock of money as income rises. However, as exports (X) become a smaller and smaller share of total income (Y), i.e. as (X/Y) falls, the share of export earnings which must be set aside to maintain this same ratio (k) of money stock to income, as income increases, must rise. The share of export earnings required to satisfy incremental money demand as income grows is as follows:

(2.4) (dF/X) = (kdY) / xY

where dF is the incremental money demand, dY is the change in income, and x is the ratio (X/Y). [Hence X = xY.] The following rearrangement of (3.4) may make the relation clearer:

(2.4a) (dF/X) = (k/x) (dY/Y).

It is evident from (2.4a) that when the ratio, x, of exports to income falls, a larger share of export earnings must be set aside for the purpose of meeting incremental money demand. The extreme case may be imagined in which the currency area imports no goods from outside at all, but only imports its money supply, and provides for all other needs locally. Historically, during periods of rapid growth in countries where imported money had an important share in the total money supply, increments to the money stock were often an important part of capital imports. The case of Sweden during the 30 or so years before WWI provides one example of this which has received recent

study.[20] On the other hand, the well known tendency of India, prior to WWI, to import vast quantities of silver, is probably better explained by to an inclination to increase the ratio of silver stocks to income as a store of value, in preference to other forms of wealth holding, rather than by incremental demand for imported money.

In Mercantilist England, the preoccupation with running a trade account surplus in order to ensure the sufficiency of the country's stock of gold, was a reflection of the importance of this imported component in the total money supply during that period. The various trade restrictions which were imposed were partly for this purpose, attempting to foster domestic production and exports, and to restrict imports, in order to increase the domestic stock of gold. In the English case the development of financial institutions and domestic forms of money must have contributed to the fading of these Mercantilist anxieties, and to the rising influence of free trade doctrines which stressed instead the gains to be made through increasing international specialization and exchange.

Thus a feature of using an entirely imported money supply is that it has balance of payments implications which can give rise to motivations for the imposition of restrictive trade practices. These balance of payments implications are worth looking at in more detail.

In this type of monetary system an increase in the demand for money balances would tend to lead to a deficit on the official settlements definition of the balance of payments, unless the increased demand for money is entirely at the expense of imported (or exportable) goods and services: $X - M - dGp < 0$; $dGb = 0$ (by assumption). This contrasts with simple monetary models in which imported money is not distinguished from domestic types, and in which an increase in the demand for money balances at the expense of goods and services leads to a surplus on balance of payments, the total money stock being increased by this means. If all money is imported and all goods and services are also traded, then the desired increase in money balances would be matched by an increase in the current account surplus ($X-M = dGp$), by

the same mechanism of foregone consumption as in those models. However, if all money is imported, but some of the foregone goods and services are non-traded items, then the desired increase in money balances would not be matched by an increased current account surplus, and a deficit on balance of payments (official settlements definition) would result ($X - M - dGp < 0$), if starting from equilibrium. This point comes out clearly using our above formulation for the balance of payments, and assuming net capital imports $K = S = dGb = 0$: $X - M - dGp = dGo$. An increased private demand for imported money can be met by drawing down official reserves, or by decreasing imports M, or by increasing exports X, or by any combination of these three means.

In various areas of current literature, an increase in the private demand for foreign money is treated as an increased capital outflow. The above case when this incremental money demand gave rise to a deficit would thus be portrayed: $X - M + K = Go < 0$. The resulting prediction as concerns the balance of payments is the same, but the difference in conceptual approach tends to lead one to focus on different things. In particular, the demand for money is normally understood as being related to income in some important way. On the other hand, the main focus in analysis of capital flows tends to be on differences in expected returns among alternative investments, although income may be also a factor. Here we need a conceptual approach which puts the focus of attention on factors influencing the demand for money, and the present formulation has therefore been preferred.

Incremental money demand associated with income growth is large; it can be very large in relation to the size of exports, in particular. If the currency area imports its money supply, incremental money demand can be large relative to export earnings and other imports, as can be seen from (3.4a),above. Incremental money demand can therefore put considerable pressure on the balance of payments when the money supply is imported. For this reason the analysis of the structure of the money supply, as between its imported and domestic components, has

immense practical importance.

Further analysis of the implications of using an imported money supply will be developed in Chapter IV. In this Type I monetary system, we have had F = G, such that (G/F) = 1, where (G/F) may be assumed equal to (G/F)*. In Chapter IV we will be looking at cases when (G/F)* < 1; therefore in that context incremental money demand will not be identical with incremental demand for imported money. There is, however, a direct relationship, which is determined by (G/F)*. This relationship is easily seen:

(2.5) $G = (G/F)\ kY$

from the identities (2.3) or (2.3a) above. We can thus identify the incremental money demand, required to satisfy (G/F)*, as follows:

(2.6) $dG = (G/F)^*kdY$

From (2.6) and (2.4a), we see that (G/F)* is a factor determining the relation between incremental demand for imported money and export earnings, as follows:

(2.7) $(dG/X) = (G/F)^*\ kdY\ /\ xY$

It is clear in (2.7) that incremental money demand puts greater pressure on the balance of payments as (G/F)* is higher. This is the reason the analysis of the determination of (G/F)* has such practical importance; these practical implications of (G/F)* will be analyzed more fully in Chapter IV.

There is no role for a lender of last resort in a monetary system which uses imported money only, since there is no multiple expansion of credit in this system. The features of main interest have been the

costliness of the system, and its balance of payments implications.

Type II: Imported money plus low-powered inside money

The currency board system is of this type when there are banks operating in the economy. An economy which uses nothing but gold (or silver) as its monetary base and reserves, instead of notes issued against foreign exchange reserves as in the currency board system, would also be of this type, provided there are banks in operation.

In terms of the above identity, W = 1, and g < 1. The total money supply (F) is therefore: F = kY = Gp + [Go+Gb] / g.

Note also that in the Type II system the liabilities H of a currency board or other monetary institution cannot exceed Go. However, in historical currency board cases it did happen sometimes that the foreign assets held against the note issue exceeded the note issue in value.[21]

The money supply in the Type II system, unlike that in the Type I system, can vary without any change in Go + Gb, through changes in g. This feature has been stressed as providing a source of monetary "flexibility" in currency board systems.

This type of monetary system uses an entirely imported monetary base but also has a banking system which creates inside money. The banks create inside money through the mechanism of multiple credit expansion based on its reserves of the imported money. This type of monetary system is that which was normally in operation in the countries using the currency board system. The inside money created by the banks in this context is low-powered money.

Lender of last resort

In this type of monetary system, the use of multiple credit expansion by banks does give rise to the possibility of bank runs, and therefore implies a need for a lender of last resort. Who, however, could fulfil such a role? The lender of last resort function requires the

ability to create the supplies of base money which may be required in a crisis. But imported money can not be created locally. The nearest thing to a lender of last resort which is possible in this system would be a large bank which holds its own large stocks of the imported money, and which is willing to rediscount bills for other banks in a crisis, drawing on its own stocks of imported money for the purpose. In order to perform this service, the bank in question would necessarily be foregoing the pursuit of its own profits to some extent, since the holding of large idle reserves is costly; some compensation for this cost could be achieved by charging penalty rates of interest for its rediscounting service. Should the pressures of the crisis prove too much for the reserves of this bank, there might be the possibility of borrowing abroad.

Since base money can not in this system be created locally, the true lender of last resort function can not be performed, and the possibility of banks being forced into suspension of payments remains.

The quasi-lender of last resort function just described is similar to the role played by the Bank of England in much of the 19th century. The severity of the pressures on the Bank to "bend" the restrictions on note issue and create more base money locally has often been stressed. Argentine monetary history provides another example of this quasi-lender of last resort function being performed by a large local bank, using its own reserves, in the context of a system using an imported monetary base. From the early 1890's until 1931, increments to the money supply were entirely imported, notes being issued only for gold. The Banco de la Nacion Argentina held a very large stock of gold of its own, and did some rediscounting for other local banks. However, since it possessed no power to "bend" the restrictions on note issue (it had no power of note issue), it could not create new base money whatever pressures there might be to do so, and its performance of the lender of last resort function was accordingly rather limited.

In the historical experience of countries using the currency board

system, the banks operating within the area tended to be branches of large foreign banks. For these banks the existence of a local lender of last resort was not of such great importance, since they could borrow from the parent bank. Under this system, local banks without access to the emergency support of a foreign "parent" would be at a distinct disadvantage in a crisis vis a vis these foreign branch banks; depositors' confidence in local banks would accordingly be likely to be more "delicate", and the banks more vulnerable to panics. The incompatibility of this type of monetary system with the performance of the true lender of last resort function might have been a factor inhibiting local financial development in these areas.

Flexibility of the money supply, and income growth

By contrast with the first monetary system examined, in this system the currency area does have the power to increase or decrease its total supply of money without necessarily impinging on the balance of payments. The total quantity of base money is entirely dependent upon the balance of payments, as in the first monetary system. However, the creation of inside money by the banking system through the mechanism of multiple credit expansion gives rise to the possibility of varying the total supply of money by varying the multiple of credit expansion. That is to say, variations in the reserve/deposit ratios maintained by the banking system are possible, and by this means the total quantity of money may be subjected to local influence without any direct impact on the balance of payments. There may, of course, be indirect effects on the balance of payments, if the expansion (or contraction) of credit leads to an increase (or decrease) in demand for imports or in local consumption of exportables.

In this second monetary system, an increase in domestic income which gives rise to an increase in the desired monetary stock need not immediately or necessarily impinge on the balance of payments. Instead of importing the desired increment to the money stock, there now exists the possibility of meeting this increased demand for money by raising

the money multiplier, i.e. lowering g. As noted above, this can be done, without any change in the public's cash/deposit ratio, by lowering the aggregate reserve/deposit ratio of the banking system.

Although this second monetary system does give local influence over the total quantity of money, independently of movements in the balance of payments which determine the monetary base, the actual use of this flexibility brings with it severe hazards of balance of payments crises. For instance, consider the case of a domestic credit expansion, accommodating an increased demand for money occasioned by domestic income growth, holding the imported monetary base constant. The lowering of the aggregate ratio of imported money to domestic bank money increases the vulnerability of the banking system to the possibility that panic or loss of confidence could cause the public to suddenly attempt to shift out of domestic inside money into imported money. Moreover, there are also the indirect effects of the expansion on the trade balance, as home consumption of traded goods tends to rise with income. Under such circumstances, a whiff of bad news concerning expected export receipts, with the implication of an impending threat of reduction in the monetary base, could easily touch off a panic which would take banks into unavoidable suspension of payments.

The flexibility of the local money supply which the banking system brought into the currency board system has often been commented upon by proponents of the system. However, the potential scope for exercising this flexibility in support of domestic income growth is distinctly limited by the hazards just described. It is evident, moreover, that these hazards are much greater if the growth in production being financed by the credit expansion is in non-traded goods, since this type of growth generates both demand for money and demand for traded goods, without contributing to the supplies of either (except for the supplies of low-powered domestic inside money).

That these features of currency board systems might be one reason why so much non-traded goods production in some colonial economies remained non-monetized is a possibility that will be discussed further in

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Chapter IV. Foreign banks operating in those areas have often been criticized for their tendency to concentrate their lending on the foreign trade sectors at the expense of sectors serving the domestic economy; the above discussion shows that these policies would be the necessary response of caution in this type of monetary system. The root of the problem is that the impossibility of creating base money locally deprives the system of a true lender of last resort.

As concerns the cost of the money supply in this second system, the creation of domestic inside money has reduced these costs very substantially. The reduction in cost of the total money supply is approximately in proportion to the multiple of credit expansion in use, except that the development of the banking system does require investment of capital in its institutional structures, e.g. buildings and information systems, etc., not to mention the employment of bank staff, with associated infrastructure requirements. The scale of fixed capital outlay underlying the development of a banking system can force a very small, or very poor, currency area into using the much more expensive system of importing its total money supply.

Type III: Imported money plus fiat money plus low-powered inside money

The Type III system is distinguished from the Type II system by $W < 1$, such that $H < Go$. Thus the total money supply is: $F = kY = Gp + [H + Gb] / g$, where $H = Go / W$.

This type of monetary system has as its monetary base a fiat paper note issue as well as imported money. The fiat issue is assumed to be issued by the government, and to be legal (or customary) tender within the currency area, as indicated above in the discussion of fiat money.

The introduction of fiat money into the system as a component of the monetary base gives rise to the possibility of changes in the rate of exchange between one component and the other of the monetary base. It accordingly affords a motive for the creation of two types of low-

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powered inside money: EFI inside money, and DFI inside money. EFI inside money results when banks make loans and create deposits denominated in terms of the imported component of the monetary base, while DFI inside money is created if the deposits are denominated in the domestic paper money, H. In this type of monetary system, the banking system may confine its money creation to DFI inside money, or it may create both types. Banks operating in this system also face a range of options in the currency composition of their loan portfolios, of their reserves, (Hb+Gb), and of their capital.

Historically, this type of monetary system finds many examples. The absence of a high-powered inside money component of the monetary base is the feature that distinguishes this system from the system presently in most common use. In the case of 19th century England, the note issue had both fiat and foreign based components, as in this system. However, the rediscounting done by the Bank of England involved the creation of deposits which were closer to being high-powered inside money than is really compatible with this model. Also, since the fiat issue had been fixed in 1844, increments to the monetary base after that time were either imported (gold) or inside money created by the Bank of England. The Argentine case, prior to 1931, serves as a closer example, although in Argentina also the fiat issue was fixed (after 1892).[22]

This third monetary system has three or four types of money, depending on whether the banking system creates both EFI and DFI inside money, or only DFI inside money. Accordingly, there exist various possibilities of convertibility combinations. Two or more types of money may be convertible at a fixed rate of exchange, or the rates of exchange may fluctuate among all types. An illustrative example of the latter position, taken from US monetary history, is provided by Hawtrey: "...It was a noteworthy feature of the crisis of 1873 that there were 3 different media of payment. Inconvertible paper was still the principal form of legal tender money; gold, which was used in foreign trade transactions, was at a premium over paper; and paper was

at a premium over bank credit..."[23]

The creation of EFI inside money as well as DFI inside money complicates matters further. A particularly interesting feature of the Argentine case is that throughout its early financial history, prior to 1930, the banking system conducted its business in both gold and paper money, creating thereby both EFI inside money and DFI inside money. The creation of EFI inside money is currently practised in all major financial centres in the form of the creation of "euro-money" deposits.

Lender of last resort

The introduction of a domestic fiat component in the monetary base creates the possibility of the true lender of last resort function being performed in this monetary system. In the case of a crisis, the government can issue new fiat money in order to enable banks to meet crisis demands for cash from depositors. If banks must also meet demands for converting EFI deposits into the imported money, they can use the new notes to buy the required imported money in the market, at a premium if necessary.

However, the performance of the lender of last resort function in this system necessarily depends on the possibility of suspending convertibility between the fiat and the imported components of the monetary base. Since the local lender of last resort can not create increments to the imported component of the monetary base, exercise of the lender of last resort function involves increasing the fiat share in the monetary base. But if the note issue becomes "too large" relative to the total monetary base, the system is likely to face a speculative flight out of domestic paper into the imported money which would bankrupt anyone willing to go on supplying the imported money at a fixed exchange rate. An official institution performing this role, for instance, would soon lose all of the imported component of the monetary base to private stocks. On the other hand, suspension of convertibility between the imported and fiat components of the monetary base permits the local lender of last resort to defend the banking

system without subjecting the monetary authorities to loss of the imported component of the monetary base.

Argentine monetary history, during the "Baring" crisis of 1890, provides an interesting illustrative example of a government attempting to exercise the lender of last resort function in this form. A fiat issue had been authorized for the purpose of assisting the three major banks which had some official status, in an attempt to control depositors' losses and prevent the crisis from spreading. However, before the notes had been delivered to the banks, word arrived from Barings that that bank was also in serious trouble, with an urgent request for remittance of some funds. Upon receipt of this request, the majority of the note issue was diverted from its original destinations, and used instead to buy gold in the market which was then sent to Barings. One of the three local banks (the National Mortgage Bank, not a commercial bank) received the remainder of the issue, and the other two banks were left to fail, with the usual consequences for the spread of the crisis.

The introduction of the fiat component into the monetary base permits the strengthening of the banking system by enabling a lender of last resort to create base money locally in a crisis. In this capacity, the power of the domestic government to issue fiat money contributes positively to creating conditions which foster the development of the domestic financial structure, and DFI in particular.

This positive aspect of the government's power to issue notes is worth stressing, since it has the potential to make a big difference to the structure of credit creation which can be undertaken by banks. In the previous system, in particular, it was noted that caution would require banks to restrict lending for projects in non-traded sectors, and to concentrate their services on traded sectors. This was because all base money was imported. In the present system no such limitation on the extension of credit to purely domestic production is required: DFI inside money can be used in the extension of credit in such cases,

and in the event of a crisis depositors can be paid with fiat money issued by the local lender of last resort. Convertibility into the foreign money may be suspended, but the banks need not thereby be adversely affected.

The implications just discussed of the existence of a domestic component in the monetary base are of immense importance. The structure of the money supply seems likely to have been a factor of much more importance in historical patterns of economic development than has been recognized.

The potentially positive role of the government power to issue fiat money has certainly been thoroughly overwhelmed historically by instances of its destructive potential. For instance, the deterioration of the Argentine financial structure since the 1930's has been commonly attributed to the detrimental effects on the system of excessive government creation of fiat money.

The destructive effects on a financial system of excessive government note issue or forced borrowing from the banking system are worth looking at more carefully, distinguishing between two cases by the type of money being created.

If the government is meeting excess expenditures by creating fiat money, this money may or may not be convertible at a fixed rate of exchange into other components of the money supply; Hawtrey provided us (see above) with an example of a case when the rates of exchange were not fixed. But if the rates of exchange are not fixed, the banking system may well respond to excessive note creation on the part of the government by holding their reserves in the form of more imported money (Gb) and fewer notes (Hb); private holders of money balances may choose the same option. These responses serves to defend these banks and private money holders against the imposition of the "inflation tax" via the excessive note issue. However, in so doing, they simultaneously reduces the "inflation tax" base, since the size of this base depends on the size of private sector holdings of the fiat money being created.

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If no one will hold the notes, the government can not impose the inflation tax by note issue.

The government can force the banking system to hold the notes by imposing regulations concerning the structure of reserve requirements. In so doing, the government is forcing the banks to submit to the imposition of the inflation tax. Banks forced to hold their reserves in the form of a fiat money that is depreciating against the imported money would rapidly go bankrupt if they did not also denominate their liabilities in the fiat money. But this means that the (DFI) inside money created by the banks is depreciating at the same rate as the fiat notes, and therefore that holders of this inside money are being subjected to the inflation tax just as if they were holding notes. The banking system is then faced with the tendency of the public to reduce their holding of bank deposits in favour of increasing their private stocks of imported money, i.e., Gp would tend to rise relative to D. The banking system must pay higher interest rates to try to hold on to its depositors' funds, and borrowers must be charged higher rates accordingly.

Government borrowing from the banking system which forces banks into creating excessive quantities of DFI inside money so that the DFI inside money depreciates against the imported money has the same effects just described, as in both cases note issue and the DFI inside money are linked at a fixed rate of exchange. It is the necessity of creating DFI deposits (as opposed to EFI deposits), imposed by the structure of reserves, which prevents the banking system from defending itself from the destructive effects of excessive government money creation, as Hawtrey's example from US monetary history reminds us. If the banking system were free to shift its reserves into the imported money and conduct its operations in EFI inside money, it could extricate itself from these destructive effects and continue to attract its depositors by creating a higher quality of money, the EFI type of inside money instead of the DFI type. As noted, this would reduce the government's access to an inflation tax base.

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If the banking system does not support the government fiat issue to a sufficient extent to keep the fiat money acceptable to the public, then the use of a fiat issue in the performance of the lender of last resort function is undermined. There is thus a delicate and ambiguous element in the existence of government power to create fiat money as concerns its influence on the financial structure. Without the fiat component of the monetary base, we are back in the Type II system, with the attendant implications for the banking system and the structure of credit indicated in that context; with the fiat component the banking system faces the threat of its abuse just noted.

Type IV: Imported money plus DFI high-powered inside money plus low-powered inside money

This system cannot be distinguished from the Type III system by the use of this identity as given above. This is because the distinction between the two systems is in the asset structure of the official monetary institution, which is not portrayed in this identity. The distinction is made as follows: In the Type IV system this institution is functioning as a bank, creating money in the process of acquiring a portfolio of financial assets. The monetary liabilities it issues, H, are thus identically equal to the sum of domestic credit extended (C) and imported money, G (foreign exchange, etc.), acquired, as in the standard textbook portrayal of the monetary base: $H = Go + C$. Thus in the Type IV system the asset portfolio of the monetary institution is comprised of both foreign denominated assets (which may pay interest or may not), and domestic currency denominated assets, on which there is a positive expected rate of return. If Go were held entirely in the form of gold or other non-interest bearing assets, then the domestic portfolio would still provide a positive expected income. In the Type III system, on the other hand, the official monetary institution acquires no portfolio of interest bearing domestic assets through issuing money.

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In the Type IV system, therefore: H = Go/W = Go + C; In the Type III system, on the other hand, H = (Go/W) > Go.

Thus in the Type III system, it is possible for the monetary institution to derive an expected income of zero from the assets held against its monetary liabilities. This would be the case when Go is held entirely in non-interest bearing form, such as gold. (That the expected income on its Go assets would in this case actually be negative due to storage and security costs is ignored here.)

The difference between a Type III monetary system and a Type IV system is that in the Type IV system H liabilities are issued against both Go and C, such that H = Go + C, whereas in the Type III system C = O and H > Go, but the excess of H over Go in the Type III system is a fiat issue.

When the expected return on the portfolio C falls below that which gives the portfolio a present value equal to the value of the liabilities H issued against it, i.e. below (H-Go), the difference between the actual value of the portfolio C and (H-Go) constitutes what is here termed a fiat issue, as indicated above in the discussion of the different types of money. The monetary system then becomes a mixture of Type III and Type IV.

In this type of monetary system there is some form of a central bank which issues the liabilities with high-powered money status in exchange for some form of high quality primary security. This primary security must be denominated in a domestic currency, since in our terminology the money created would otherwise be EFI inside money. (As noted above, we are here treating EFI inside money created by a central bank as "imported".) The monetary base has two components, a DFI inside money component and an imported component; the rate of exchange between the two components may be fixed or variable, as in the previous systems discussed. The rest of the banking system creates low-powered inside money, and may or may not be permitted to hold both types of base money.

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The important feature of the primary security used by the central bank in creation of this DFI base money is that it must be one which is held in high esteem by domestic wealth holders. In many cases, both current and historical, this feature has not been a characteristic of domestic government debt, although it is now customary to think in terms of government debt in the context of central bank inside money creation.

In this monetary system the central bank can issue its own liabilities against its holdings of the two types of asset. Holders of these liabilities (which we refer to as "notes") might therefore approach the central bank requesting conversion of these notes into either of the two assets. This contrasts with the previous system in which notes were either issued against the imported money or were just fiat money, so that requests for conversion could only be into imported money.

Lender of last resort:

The central bank in this system can act as a lender of last resort by creating new high-powered inside money, buying securities of an appropriate type from the rest of the banking system.

The vulnerability of the financial structure based on this monetary system to the hazards of excessive government borrowing described above depends upon the type of primary security used in the creation of central bank inside money. If government securities are used, there is the risk of excessive government borrowing eroding the quality of the securities, so that they are no longer held in high esteem by domestic wealth holders. The quality of the central bank liabilities would also be undermined, and the system could deteriorate in the manner described in the previous section.

The financial structure is in a stronger position if the central bank does not hold government debt which is subject to threat of excessive issue, as it tends to be when other forms of government revenue are weak. High quality commercial bills were accordingly preferred for

this purpose in various historical cases, with legislation therefore sometimes imposing this restriction on the structure of central bank assets. The banking system then has the support of the lender of last resort function, while avoiding the vulnerability to the destructive effects of exposure to excessive government borrowing which were associated with the existence of the lender of last resort function under the fiat system.

Dollarization

The phenomenon referred to as dollarization, which has been a striking feature of monetary life in many economies recently, can be portrayed using the framework given above. Dollarization commonly refers to the holding of hoards of dollar bills by private citizens. In Buenos Aires, for instance, this is presently done on a large scale. Dollars are then changed into domestic currency in order to meet transactions needs. The dollar hoards tend to take the place, in the monetary lives of dollar holders, of a range of the bank balances to which residents of countries such as Britain or the USA are accustomed, deposit accounts as well as current accounts. In Buenos Aires one meets with the phenomenon of professional people holding no bank accounts at all, something scarcely imaginable in Britain or the USA. They hold dollar bills instead, and sometimes other saleable items serving as a store of value as well.

Dollarization, in the sense of the word just explained, would be portrayed in the framework of the identity (2.3) in the size of Gp relative to the term [(Go/W) + Gb] / g. The process of dollarization is portrayed as a rise in Gp relative to [(Go/W) + Gb] / g. Equivalently, it can be portrayed using (2.3b) as a rise in Gp relative to Hp+D.

This formulation reveals with stark clarity the reason dollarization is perceived as a "problem", and also a reason why some voices have argued that the way forward for such an economy is just to go over to the use of dollars entirely, abandoning the domestic currency.[24] What

this identity shows clearly is that in holding dollar bills instead of domestic cash or bank balances the cost to the economy of maintaining its circulating medium is increased. The increase in Gp at the expense of D increases the ratio (G/F), and presumably also (G/F)*; when W<1, the same is true of an increase in Gp at the expense of Hp. Moreover, the stock of Gp held is a stock of import purchasing power in a direct and visible way. The perception that the economy is suffering from a balance of payments constraint on growth, as well as from being poorer that it would like to be, gives force to the perception that the phenomenon of dollarization is a "problem".

Another reason for dollarization being perceived as a problem also comes through clearly in this identity: Gp is not properly measurable, because the acquisitions of dollars are so often secret, and the stocks hidden. This means that the total money supply is not properly measurable, and that demand for the more readily measurable forms of money (i.e. domestic currency and deposits, [H + Gb] / g) is complicated by the choice of the relative share of Gp in total money balances held. Monetary management is thus more complicated than when Gp = 0. These issues are developed elsewhere, especially in the dollarization and currency substitution literatures.

If a change to a purely imported monetary base were made (i.e. W=1), as in the proposed change to dollars, it may be that residents could be persuaded to reduce Gp and increase their holdings of low-powered inside money, D.[25] The achievement of reducing Gp from substantial size to zero, in favour of deposits, would release for other uses a substantial stock of capital. Moreover, it would release for other uses a stock of import purchasing power which could, for instance, be more productively put into the form of an increase in the stock of imported capital goods.

When the economies suffering from dollarization are perceived as suffering from balance-of-payments constraints on growth, the release for other uses of a stock of import purchasing power may be seen as an important gain. In any case, the economy would unambiguously gain from

holding the stock of imported money, Gp, in some form of productive asset instead; gains would be realised whether the productive assets held were interest bearing foreign financial assets (the gains achieved by central banks from holding foreign exchange reserves in the form of interest bearing assets instead of in the form of gold or cash), or were instead held as an increment to the real imported capital stock. In the latter case, domestic labour would be expected to benefit directly from the increase in the real capital stock, whereas the increase in aggregate income from the change of Gp into an interest bearing foreign financial asset may or may not "trickle down" to benefit domestic workers.

These lines of argument in favour of changing entirely to dollars, i.e. to a wholly imported monetary base, thus come through clearly in the framework of the above identity. Other arguments, such as benefits of monetary stability which might thereby be achieved, and benefits of financial development which might be facilitated, etc., are also put forward for making such a change. I will return to these later, as they are pertinent to the argument about the relative shares of DFI and EFI and the composition of the monetary base.

The reduction of Gp to zero was largely achieved in some developed countries, at least for a time, when gold ceased to be held privately and foreign bills or balances were not held on a significant scale.

4 The Concept of (G/F), and the mechanism by which it is imposed*

The ratio of the stock of imported money to the total money supply which, for a particular economy in some particular historical period, is compatible with monetary and exchange rate stability, is here denoted (G/F)*. The reader will recall that the term G refers to the total stock of the imported money (monetary gold or silver, or foreign exchange) in the economy, while the term F refers to the nominal money

supply. The ratio (G/F)*, which may also be referred to as the "required foreign exchange ratio", is treated as a sort of structural parameter for an economy, the determination of which is to be analyzed below. The ratio (G/F), on the other hand, is merely the actual ratio of these two stocks, whatever it may be at any given moment. Thus we can refer to an economy as maintaining an actual foreign exchange ratio, (G/F), which is higher or lower than the "required" ratio, (G/F)*. For example, a government might impose legal restrictions on note issue and deposit creation such that the actual ratio (G/F) is consistently held above the required ratio, (G/F)*.

The view has sometimes been expressed that under the currency board system a higher level of foreign exchange reserve coverage was maintained than was necessary for monetary and exchange rate stability. In the terms used here, this would be saying that the actual ratio (G/F) was being maintained at a higher level than the required ratio (G/F)* by means of the legal restrictions governing money creation.

The mechanism by which (G/F)* is imposed on an economy is treated as operating in an asymmetrical way, as is normal in discussions of foreign exchange reserve adequacy: The sorts of pressures which may tend to bring the actual ratio (G/F) down to (G/F)* when (G/F) > (G/F)* differ from those which operate in the reverse direction, and will not be dwelt upon here. The view taken here is that economies can maintain (G/F) > (G/F)* for indefinite periods, but that the response of wealth-holders will tend to thwart a policy of attempting to maintain (G/F) < (G/F)*; that is, wealth holders will respond to a perception that (G/F) < (G/F)* by shifting out of the currency and re-imposing (G/F)* by means of an exchange rate change.

In other words, if the domestic components of the money supply are perceived by wealth holders as excessive relative to the foreign component, a scramble for the foreign money will force up its price. The value of existing stocks of foreign money is thereby increased relative to the value of the total money stock expressed in terms of the domestic currency. On the other hand, foreign exchange reserves

can be accumulated by monetary authorities without such adjustment being imposed (such stocks are thus assumed to be small relative to the total world supply).

If an attempt is made to hold the share of the domestic components of the money supply above the share indicated by (G/F)*, the price of foreign exchange will be repeatedly forced up. A government may, for instance, be persisting in such a policy in an attempt to maintain a given level of the money stock, because of the unpleasant employment consequences of allowing the money stock to settle at a lower level. Political pressures to maintain the level of the money stock at some level which is higher than that which is consistent with (G/F)* may be very strong because of the unpleasant employment consequences of monetary deflation. Persistence in such a policy would result in repeated foreign exchange crises or persistent depreciation of the currency (or both!).

Moreover, persistence in such a policy would result in an increasingly intractable problem of currency "softening". The reason the problem will become increasingly intractable is that persistence in such a policy would tend to erode the inflation tax base, or in the terms used here, it would tend to raise (G/F)*. The maintenance of the level of the money stock which may be seen as desirable for employment reasons then becomes increasingly difficult to reconcile with monetary and exchange rate stability, while political pressures to alleviate unemployment by maintaining the level of the money supply may continue unabated. In Chapter IV the implications for an economy of a rise in (G/F)* will be analyzed.

The response of wealth holders to persistence in a policy of overexpansion of the domestic components of the money supply requires further explanation, as it is this response which will tend to cause the rise in (G/F)*. The essence of the idea is that this change is caused by changes over time in the average currency composition of wealth holders' financial portfolios, this change being associated with the gradual spread of information through successive exchange rate

devaluations.

Analytically, wealth holders are treated as pursuing either a "single currency strategy" or a "diversification strategy." The "two money strategy" which was discussed above is a specific version of the "diversification strategy". The currency structure of portfolio demand for the class of wealth holders which pursue the "diversification strategy" is assumed to be fluid, changing rapidly in response to a high quality information set. These groups of financial sophisticates will be referred to as "diversifiers". Wealth holders who pursue the "single currency strategy", on the other hand, do not alter the currency composition of their financial portfolios in response to news, but instead persist in holding all their financial wealth in instruments denominated in the domestic currency only. Like the population of the province of Buenos Aires described by Hansen above, this group does not trouble itself about currency appreciation or depreciation.

The word "strategy" is used here, as before, to indicate that the policy is continued over a period of time, as the customary or habitual practice of the individuals concerned. This type of habitual behaviour, as opposed to behaviour which results from repeatedly making fresh decisions, is seen as caused by information and transactions costs. The making of decisions in itself is also costly, in that it requires labour, time and thought, i.e. energies which could be used in other ways.

Financial information and transactions, like all information and transactions, are costly. A fluid portfolio response to high quality information necessarily rests on a foundation of a substantial investment of capital in the institutional structures through which information is obtained and transactions services provided. Access to information and transactions has some "lump sum" costs so that wealth holders will stick to a simple single currency strategy unless the costs of the single currency strategy are expected to more than offset the costs of access to the information required for the diversification

strategy.

The potential costs of the single currency strategy are increased by the size of financial wealth holdings; the potential costs of the single currency strategy are also increased by the magnitude of the exchange rate devaluations involved. A small wealth holder facing the possibility of a small exchange rate change could do better with a simple single currency strategy. In particular, working classes, for whom the share of financial wealth holdings in their total assets is by definition small, would be likely to be able to obtain a much higher return to investment of resources (time and energy, for example) in trade union activity towards defending the real value of their primary assets (wage rates and contracts), than they would be able to obtain from investment of resources in access to financial portfolio diversification information and transactions.[26]

With successive devaluations, information about the effects of exchange rate devaluations is spread. This effect tends to increase the range of wealth holders who decide that the single currency strategy is unwise, overly costly. The inflation tax base is thus eroded, as the use of currency type EFI thus increases relative to DFI. According to the arguments developed below this will push up (G/F)*.

This aspect of the spread of information is related to what Kindleberger calls "collective memory", and it can be lumpy: People receive information about the costs and benefits of the single currency strategy through their own and others' observed experience; a really major shock, like a large and unexpected loss, can have traumatic and enduring effects on currency strategy preference, or on "monetary and banking habits". This aspect of information spread and its effects on currency strategy is in the nature of cultural change, and as such can carry a considerable weight of inertia. Kindleberger [1978] and [1984], for example, has repeatedly stressed this weight of inertia in the response of financial habits, and the enduring nature of "collective memory" in its influence on such habits following a really major shock.

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With successive devaluations, the range of wealth holders who find the single currency strategy overly costly would tend to increase also if the information and transactions costs of financial diversification are falling, or if the size of their financial wealth has increased, or if the magnitude of the devaluations increases. Over time, with successive devaluations, the information and transactions costs of access to financial diversification do indeed tend to fall, as the institutional structures supporting financial diversification become more developed; the development of institutional structures is also subject to forces of social inertia, as well as involving substantial fixed capital investment.

That an increasingly intractable problem of currency "softening" is very likely to be caused by persistence in a policy of maintaining a given ratio of domestic to foreign components of the money supply, thus follows from the tendency for a wider range of wealth holders to change from a single currency strategy to a diversification strategy as time goes on. This is because the magnitude of the exchange rate change required to restore (G/F) to (G/F)* is greater as the ratio of desired to actual value of foreign exchange stocks is greater. As the group of single currency strategy wealth holders becomes smaller, the desired ratio of domestic to foreign components of the money supply is reduced; i.e., (G/F)* rises. The magnitude of exchange rate change required to achieve portfolio balance for a given actual ratio (G/F) is thus increased. But the increase in the magnitude of exchange rate change will decrease still further the range of wealth holders for whom the costs of diversification outweigh the expected losses from the single currency strategy.[27] Moreover, for the reasons indicated above, the costs of diversification are likely to be falling, which will contribute further to the same effect.[28]

The distribution of gains and losses from exchange rate devaluation, which is in favour of diversifiers at the expense of the single currency strategy group, will also contribute directly to enlarging the

relative share of financial wealth held by the diversifying group. This factor also will contribute to increasing the share of EFI relative to DFI, and thereby also to raising (G/F)*.

The combination of all of these tendencies is to alter the structure of the aggregate wealth holders' portfolio demand, reducing the DFI share in financial portfolios in favour of EFI, and thereby raising (G/F)*. A policy of continuously expanding the domestic components of the money supply in an attempt to maintain the level of the money stock above that which is given by (G/F)* times the level of actual foreign exchange reserves will thus tend to result, by the operation of these tendencies, in the accelerating deterioration of the currency in question. The consequences of persisting in such a policy will be analyzed further in Chapter IV.

5 EFI/DFI and the structure of the money supply

How much of the claim that an EFI economy must have a larger share of imported money in the money supply is revealed through the use of this identity to be true by definition?

High-powered money, the monetary base

The contribution of DFI to the monetary base is reflected in the above identity by W. Where the domestic credit share of the monetary base is larger, W is necessarily smaller, by definition. However, W can also be reduced by the issue of fiat money, as is described above, without the issuing institution thereby acquiring any increase in its asset portfolio of primary securities. In a pure EFI economy, i.e. one in which DFI is zero, the issue of fiat money is the only means of reducing the share of the imported money in the monetary base.[29]

The identity [2.3, or 2.3a] makes clear the fact that the way the

imported component of the monetary base is reduced is by reducing W. This much is true by definition. However, the distinction made here between high-powered inside money and fiat money serves to direct our attention to the quality of the asset portfolio held by the monetary institution. In the case of inside money, the monetary institution increases its portfolio of primary securities, whereas in the case of fiat money there is no such increase. The portfolio of primary securities acquired through the issue of inside money thus provides the issuing institution with a stream of income which is not provided by the issue of fiat money. This distinction is important, because the strength of a financial institution, and the attractiveness of its liabilities, are dependent upon the quality of its asset portfolio.

Thus while it is identically true that reducing W reduces the imported component of the monetary base, the distinction between the two methods of doing so reveals a range of very different possibilities concerning the asset structure and strength of the issuing institution. To these I will return later; at present it should be noted that the contribution of DFI to the monetary base is reflected in W, which will be less than one if this contribution is positive, but that W can also be less than one if DFI is zero but there is a fiat issue.

Low-powered money

The contribution of low-powered inside money to the total money supply is reflected in g. The lower the average reserve ratio, the greater is the contribution of low-powered inside money to the total money supply; this also is true by definition. However, low-powered inside money creation may be EFI or DFI: If banks allow customers to hold deposits denominated in a foreign currency, it is EFI, whereas if the deposits are denominated in the domestic currency it is DFI. In either case, however, the money created constitutes a contribution to the total money supply which is not imported, but which is instead the creation of the domestic financial sector; it is part of the domestically produced "goods and services" of this economy.

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Conclusions

We can now see how much of the claim that an EFI economy must have a larger share of imported money in the money supply is revealed by definition.

High-powered money

As concerns the monetary base, we have seen that the share of imported money can be reduced by reducing W, either by fiat issue or by the creation of (DFI) inside money, and that the difference between the two methods is in the asset structure of the issuing institution. Thus, these definitions do not tell us that the EFI share has necessarily to be larger where DFI is zero, but they do tell us that the asset structure of the issuing institution will be different, for a given W < 1, depending on whether the reduction of W was due to DFI inside money or whether it was due to fiat issue. And moreover they also tell us that the asset structure is weaker, for the same W < 1, in the fiat issue case, other things equal.

Low-powered money

As concerns low-powered money, the identities (2.3) and (2.3a) show us that the lower the average reserve ratio, g, the lower the share of the imported money (Go+Gb) in the total money supply F. But this average reserve ratio can be lowered by creating either DFI low-powered inside money, or by creating foreign denominated deposits, which are EFI inside money. In either case, as noted above, money is being created domestically rather than imported.

As has been noted above, g would also be lowered by an increase in the share of H held by the banks as opposed to that held as cash in the hands of the public. Historically, this has been associated with an increase in public confidence in banks, and is therefore also a contribution of domestic banking to the provision of the money supply.

The contribution of the domestic financial structure to reduction of

the imported component of the money supply is in reducing g, whether by lowering reserve ratios or by increasing the banks' share of H. This reduction of g can be achieved whether the banks are conducting EFI business or DFI business. Therefore, while the identity does make clear the importance of the banks' contribution in reducing the imported share in the money supply, it does not reveal any particular special direct contribution of DFI. The gains to the economy attainable through increasing the share in the total money supply of domestically created low-powered inside money are attainable whether this low-powered inside money is EFI or DFI.

Thus far, examination of this identity has provided some support for the arguments in favour of attempting to cure the ills of a weak currency by changing to a Type II monetary system, using an entirely imported monetary base, and entirely free use of EFI deposit creation. The gains to the economy attainable by reducing g, as well as gains attainable by reducing the share of Gp in favour of domestic bank money, could be achieved by this means if the change in monetary system sufficiently increased public confidence in the domestic banking system.

However, this view does ignore the well known role of government support for the banking system, in the provision of deposit insurance and the lender of last resort function, in achieving a high level of public confidence which permits a low g and Gp. And we have seen above, in the discussion of the Type II monetary system, that the provision of the lender of last resort function in this system is problematic, and expensive in the maintenance of adequate central reserves. Nevertheless, there are gains to be made in pooling reserves, such that reduction of the total G = Gp + Gb + Go may be attainable, as well as reduction in g. Therefore, in my view, the weakness of the lender of last resort function in the Type II system does not entirely undermine the soundness of these arguments in favour of changing to a Type II system where the domestic currency has become

very weak, especially when dollarization is severe.

The influence of the relative shares of EFI and DFI low-powered money on the composition of the monetary base.

We can now make use of our identity to see what effect the relative shares of EFI and DFI in low-powered money may have on the composition of the monetary base, (H + Gp + Gb). This addresses only a small part of the question concerning the influence of the relative shares of EFI and DFI on the monetary base because the financial instruments discussed here include only the monetary (or most liquid) end of the full spectrum of financial instruments included in the terms EFI and DFI.

For the present, Gp will be assumed constant, unless indicated otherwise in a particular context, since the focus of interest here is on the composition of commercial banks' reserves, (Gb+Hb).

The influence of the relative shares of EFI and DFI in total deposits, on the composition of the monetary base, depends upon the nature of the reserve ratios held by banks against the two types of deposits. At one extreme, if banks hold the same ratio and composition of reserves regardless of the structure of deposits, then the relative shares of EFI and DFI in total deposits would not influence the share of imported money in the total money supply. For instance, Gb might be zero, the banks holding reserves only in the form of Hb, and relying on the central bank to supply G from its reserves (Go) whenever required. However, more generally, Gb is likely to be positive when there are EFI deposits, and the composition of reserves held by commercial banks (Hb+Gb) is likely to depend on the share of EFI in total deposits.

It is a theoretical possibility that reserve ratios could be the same for both types of deposits, with Gb held as reserves against EFI deposits, and H held against DFI deposits. However, this need by no means be the case, and in historical cases the position has certainly been very different indeed. In the Argentine case, for example, during

the gold standard era, banks held very much higher reserve ratios against EFI deposits than against DFI deposits, as will be seen. This policy can of course emerge as a response to expectations that the domestic currency may depreciate against G. While many other factors (notably the structure of legal reserve requirements) can influence the policies of banks concerning the composition of reserves held against the two types of deposits, one would certainly expect perceptions about the relative strengths of the two monies to be an important factor.

Consider, for example, the perspectives offered by this framework on the case of an increase in the share of foreign denominated deposits. Assume, to begin with, that the total volume of deposits remains unchanged. Suppose also that banks hold foreign exchange reserves against these EFI liabilities in the same ratio as their average reserve deposit ratio. An increase in EFI relative to DFI would then result in an increase in Gb relative to banks' holdings of H. Consider now what the identity (2.3) shows:

$$(2.3)\quad F = kY = Gp + [(Go / W) + Gb] / g$$

Assume no change in Gp. Then for the total money supply to remain constant, while Gb rises, either g has to rise or (Go/W) has to fall. Banks are holding a smaller quantity of the central bank's liabilities, H; if the public happened to want to increase their holdings of H at the same time as banks are reducing theirs, the excess supply of H might be absorbed by the public, such that a fall in g would result. I see no particular reason why an increase in the quantity of cash in the hands of the public would be expected to accompany an increase in the EFI share of bank deposits. (An increase in desired Gp and a reduction in desired Hp would seem a more plausible accompaniment to an increase in the EFI share of bank deposits than the reverse. However, I am assuming Gp constant here.)

If, on the other hand, banks simply pile up excess reserves of H, raising g by this means, the total money supply could again be kept

constant. However, since this policy would tend to reduce banks' profitability, it is hardly a plausible voluntary response to an increase in the EFI share of their business. This policy could, of course, be imposed by law; such a law would effectively be a sort of tax on the banking system, and could become intolerably crippling if the EFI share became large.

The identity shows that if g is to remain constant when Gb rises, then H has to fall to maintain an unchanged total money supply. If W < 1 then a fall in H offsetting an increase in Gb results in an increase in the imported share in the monetary base, G / (H + Gb + Gp).

Another possibility resulting from the increase in Gb would be that H is held constant, such that the total money supply rises. If real income is constant, and k does not rise, this increase in the nominal money supply would only be absorbed by inflation of prices such that nominal income Y rises. This could then result in a depreciation of the exchange rate which would serve the function of increasing the value of G against H, thereby achieving the reduction in the real size of the stocks of H relative to those of G which was desired by the banks in the first place. In this case also the increase in the share of EFI bank deposits would result in an increase in the share of the imported component of the monetary base.

These conclusions are of course closely analogous to those reached by McKinnon [1982] in his analysis of the world reserve portfolio shift out of US$ which occurred in the 1970s.[30] In that context the US was in the role of the above central banker supplying H, while other countries' central banks were in the position of our bankers above, confronting a public which was wanting to hold fewer dollar denominated assets. Central banks' purchases of the unwanted excess dollars were not entirely offset by sales of other assets, such that an the world money supply was increased. (The analogy here is with the last case considered above, when banks increase Gb but do not offset this increase by reducing their holdings of H, nor by raising reserve ratios, such that total deposits increase.) Depreciation of the dollar

subsequently reduced the real value of the dollar share in these asset portfolios, as in the above case, altering the real size of the outstanding stock of dollars relative to the stocks of appreciating currencies.

Thus it seems clear that by one route or another an increase in the EFI share of low-powered inside money must lead to an increase in the imported share of the monetary base which is compatible with both profitable banking and exchange rate stability. If the rate of H creation is maintained constant, other things equal, in the face of a trend change in the relative shares of EFI and DFI low-powered inside money, according to the arguments developed here, we can expect to see a "softening" (or "hardening", if the DFI share is rising) of the currency in question.

In practical application, of course, differences in characteristics between EFI and DFI bank deposits which are not captured by the above identity must be taken into consideration when assessing the probable effects of a change in the relative shares of EFI and DFI in total deposits. For instance, it may be that EFI deposits do not serve the purpose of domestic current means of payment, while DFI deposits do serve this purpose. Velocity of the two types of money could be quite different, and the inflationary impact of a given increase in the total money supply could in consequence differ sharply according to the currency composition of the increase. If, for example, savings hoards of money are tending to be held in EFI deposits (or, worse, in Gp), while DFI deposits are pared down for transactions needs, DFI money velocity might very well increase, such that the inflationary impact of a given rate of H expansion could be intensified.

Conclusion

In this section I have made use of our conceptual framework to examine the influence of the relative shares of EFI and DFI monetary instruments on the relative shares of H and Gb in the monetary base. The conclusion that a change in the shares of H and Gb in the monetary

base would also involve a change in the imported share of the monetary base rested on the assumption that the central bank's contribution to the monetary base was greater than its holdings of foreign exchange reserves, i.e. that H > Go, or W < 1. It ignored the possibility that the increase in banks' holdings of imported money might simply be offset by a reduction in the central bank's holding of foreign exchange reserves, such that the total share of imported money in the monetary base would remain unchanged despite the fall in the central bank's share. That is, in the terms of our identity, it ignored the possibility of a fall in W sufficient to keep (Go + Gb) constant in the face of a fall in H relative to Gb. We can now make use of the concept of adequacy of the proportion W of official reserves to central bank liabilities in order to examine this possibility.

The concept of W*

The question addressed in this section concerns the proportion (W) of total central bank monetary liabilities (H) which is "covered" by foreign exchange reserves. As noted above, this proportion has been very different, historically, in different countries, and within individual countries it has differed over time. Convertibility of central bank liabilities into foreign exchange or gold at a fixed rate has been achieved, in different times and places, with very different values for W. I will make use of the concept of there being at any given time, for a particular central bank, some value for this proportion which is perceived as "adequate" by wealth holders, in the sense of being adequate for the maintenance of convertibility at a fixed rate of exchange. This value for W I denote W*; it is directly analogous to the concept discussed above denoted (G/F)*, except that W* pertains to the central bank's liabilities, H, as opposed to the total money supply, F. The purpose of this concept of W*, is to capture the enormous historical and geographical differences in the average W which has been successfully combined with convertibility at a fixed rate of exchange. As has been described above concerning the imposition of

(G/F)*, the idea I am using is that wealth holders will re-impose W* via the mechanism of portfolio shifts and exchange rate changes if W falls below W*.

The possibility that a shift in the composition of commercial banks' reserves in favour of Gb might be offset by a fall in the proportion W sufficient to avoid an increase in the imported share of the monetary base can now be assessed by using the concept of W*. If indeed the central bank had been holding foreign exchange reserves in excess of those which would give W = W*, then it is plausible that the increase in Gb might be at least partially offset by a fall in Go, such that a rise in the EFI share of deposits need not necessarily lead to an increase in the imported share in the monetary base [G / (Gb + H + Gp)]. This is a possibility. However, when the increased share of EFI deposits, and/or of Gb relative to banks' holdings of H has been occurring as a response to a perception on the part of banks and wealth holders that the rate of issue of H has been excessive (i.e., that W has been tending to be less than W*), an offsetting reduction in W would not be a tenable prospect.

6 Concepts of reserve adequacy

In this section I will approach the question of what factors might be determining W*, and (G/F)*, by drawing on two concepts of reserve adequacy which have been in common use in quite different contexts. The framework of the algebraic identity which I have been using above will be used now to relate these different concepts of reserve adequacy to the proportion, W, and to G/F, and thereby gain some insight into factors influencing W* and (G/F)*.

The concept of reserve adequacy as derived from foreign trade considerations

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The first of these two concepts is the concept of adequacy of foreign exchange reserves which has been in common use in recent years in discussions of trends in international reserves.[31] This concept of reserve adequacy relates the average stock of foreign exchange reserves (Go) in a given year to the flow of imports (M) in that year, or to the flow of imports and net foreign debt service jointly (M+S). This gives the ratio R = Go/(M) or Rs = Go/(M+S), as the actual ratio for any year, from which I will use the concept Rs* as the ratio which is considered "adequate". The 1985 UNCTAD publication cited in (30) above, for example, makes use of this approach, while stressing its insufficiency: "The degree of reserve ease can never be fully captured by statistics, and no single measure of reserve adequacy is entirely suitable. Using as a criterion a reserves-to-imports ratio of 25% ....which has generally been regarded as a bare minimum, reserves have been inadequate since 1980 for the world as a whole and for the non-oil exporting developing countries in particular... Perhaps a more meaningful measure for the countries is the ratio of non-gold reserves to annual payments for goods and services plus loan repayments: in 1981-1982 this ratio stood at 16-17%, down from 24-25% in 1977-79 and 30% in 1973..."[32]

In attempting to explain differences among countries in reserve adequacy, i.e. cross-country differences in Rs*, variability of the trade balance has been recognized as an important factor, as for instance in the following quote from Scammell [1987]: "...First, trade volume is not the sole determinant of the need for reserves; rather it is instability of the balance of payments at any trade volume that is important...."[33]

There is a considerable literature on demand for reserves which makes use of the reserves-to-imports (and debt service) ratio, and it is not my intention to survey it or assess it here. Instead I will simply take from the usage in that literature the concept Rs* (as I have just defined it) and put it in the conceptual framework which I have been using here; this will enable us to see what are the implications of

that concept of reserve adequacy for the structure of the monetary base.

The identity I have been using is repeated here:

(2.3) $F = kY = Gp + [(Go/W) + Gb] / g$

where $(Go/W) = H$, or $W = Go/H$.

The concept Rs* can be used to give a value Go* which incorporates the concept of reserve adequacy as derived from trade considerations: $Go^* = Rs^* (M+S)$. If we treat the other terms in the identity as fixed parameters given by the institutional structure of the financial system at any particular stage in the development of an economy, we obtain a portrayal of the structure of the money supply which relates this structure to trade considerations. The terms g, Gp, and Gb reflect the habits and practices of the public in holding domestic currency cash (Hp) and foreign money (Gp), and the banks average reserve ratios and composition of reserves (Gb + Hb) held against different types of deposits. All of these are features of the structure of the financial system in an economy at any given time, and can therefore be treated as fixed parameters when the focus of our attention is, as here, on a concept of reserve adequacy deriving from trade considerations. The concept of reserve adequacy derived from trade considerations focuses on cross-country differences in balance of payments current account flows, and not on cross country differences in parameters of the financial structure.

It should however be noted that Rs*, as opposed to R*, does have in it the net external debt service term, S, and that cross country differences in this value may be reflecting differences in financial structure and not merely differences in net debt positions (as was explained earlier), as follows: Consider an economy which has zero net external debt, foreign assets exactly matched by foreign liabilities, but which uses EFI in the geographical sense of the term. S will be positive, (that is, there will be a debit item on current account, S)

reflecting the difference between the borrowing and lending rates of interest. This flow is the cost of using non-resident financial services, and is larger the larger the stocks of assets and liabilities involved, i.e., the greater the use of the non-resident financial services. Countries which function as financial centres receive these flows as earnings on invisibles, while for periphery countries which make use of the geographical financial centres this is a debit item on current account. On the other hand, EFI in the currency denomination sense, conducted by resident financial institutions, does not give rise to this item in the balance of payments; economies which use EFI in the currency denomination sense only are using the financial services of residents instead of importing financial services as in the geographical EFI.

The value of [Rs* (M + S)] is thus not directly affected by the use of EFI in the pure currency sense, but it is increased by the use of EFI in the geographical sense.

It will therefore be seen that the concept Rs* does yield the implication that the imported share in the money supply must be higher for an economy in which EFI, in the geographical sense, is larger relative to DFI, because, as we have just seen, Go* as derived from Rs*, (i.e., Go* = Rs* [M + S]), is made larger by the higher value for S which is implied. However, this implication does not follow for EFI in the pure currency sense, when the financial services being paid for by this flow S are performed by domestic residents.

The following expression is derived, by substituting for Go in the identity we have been using:

(2.3rs) $F = kY = Gp + \{[Rs\ (M + S) / W] + Gb\} / g$

since $Rs = Go / (M + S)$, so $Rs(M + S) = Go$.

(2.3rs*) $F^* = kY = Gp + \{[Rs^*\ (M + S) / W] + Gb\} / g$

where [Rs* (M + S)] = Go*.

The expression (2.3rs*) makes use of the concept of reserve adequacy derived from trade considerations, and yields a portrayal of the structure of the money supply based on that concept of reserve adequacy. The total imported share of the money supply is:

(2.8) G/F = (Gp + Gb + Go) / F

(2.8a) (G/F)* = (Gp + Gb + Go)* / F

The concept of reserve adequacy Rs* thus yields, by implication, a concept of an adequate imported share in the money supply, (G/F)*:

(2.8rs*) (G/F)* = {[Rs* (M + S) + Gb + Gp] / F}

Using this concept of an adequate imported share in the money supply, (i.e., focusing on Rs* (M+S) and ignoring cross country differences in g, Gb and Gp) cross-country differences what constitutes an adequate structure of the money supply are attributed to differences in three things: (a) Rs*, which has been seen as positively related to trade balance variability; (b) the level of imports in relation to income M/Y; and (c) the level of net debt service, also in relation to income, S/Y.

The imported share in the money supply is, in (2.8rs*), seen to be positively related to both imports and net debt service.

Treating the average velocity of the total money supply as constant, so that k is constant, the expression (2.3rs*) shows that the concept Rs* also implies a W*: Since W = Go / H, and Go = Rs (M + S), Go* = Rs* (M + S), and W* accordingly emerges as W* = Rs* (M + S) / H. With the financial structure given, such that Gb and Gp and g are fixed, and if nominal income Y is also fixed, then H is also fixed. If reserves Go are .at the level given by this concept of reserve adequacy, Go*,

then W can not be reduced without increasing the total money supply in an inflationary way, that is, raising F. (If real income and velocity are constant, this implies a rise in the price level.) The concept Rs* thus also implies a W*, when the other parameters of the financial structure are treated as given.

Conclusions

The concept of reserve adequacy derived from trade considerations thus gives one approach to explaining cross country differences in W and in the total imported share in the money supply which have been successfully compatible with convertibility at a fixed rate of exchange. The conclusions which emerge from this approach are as follows:

The proportion W* of central bank monetary liabilities H which are "covered" by foreign exchange reserves which is compatible with the maintenance of monetary and exchange rate stability is influenced by (a) the variability of the trade balance (which is the trade-based explanation of cross-country differences in Rs*); (b) the openness of the economy, as measured by the ratio of imports to income; and (c) the level of net debt service (S) in relation to income. A larger proportion of central bank monetary liabilities must be covered by foreign exchange reserves in order to maintain monetary stability as (a) the trade balance is more variable, as (b) imports form a larger share in total expenditure, and (c) as net debt service is higher in relation to income.

As noted above, EFI in the geographical sense, i.e. the use of the financial services of a foreign financial centre, yields a higher value for net debt service, S, for any given level of net debt; the share of the imported component of the monetary base [(Go* + Gb + Gp) / (H + Gb + Gp)] which is compatible with monetary stability at a fixed exchange rate is thus higher, ceterus paribus, for economies using geographical EFI than for economies functioning as geographical financial centres.

The idea that the level of net debt service is an important factor

influencing cross-country differences in the share of foreign exchange reserves in the monetary base is in accordance with the conclusions reached by Lindert [1969]. Lindert wrote as follows: "...None of the chief creditor nations' governments or central banks was among the top foreign currency holders. In fact, among the Western European net creditor nations.... there appears to have been an inverse correlation between their rank as net creditors and their rank as official holders of foreign exchange.... Conversely, the greatest amounts of foreign currency balances were amassed by some of the world's largest accumulators of total reserves and the world's largest debtors..." "... Perhaps the most noteworthy determinant of the degree of official exchange holding was the extent of the country's dependence on credit from the financial centre..." "...The irony of the rise of a key currency regime before WWI is underscored by another quantitative implication of the data presented above: The accumulation of liquid claims on major financial centres loomed much larger in relation to the total reserves held by the centre countries than in relation to the total reserves of the countries holding these claims..."[34]

Lindert is stressing the importance in these patterns of net debt and net creditor positions, as opposed to the use of EFI by itself. The periphery countries which he studied were in general both net capital importers and users of EFI, in both the geographical and currency EFI forms. In the terms of the present framework, this combination of net capital import and the use of geographical EFI yielded high values for S, which were associated with high values for Go*.

The idea that the openness of the economy, as measured by the import ratio, influences cross-country differences in the structure of the monetary base is in harmony with the idea developed by McKinnon [1963],[35] that the currency composition of savings instruments would reflect the "representative bundle of goods" consumed by the savers in question. In this case, it is the consumption pattern of the economy as a whole, as captured in the ratio of imports to total expenditure, which is being reflected in the currency composition of central bank

(or other official institution) financial assets, a larger share of foreign assets being associated with a larger share of imports in the "representative bundle of goods" consumed by the economy.

The conclusions just derived give some support for the claim which has been often made that the currency board system was better suited to many former colonies than is the more "modern" system adopted since independence, as follows: Some of these economies do feature relatively high values for all three of the characteristics identified above (variability of trade balance, openness, and high values for net debt service). However, it should be remembered that these conclusions were derived from trade considerations only, while treating the structure of the financial system as given, and that it was the purpose of these former colonies to make major changes in the structure of the financial system. This is therefore not the best conceptual approach for achieving an understanding of the failures associated with those changes.

The concept of reserve adequacy as derived from banking considerations

The second concept of official reserve adequacy which I will use is one which derives from consideration of the central bank (or other monetary institution) in its role as a financial institution. This approach yields a concept of W* which derives from examining the nature of the financial services performed by this institution and the quality of its asset portfolio. In this approach wealth-holders (and commercial banks) are seen as assessing the quality of the central bank's liabilities by forming a view of the quality of its asset portfolio and of the payments services it offers. A concept of W* is thus derived from assessing performance of the central bank as a bank.

Using this approach, W* is seen as being determined by the quality of the financial services performed by the institution itself: W* would, on this view, be lowered by the development of a profitable portfolio

of domestic assets, or by increasing the attractiveness of the payments services offered by the bank. It would be raised by deterioration in the quality of the bank's domestic asset portfolio, or by deterioration in the attractiveness of the bank's liabilities for any other reason, such as decline in the quality of payments services offered.

In the previous section, when a concept of W* was derived from trade considerations, we had been treating the parameters of the financial structure as given, such that g, Gp, and Gb, and hence also H, were fixed. The trade considerations which yielded the concept of reserve adequacy Go* therefore determined the proportion W* which was compatible with monetary and exchange rate stability. Now, however, we are looking at W* as deriving from the quality of the central bank's performance as a financial institution, and it is therefore not appropriate to treat Gp and Gb as fixed. Instead, the liabilities of the central bank, H, are treated as competing with Gp and Gb; the share of H in the monetary base is thus treated as depending on the relative attractiveness of H to banks and private wealth holders. On the other hand, since g reflects the banks' average reserve ratios and the share of H held by banks as opposed to the public, and is thus not so directly related to the central bank's performance in competition with Gp and Gb, g can be treated as fixed for the present.

I will retain, from the previous section, the concept of reserve adequacy Rs* derived from trade considerations. This will now be treated as a fixed structural parameter for the economy, the value of Rs* being treated as depending on the variability of the trade balance and the openness of the economy. These are structural feature of an economy which are fixed in the medium to long term, and not related to the central bank's conduct of its banking business in any direct way. Therefore it is appropriate to treat Rs* as a fixed feature of the economy in the present context.

Looking again at the expression (2.3rs), from this new perspective, we reach a different view as to what determines the total share of imported money in the money supply:

(2.3rs) F = kY = Gp + {[Rs (M + S) / W] + Gb} / g

(2.3rs**) F** = kY = Gp +{[Rs* (M+S) / W*] + Gb} / g

(2.8rs**) [Rs*(M + S) + Gb + Gp] / F** = (G/F)**

Given Rs* and g, the total share of imported money in the money supply now depends on the success of the central bank in competing with Gb and Gp. If the central bank conducts an immensely profitable DFI banking business, its liabilities H may be made sufficiently attractive to banks and private wealth holders as to enable it to compete successfully with Gb and Gp and thereby expand H without increasing the total money supply, i.e. in a non-inflationary way. W* may thereby be lowered even without any reduction in Go* = Rs* (M+S). This possibility did not emerge in the previous section because we had been treating the financial structure as fixed, focusing instead on trade considerations.

From this new perspective, the share of the imported money in the money supply depends on the success of the central bank in its banking operations as well as on the factors identified earlier as determining Go*. If the central bank is sufficiently successful in developing a profitable banking business and in offering attractive payments services, the share of its liabilities in the monetary base may be enlarged, and the cost to the economy of maintaining a part of its capital stock in the form of foreign exchange reserves in the hands of commercial banks and private citizens, (Gb+Gp), would accordingly be reduced. This perspective thus supports the view (expressed by Sayers, for example, as I have mentioned above) that central banks established in former currency board economies should indeed develop their banking business.

Consider the following historical data offered by Cameron (1967) for England and Wales, on the composition of the total stock of money: In

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1688 specie is estimated to have constituted 83.3% of the money stock. By 1913, specie had fallen to 11.5% of the money stock. In terms of the framework used here, in 1688 Gp/F was 83.3%; in 1913 it was 11.5% (See Table III.1). The difference was achieved in England by the development of the financial structure, such that bank deposits came to dominate the money supply. In terms of our framework, the main source of change was reduction in g and in Gp, specie coming to be concentrated in the banks where it "went further" towards providing the country's money supply. The liabilities of the Bank of England, H in our framework, gained against (Gb + Gp).[36]

With specie such a very high share in the total money supply in the early part of that period it is easy to understand the mercantilist preoccupation with the idea of running a balance of payments surplus in order to gain gold and ensure sufficiency of the money supply. Sudden changes in the money stock in a downward direction have never been popular; when specie so strongly dominated the money supply it was hardly irrational to want to maintain substantial specie hoards against adverse shocks; poor harvests, for example, would require sudden large increases in grain imports which had to be paid for in gold because other exports could not be increased at the speed and on the scale with which bad weather can destroy a season's crops. The flexibility given to the money supply through the development of the financial structure must have contributed significantly to the weakening of the mercantilist attitudes.

In the Scottish case, as I mentioned earlier, the imported component in the money supply was brought to an even lower level. Writing about the Scottish banks of issue during the 18th and 19th centuries, Cameron tells us that the ratio of specie reserves to liabilities to the public was rarely above 0.05 and more often below 0.01. In terms of our framework these banks of issue are both commercial banks and official (but not government) monetary institution, so their specie reserves combine Go and Gb. If we lump them together and treat their liabilities as H we have a proportion W which contrasts very strikingly

with that of currency board economies. Since these banks of issue were also commercial banks, comparison of the ratio G/F, in which commercial bank money creation is also reflected, would give a more accurate picture. A currency board Type II monetary system, with W=1, would need to have its banks functioning with average reserve ratios implausibly low, even if (Gb+Gp) = 0 such that all of the economy's stock of gold and foreign exchange is concentrated in the currency board, to achieve a ratio of G/F as low as the ratios which were successfully maintained by the Scottish banks of issue. In the English case, Goodhart writes that "...total gold holdings of all the banks in England and Wales in 1913-14 - including the Bank of England - represented about 7-8% of deposits. This was slightly in excess of estimates made earlier..."[37] Goodhart gives the value of W, the Proportion, for 1913 as ranging from 30% in January to 59% in September (pp.589-590). Gb was not zero at this time, and had been rising because of banks' perceptions that G/F was too low, as Goodhart explains.

Since these G/F ratios were maintained in a context of fixed exchange rates between G and F, in the context of the present framework the actual ratios have to be treated as at least as great as (G/F)* and W*.

Cameron's explanation of the lowness of the ratios in the Scottish case is from the perspective of the banking approach to thinking about reserve adequacy, as follows: "...More fundamentally, the fact that the Scottish Banks could function with such slender real reserves was due to widespread acceptance of their notes, along with fractional coinage, as the most desirable if not the only legal form of money. Given this public attitude, it was quite reasonable for the banker to regard his own unissued notes as a reserve with which to meet sudden public demands for cash..."[38] In the terms of our framework, the notes of these banks of issue can be treated as H; these liabilities were very successful in meeting monetary needs at the expense of (Gb+Gp). In the next section we look in more detail at what factors might enable H to achieve this success.

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7 EFI and the determination of W from the banking perspective*

Looking at W* from the perspective of banking considerations, we have seen that successful competition of H with Gb and Gp can achieve a reduction in W* even when we treat Go* as fixed by the foreign trade considerations we looked at earlier. The share of the imported component (Go* + Gb + Gp) in the total money supply F* is thereby reduced, i.e. (G/F)* is reduced. For a given level of nominal income Y and velocity k, a smaller stock of capital has to be held in the form of foreign financial assets (foreign exchange reserves) or monetary metal. A given increase in real income, with prices held fixed, thus requires a smaller increase in the stock of imported money to meet the monetary needs associated with the increase in Y.

The next task is to look more closely at what the banking perspective tells us about the determination of W*. Since there are gains to be made in achieving reduction of W*, we want to know how this might be achieved. The argument of this section of the thesis is that W* is positively related to the relative predominance of EFI in the currency denomination sense, as well as in the geographic sense as we have already seen. W* can therefore be reduced by developing DFI relative to EFI.

In particular, W* can be reduced by the development of a strong DFI asset portfolio on the part of the official monetary institution, or other state financial institution, in economies where private sector financial development tends to be EFI (in the currency sense only now, since we are discussing domestic financial development).

The market for the Monetary Liabilities of the Central Bank (H)

From a banking perspective, the success of H in competing with Gb and Gp depends on confidence, convenience, and rate of return, as well as on legal restrictions. Let us treat "confidence" as referring to

expectations concerning changes in the rate of exchange between H and G. To "have confidence in" H is then taken to mean that depreciation of H relative to G is not expected.

Confidence and rate of return concern us particularly here. Convenience is treated as determined by the quality of the payments mechanisms offered through H and the breadth of the range of goods and services for which it is acceptable as money. The convenience of holding H can be increased by improving the quality of the payments services offered through it and by broadening the range and increasing the attractiveness of the goods and services for which it is acceptable as money. For the moment, however, I am treating these factors as fixed and focusing on confidence and rate of return.

Before proceeding further, however, it should be noted that when H and F are denominated in the same units, such that it is not possible for H to depreciate against F or vice versa, as is the case when deposits are DFI rather than EFI, then contributions of the commercial banks to the monetary services offered in the economy can also enhance the convenience of the public in holding H. For instance, when commercial banks offer services in different regions all over the country, and will always accept H at par with their own deposit money, anywhere in the country, convenience to the public in holding H is enhanced without the bank of issue actually providing the improved payments services. Conversely, deterioration in the quality of services offered by commercial banks which accept H would adversely affect the convenience to the public in holding H. The fixed link between H and commercial bank DFI money means that they stand and fall together. However, at present I am treating the quality of the contribution of the commercial banks to the financial structure as given, and looking at the central bank, or other monetary institution, i.e. at the issuer of H.

What we are looking at here, in order to consider the question of confidence and rate of return which H might offer, is the composition of the financial assets held by the central bank of issue. In the Type

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II (currency board type) monetary system, we have H = Go. In the Type IV system we have H = Go + C, where C is a portfolio of financial assets denominated in terms of H, i.e. a portfolio of DFI assets with a positive expected rate of return, and is greater than zero. In the Type III system we have H > Go, but C=0. Why is it that some currency areas can successfully maintain confidence and monetary stability with a Type III or Type IV system, whereas other currency areas seem to need to stick much more closely to the Type II system to maintain confidence?

In this section we are seeking answers to two questions: How can confidence be compatible with a lower W*? How can a central bank of issue profitably offer H at rates of return which enable it to compete successfully with Gb and Gp?

How can confidence be compatible with a lower W?*

Consider first the case of an economy in which DFI is well developed relative to EFI. It is the broad spectrum of non-monetary financial assets which concern us here, since we have already looked at the implications of differences in the shares of EFI and DFI low-powered money. If the bank of issue holds in its portfolio of assets C financial instruments which are readily marketable without loss of value in terms of G, then confidence in H can be compatible with a lower ratio Go/H than would be otherwise the case. For these assets C to be marketable in any quantity the bank might care to sell, the size of the portfolio C has to be "small" in relation to the market for these assets. A bank of issue which holds such marketable assets could surely reduce W to a very low level without causing any loss of confidence in H; in other words, W* must be very small indeed.

But for DFI assets to find such a good market, the demand for DFI assets has to be very well developed. If wealth holders do not hold DFI non-monetary assets very much, the central bank can not hold a very large portfolio C of these assets before its holdings become large

relative to the market for them, and before they cease to be marketable without risk of pushing down their market price.

One reason for cross-country differences in W* must therefore be the relative predominance of EFI among the range of non-monetary financial instruments: For a given stock of non-monetary financial assets held by residents of an economy, the market for the DFI assets held by the central bank of issue is smaller as the share of DFI assets in that stock is smaller. In an extreme case, if the private sector will not hold DFI assets at all, there is no private sector market for them.

Note that this is not at all the same as saying that the stock of accumulated savings in an economy is too small to support a good market for these assets. This is a confusion that has often been made. For a given ratio of the stock held by residents of non-monetary financial assets to the stock of their monetary assets, the market for the DFI assets held by the central bank is smaller as the EFI share in private asset portfolios is larger.

It must therefore be the case that W* would tend to be larger as the EFI share in the stock of non-monetary financial assets is larger.

Historically, major banks of issue were often restricted in the range of DFI assets which could be held against the notes issued. These restrictions did often reflect concern with marketability of the assets held by banks of issue: High quality commercial bills of short maturity, such as normally found a good commercial market, were often specified.[39]

However, it was not always the case historically that banks of issue were restricted to holding readily marketable short term bills. In some cases monetary institutions were issuing money in the process of purchasing primary assets which were not necessarily of a type which found a market among ultimate savers. For instance, the notes issued by the Scottish banks mentioned above were often issued as "cash credits" to borrowers in exchange for acquiring primary assets which

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would not have been marketable to the general public. In these cases money was being created through a process of financial intermediation such as is portrayed in the model given us by Gurley and Shaw for inside money. Indeed, these cases perhaps more closely resemble the model given us by Gurley and Shaw for inside money than did the cases in which the monetary institution was just holding assets which found a large market. In any case, the role of the monetary institution in providing financial intermediation was significantly different in the two types of case.

We turn now to investigate the case in which the DFI assets held by the institution issuing Ho are not readily marketable. The asset portfolio C held against the issue of H (i.e. the C in H = Go + C) is developed by issuing H against the purchase of DFI primary assets, in the case when these assets do not find a market among private wealth holders. If these assets C are not marketable, what determines W* from the perspective of banking considerations?

A glance at whatever banking disasters spring to mind provides an immediate answer to this question: The holder of H has confidence in H when he has confidence in the soundness of that asset portfolio (Go+C), and loses confidence in H when he suspects that a significant share of the assets involved are "going bad". In this context "soundness" means that the loans, C, maintain their value relative to G. Since, by assumption, there is no market for them, their value depends entirely on the stream of income derived from them. If their value in this sense is maintained relative to G, then the institution will be able to meet demands for G by using the stream of income derived from its C portfolio to purchase, or borrow, G as required (except, of course, when international markets for G break down in some international crisis.) When holders of H know this to be the case, confidence is preserved, in normal times.

On the other hand if the issuing institution is known to have a large share of its portfolio in assets which are not yielding an adequate

income stream, such that the value of the assets has fallen significantly below the original value of H (in terms of G) issued against them, then holders of H may have reason to lose confidence in the ability of that institution to continue to meet demands for G at a fixed rate of exchange.

The failing of banks of issue, historically, because of fall in the value of their earning assets relative to the original value of the notes issued (in terms of gold or whatever the standard was) is a familiar story. Sometimes secrecy about the true state of affairs would successfully see a bank through, however. Similarly, the true value of Go+C may fluctuate with fluctuations in the expected earnings on C, and may temporarily fall below the value of H at the given rate of exchange between H and G, without causing loss of confidence.

The banking perspective thus shows us that confidence in H depends on the behaviour of the value of the assets in the portfolio C relative to G, and that in the absence of a market for these assets this value depends on the expected value in terms of G of the income stream derived from them. The ratio (Go/H)* = W* which is compatible with confidence in H, thus depends on the value, in terms of G, of the income stream derived from the portfolio C.

How can a bank of issue profitably offer H at rates of return which will enable it to compete successfully with Gb and Gp?

It will be recalled that for H to increase without increasing the total money supply F*, it is necessary for (Gb+Gp) to fall, since we are assuming average commercial bank reserve ratios and the share of H held by banks both to be fixed (i.e. g is fixed). We have identified confidence, convenience, and rate of return as factors determining the success of H in displacing (Gb+Gp), and we are treating convenience factors as given. An increase in confidence in H may do something towards enabling H to displace (Gb+Gp) successfully, but it may also be necessary to offer a more attractive return on H. In any case, we have

also seen that the return on the portfolio, C, of DFI assets is a crucial factor in the maintenance of confidence.

This brings us to the question posed above: "How can a bank of issue profitably offer H at rates of return which enable it to compete successfully with Gb and Gp?"

This question brings us to the heart of the process of financial intermediation: why is it profitable? what is the source of the gains which underlie those profits? For the financial intermediary to function profitably, the rate of return received on earning assets must exceed that paid out on its own liabilities. How do borrowers succeed in paying interest and amortization on loans, and what gains motivate the willingness to do so?

We also need to know why DFI business might be profitable for a State institution when the same business has not attracted profit-seeking private sector financial intermediaries, as in the case of the EFI dominated economy.

Sources of gains underlying profits of financial intermediation

The two or three basic sources of gains which underlie the profits of financial intermediation are well known, familiar both in micro-economic literature and in economic history literature. Consideration of these will lead us to distinguish "production loans" from "consumption loans" in our discussion of the central bank's DFI portfolio of assets.

"Production loans"

One source of gains is through a better allocation of productive resources, such that real output is increased. The condition for efficient use of factor inputs is the equation of marginal products in alternative uses; in the real world this has to be achieved through time and space, and is facilitated through the development of markets and channels of information. Financial intermediaries specialize in concentrating information about alternative borrowers, and provide

opportunity for alternative potential users of funds to compete for these funds. Borrowers with more productive projects can profitably offer the financial intermediary a higher return than can borrowers with less productive projects. There are many, and sometimes very amusing, historical cases of information failure in which banks turned away the borrower with the vastly more profitable, but new and unknown, project in favour of the better known but much less productive project; one must not claim too much. Nevertheless, financial intermediaries do make important contributions to the increase of real output through closer approximation to the efficient use of available factor inputs.

These real output gains are one source of the profits of financial intermediation; where resources are underutilised, there are potential profits to be made in bringing resources into fuller productive use. Financial intermediaries contribute to this and reap some of the profits.

One source of the income stream received from earning assets is thus the increase in real output made possible by the loan. The Scottish banks we have been mentioning made loans to manufacturers, for instance, and the increase in output thereby achieved served to keep these loans sound. Similarly, Cameron [1967] stresses the importance of credit extended by Lancashire banks of issue to the new textile manufacturers of the 18th and early 19th centuries as contributing to the growth of output during that period. These examples of money creation in a process of financial intermediation seem very close to the model offered by Gurley and Shaw [1960] for inside money; the banks in question remained sound and profitable while these loans remained sound, which in turn depended upon the real productivity of the borrowers' projects.

Sometimes, as in the Lancashire textile case, economic growth has received the special boost of the dispersion of new technologies through this process; such cases have been among the most profitable for all concerned. Cameron chose to include as preface to his book "Banking in the Early Stages of Industrialization" [1967] a quote from

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Schumpeter which brings out this aspect of the function of credit creation: "...The essential function of credit... consists in enabling the entrepreneur to withdraw the producers' goods which he needs from their previous employments, by exercising a demand for them, and thereby to force the economic system into new channels."[40]

Loans for which the source of profit is real output gains are here referred to as "production loans". In macroeconomic terms, these loans finance what is usually referred to as "investment", i.e. contributions to the real capital stock. A credit boom of "production loans" (as I am here defining them) yields an increase in the productive capacity of the economy, i.e. a shift in the production functions underlying aggregate supply, as well as demand stimulus in the current period.

"Consumption loans"

A second well known source of profit to financial intermediaries is the gains to utility of consumers through the opportunity of exchanging consumption between different time periods. The consumer who derives greater utility from consumption now is enabled to persuade other potential consumers of current output to forego consumption to a later period by the mechanism of interest paid on a loan. Consumers achieve utility gains through the increased opportunities for intertemporal choice offered through financial intermediaries. These utility gains are also a source of profit to financial intermediaries. This source will be examined more closely below. Loans which derive their profit from this second source are here referred to as "consumption loans".

In contrast to "production loans", these "consumption loans" do not finance additions to the real capital stock. In macroeconomic terms, a credit boom of this type would yield a demand stimulus, but would not alter the productive capacity of the economy (i.e. it would not alter the aggregate production function underlying aggregate supply).

Increase of savings

The third source of profit to financial intermediaries which is often

stressed is that in offering a more attractive range of savings instruments available to savers, the aggregate savings ratio may actually be increased; when an increased savings ratio is associated with an increased rate of productive real investment, the growth rate of real output may be increased. The links in the argument concerning this source of profits are subject to debates which are not pertinent here. This source of profit to financial intermediaries is not necessary to the present argument, and since it is the subject of such disagreement it will be ignored here.

Consumption Loans (profits derived from utility gains through reallocation of current output)

The second source of profit to financial intermediaries, the profits deriving from gains to utility through intertemporal exchange in consumption, requires closer examination. Since this source of profit involves an increase in utility through better allocation of existing output rather than through better allocation of inputs yielding increased output, I will make the assumption, for the moment, that output is fixed. The differences between these two sources of profit are important, and it is necessary, therefore, to distinguish carefully between the two sources of gains analytically.

Consumption loans have often tended to be seen as more risky, because of the fact that there can be difficulties for the borrower in suppressing consumption in subsequent periods in order to pay back the loan with interest. The price of a spending spree today is tedious frugality tomorrow; the consumer who overspent last period may be pressed into default. A bank with a portfolio of consumer loans is generally seen as weaker, for the same earnings on the loans, than a bank with a portfolio full of production loans, because of the fact that there is the difficulty of imposing frugality in the first case which (provided all goes well) does not arise in the second case. This difficulty of imposing frugality following the taking out of a consumption loan needs a closer look.

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When the utility gains from increasing the scope for intertemporal choice in consumption are examined, it is commonly assumed that the consumer who borrows this period will be the consumer who bears the burden of subsequent frugality. However, when the borrower is in a position to exercise power over other consumers, his repayment of the consumption loan may not be at the expense of inflicting frugality upon himself; instead he may inflict the increased frugality on those consumers over whom he has power. In this case the interest rate he is willing to offer for the loan does not merely reflect his intertemporal rate of discount, but instead reflects his ability and willingness to increase his own present consumption at the expense of inflicting increased frugality in subsequent periods upon those other consumers over whom he has power. This is quite a different sort of choice from that which is normally portrayed in the modelling of consumer borrowing.

The power-wielding borrower borrows to increase his consumption this period, and repays the loans by reducing the consumption levels of other consumers in subsequent periods. This may sometimes occur in families, but the most familiar case of this type of borrowing is by governments. The bank's assessment of the soundness of the loan in this type of case has to take into account the viability of the borrower's future repression of consumption among those over whom he has power.

When a government borrows in one period, and spends the proceeds in such ways as (by assumption, as we are discussing consumption loans) do not increase real output during subsequent periods, the repayment of the loans has to come through the imposition of increased frugality in subsequent periods, normally achieved through increases in taxation. The beneficiaries of the spending of the proceeds of the loan have by no means always been the same people as endure the affliction of increased taxation.

The power-wielding borrower model captures some important features of the historical realities of government borrowing which are not captured

by the standard model of the role of capital markets in enlarging scope for intertemporal choice.

From a bank's perspective, the soundness of a loan to a government borrower depends upon the ability of the government in question to raise the requisite taxes, as is well known. In the case of the non-productive type of loan we have just been considering, there are two main, and very familiar, hazards which can cause the loans to go "bad": One of these is that the government's power to collect taxes may weaken as it becomes less popular or weaker militarily; the other possibility is that the tax-paying powers of the populace may be eroded. Imperial Russia in the late 19th century offers a familiar example of the second case: economic historians of that period have drawn attention to the fact that peasants were pressed so hard by taxation during that period that they were actually running down the productive capital stock in agriculture in order to pay taxes. The weakness of this basis for repayment of a loan is obvious, and has been portrayed in a rather vivid metaphor by Mao Zedong: "Another mistake is draining the pond to catch the fish."[41] (It is also known as killing the goose that laid the golden egg.)

The erosion of the capital stock may not directly threaten the bank whose loans are being repaid by this means, however. The bank may experience these loans to be sound provided the military strength of the government remains sufficient to successfully impose the taxation.

This brings us to the second major hazard: The government may lose its power to impose the taxation necessary to repay the loans. In a democracy the government may be voted out; in other cases the military strength of the government may deteriorate relative to opposition forces. French loans (and others) to Imperial Russia all "went bad" with the Russian revolution. In an intermediate case it may turn out to be so expensive to maintain the military force needed to suppress discontent and impose the level of taxation required to repay a loan as to make the loan not viable.

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Market failure in the power-wielder borrower case

There is in the "power-wielder" borrower case the usual danger associated with situations in which the consumer of some good or service does not bear the full cost of his own consumption. The consumer who maximizes his own utility will consume such goods in quantities that exceed the socially optimum level, as is well known from elementary microeconomics. In the "power-wielder" borrower case this can lead to serious adverse effects on capital formation and economic growth which are very well-known among economic historians: The "power-wielder" borrower competes in capital markets with other borrowers, producers in particular. Since the "power-wielder" borrower does not bear the cost of his borrowing, he may offer such a high rate of interest as the producer-borrower could not match without going bankrupt. When this kind of "power-wielder" borrowing is for non-productive purposes and becomes large in the capital markets, would-be producer borrowers are forced back on their own resources, unable to compete for funds with the "power-wielders". There can be very serious adverse effects on capital formation.

The following quotes, from Cameron, serve to illustrate the awareness among economic historians of the phenomenon just described; in the three cases referred to in these quotes, the "power-wielder" borrower is a government: "....The late T. S. Ashton used to insist that capital formation in England in the 18th century was inhibited by the government's privileged position in the financial market, and yet the yield on consols rarely went above 5%. The size and inefficiency of the Austrian bureaucracy gobbled up much private saving at the same time that the attractive yields on government securities (as much as 8% on long-term issues, and even higher on short-term ones) - and the lucrative underwriting business - deflected both the capital and the attention of the bankers from riskier industrial investments...." With reference to the economic stagnation in Italy between 1863-1893, Cameron writes: "... Given the financial instability of the government and its privileged competition with private enterprise in the capital

market, private domestic capital accumulation on any significant scale was virtually impossible...."[42]

From the bank's perspective, this type of non-productive loan can be very attractive, as indicated in these quotes. But if the "power-wielder" borrower makes excessive use of his power and loses it, the bank holding this type of portfolio is in trouble, as in the earlier cases described above.

Financial intermediation which serves the purpose of reallocating an existing level of output among alternative current consumers thus distinctly has its hazardous sides. This is not to deny the utility gains which may be achieved through intertemporal exchange; banks' portfolios are not normally perceived as weak for including a moderate share of consumption loans. However, when their portfolios include a large share of consumption loans to impoverished borrowers from whom collection of payment is difficult or involves the use of expensive methods (such as military force), then the soundness of the portfolio does elicit concern.

Summary

This discussion can be simply summarized: The value of the portfolio, C, of the financial institution issuing H, is more secure when the portfolio is stronger in production loans, i.e. loans associated with increases in real output. It is made weaker as the portfolio becomes more heavily weighted with loans which were extended for the purpose of reallocating consumption of an existing output without increasing the level of that output. Historically this principle shines through very clearly in the composition of DFI assets accepted by successful banks of issue: good quality commercial and manufacturing assets were favoured. Government borrowing for non-productive expenditure has a long tradition of being the ruin of lenders, banks included. However, it should be stressed that it is not the identity of the borrower that is the issue, but the difference

between productive investment and consumption uses of the loan.

This discussion enables us to answer the question "How can a bank of issue profitably offer H at rates of return which enable it to compete successfully with Gb and Gp?" The answer is that it can do so by developing a strong portfolio of productive loans, choosing borrowers whose projects are sufficiently productive that they will be able to pay high enough rates of interest, without going bankrupt, to enable the bank to offer sufficiently attractive rates to compete with Gb and Gp. A share of consumption loans may successfully be included. However, if these latter are perceived by holders of Gb and Gp as increasing the riskiness the bank's portfolio, the inclusion of consumption loans may raise the rate of interest the bank has to offer on H in order to compete successfully with Gb and Gp.

We have yet to address the question of why a state financial institution could make sufficient profit from such DFI business as to enable it to issue such attractive liabilities H, in cases when private sector financial intermediaries have not found it profitable to do so. Before addressing this question it is necessary to look at some characteristics of government borrowing.

Government Debt

In the above discussion, reference was made to government borrowing of the "consumption loan" type, i.e. borrowing to finance forms of expenditure which do not alter the aggregate production function of the economy or yield higher levels of real output in subsequent periods. This is to be contrasted with borrowing of what we have called the "production loan" type, which finances forms of expenditure which do alter the aggregate production function and lead to higher levels of real output in subsequent periods.

Historically, however, government borrowing has not always been of the non-productive, consumption loan type. There is therefore no

historical justification for assuming government borrowing to necessarily be of this type, as is often done. In discussions about whether government bonds should be considered net wealth, for instance, the focus on whether or not residents fully take into account the future burden of taxation associated with a bond issue appears to imply this "consumption loan" assumption: The focus on repaying the loans through an increase in the burden of future taxation suggests the assumption that the government expenditure financed by the bond issue will not yield an upward change in the economy's aggregate production function which would instead enable the debt to be serviced out of increases in real output.

There is however abundant theoretical literature concerning various forms of market failure and the provision of public goods from which there emerges a productive role for government in many forms. In the economic history literature, there has been considerable examination of the role which governments have played in economic growth, both favourable and unfavourable. In the historical cases when governments appear to have made an important positive contribution to economic growth, many of the types of contribution which have been identified in the theoretical literature can be recognized. These types of contribution by government are the substance of productive government expenditure; borrowing for such purposes falls into the "production loan" category, as defined here, since the expenditure thus financed yields increases in the productive capacity of the economy.

For example, the theoretical literature informs us that the problem of underproduction of a good with positive externalities can sometimes be resolved by joining smaller units into bigger ones such that the gains which were external to the small unit become internal to the larger unit. Gains which are external to individual firms or households within an economy are internal to the economy as a whole, and hence to government; these gains can be tapped by government in the general form of tax on current income, so that the provision of such goods by government need not necessarily be at a loss.

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Referring back to our "draining the pond to catch the fish" image, this type of productive government expenditure serves to increase the quantity of fish by improving the quality of the breeding pond; more fish can thereby be caught each season without reducing future production. The problem of destructive private sector overfishing, and under-maintenance of the capital stock of the pond, like over-grazing and under-maintenance of the commons, is well understood in the theoretical literature. Provision and maintenance of the transportation and communication infrastructure upon which private participants in markets rely, which has historically nearly always involved governments, constitutes expenditure of this type. The general increase in the productive capacity of the economy has then given rise to the possibility of some of the increased real output being channelled into government coffers via taxation.

Government borrowing thus can be either of the "production loan" type or of the "consumption loan" type, as these two types have been distinguished here. The soundness of a bank's portfolio of government debt depends crucially on which type of borrowing has been predominant.

The bad reputation with bankers and other lenders which has been achieved historically by governments has been associated with borrowing of the non-productive (or downright destructive, as when the waging of war wrecks destruction of the production structure) type rather than the "productive loan" type. It should be stressed, however, that the difference is in the type of expenditure, and not in the identity of the borrower. Many, and very important, forms of productive government expenditure have been identified in both the theoretical literature and in the study of historical cases. In consideration of the value of government debt the distinction between "production loans" and "consumption loans" is crucial.

A government in financial difficulties which borrows to finance non-productive current expenditure can compound its budget difficulties in subsequent periods. A bank of issue which is known to be carrying a portfolio of this type of debt, and known to be under pressure to

continue increasing note issue against debt of this type, does not inspire confidence. On the other hand, if a government is borrowing to finance productive expenditure, leading to rising real output and rising government revenues through taxation of the increased output, a bank of issue which carries the government's debt is not exposed to the same reason for loss of confidence in its liabilities.

The quality and value of the bank's portfolio of government debt thus depends on the type of borrowing involved.

In assessing the quality of the portfolio, C, of DFI earning assets held by a bank of issue, therefore, the distinction between government debt and private sector debt is not adequate, not even necessarily very informative. What we do need to know is the composition of that portfolio between loans of the productive and non-productive types. Government borrowing can fall into either of the two categories.

The special hazard posed to banks by governments is that they can force banks to accept their debt at nominal values above the real value of the earning asset thus gained, and thereby force issue of the bank's liabilities at such a rate that their value can not be maintained. Private borrowers have only rarely had power to ruin bankers in this fashion.

Why could a government bank of issue find DFI business profitable which had not been attractive to private sector financial intermediaries?

By "government" bank of issue what I refer to here is the identity of the shareholders, and not the award by the government of particular privileges. The banks which have, historically, been referred to as "government banks", have often been identified as such because of special status granted to them by the government, even though the shareholders were private. I do not dispute the appropriateness of the appellation in such cases. However, the question addressed in the present section pertains to the identity of the shareholders: why might a government make a profit from developing banking business which

had not attracted private sector bankers?

We are concerned now with the case of an economy in which the financial structure is dominated by EFI, particularly in the case of non-monetary financial instruments. We have seen that a central bank of issue, issuing H, can increase its share in the monetary base, and thereby reduce the imported share in the total money supply (G/F)* , without threatening monetary stability, if this bank can develop a sufficiently profitable portfolio of DFI earning assets. What we need to know now is how it could be profitable for this government bank to develop such a portfolio when, (we are dealing with an EFI dominated economy by assumption), private sector financial intermediaries have not perceived such business as profitable?

Firstly, let us be clear about what is meant by "profitable". In this context the government as a whole is being treated as a business enterprise which operates a number of different projects; any individual project is treated as "profitable" if its net profit is greater than the sum of any decrease it may cause to net profits of other projects. A government bank which appears profitable merely because of subsidies contributed by other projects would not here be considered "profitable", unless the net profit achieved by the bank was greater than the sum of those subsidies. On the other hand, if the bank project records no net profit, yet its activities generate increases in profits achieved by other projects, then the bank project would be considered "profitable", in the sense used here.

The development of DFI business which enables the economy to successfully reduce the imported share in the money supply offers gains to the economy as a whole, as we have seen earlier. In the final section of this thesis we will look more fully at the implications for an economy of successfully reducing the imported component in the monetary base. Some of the gains accruing to the economy as a whole as a consequence of successfully reducing the imported share in the money supply may accrue to the government through tax revenue from the increased income.

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Some of the gains associated with successfully expanding the circulation of the note issue, the gains deriving specifically from seigneurage, could, however, be reaped by a privately owned bank which had a monopoly of the right of note issue. Indeed, historically, the profitability of the banking business appears to have often depended upon access to the right of note issue.

Richard Sylla stressed this point about note issue and bank profitablility in a study which he made of regional distribution of banking services in the USA between 1863 and 1913. Sylla argues that "What restrictions on note circulation accomplished was the erection of barriers to national bank entry in places where high capital requirements and loan restrictions would otherwise not have proven prohibitive, and of further barriers in areas where these other restrictive provisions of the laws had already made entry difficult. Together, these barriers account for the extreme concentration of national banks in the northeastern part of the country in 1870 and the slow decline of this concentration between 1870 and 1900....State banking was slow to provide a remedy for the deficiencies of national banking in the late 19th century largely because an important part of its business, note issue, had been taken away. The habit of writing checks... was slow in coming to the rural districts ... in this period, and so, therefore, was pure deposit banking...."[43]

Sylla found evidence of monopolistic practices among banks in these regions, and shows that there were large flows of capital out of these regions, which he attributes to these monopolistic practices. He shows that real rates of interest were higher in these regions, and that real rates of return on capital in banking were also higher, following the pattern of real interest rates. The under-provision of financial services to these areas (associated with these monopolistic practices) implied a relative under-utilization of factor resources in these areas, to which Sylla attributes considerable importance: "...With agriculture increasingly located outside of the Northeast, and yet

returning funds to the industrial sector through the operation of the banking system, the stage was set for a dramatic reversal of the relative positions of the two sectors. In just 15 years, between 1879 and 1894, the agricultural share in commodity output shrank from 49% to 32%, while that of manufacturing grew from 37% to 53%..."[44]

Sylla's arguments imply that banks with right of note issue would have found profitable financial intermediation business in these areas when such business was not profitable to existing banks; the erosion of the monopolistic position of the existing banks would also have yielded fuller utilization of factor resources in these areas and increased real production.

Thus it may be that a central bank with monopoly of issue would be able to find profitable financial intermediation business where banks without right of issue could not.

The profitability of developing DFI business, in particular, may depend upon the right of note issue. A financial intermediary which is holding an asset portfolio of loans denominated in the domestic currency will be bearing exchange risk if the liabilities it issues are not also so denominated. The bearing of exchange risk adds to the cost of the financial intermediation service being provided; business which would just be profitable in the absence of exchange risk may be unprofitable when this cost is added. But the development of DFI business without the carrying of exchange risk is limited by the market for liabilities denominated in the local currency. In an economy dominated by EFI, in which wealth-holders tend to use financial instruments denominated in the domestic currency only for transactions purposes, the scope for the issue of liabilities denominated in the domestic currency is rather restricted, and the issue of the currency itself looms large in relation to the sum of other types of liabilities. The scope for profitable DFI business, without bearing exchange risk, may in this case be quite restricted without the right of note issue.

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Thus a central bank of issue, issuing H, may find DFI business profitable which had been rejected as unprofitable by private sector financial intermediaries, for the reason that the right of note issue gives it broader scope for developing DFI business without confronting the costs of exchange risk. Commercial deposit banks are limited in this to the extent to which they can attract domestic currency denominated deposits. This reason for the central bank finding profit where the commercial banks could not is independent of the identity of the shareholders; it derives entirely from the right of note issue, and usually a monopoly right at that.

Exchange risk is at the root of what may be the most important reason why a government bank (in the strict sense defined above) can find profit in DFI business which private sector financial intermediaries in an EFI dominated economy would not be able to undertake profitably. In an economy in which (by assumption) wealth-holders prefer to hold foreign denominated assets, who is to put up the capital for private sector financial intermediaries, and on what terms? In an EFI dominated economy, the market for domestic currency denominated non-monetary financial instruments is thin or non-existent; shares offered to the public must either be foreign-denominated, or offer some rate of return high enough to overcome the preference for foreign-denominated assets if they are to be denominated in the domestic currency. In the latter case, this high rate of return must be achieved by finding borrowers willing and able to pay such high rates; scope for developing such business is limited by the range of projects providing sufficiently high rates of return, and by access by borrowers to cheaper funding from financial centres abroad.

Consider the case in which the capital of private sector financial intermediaries is foreign denominated: If the capital is foreign denominated, profits and dividends are likewise evaluated in terms of the foreign denomination. Liabilities to the shareholders are foreign denominated. The investment of such foreign denominated capital in

domestic currency denominated assets involves carrying the cost of exchange risk. The scope for developing DFI business without carrying the cost of exchange risk is restricted, as we have seen above, by the scope for issuing domestic currency denominated liabilities.

The position of a bank in which the government is the provider of capital contrasts sharply with that of a private sector bank whose capital is foreign denominated, because the currency denomination of the asset and liability structure of the government is very different. Governments tend to be much the largest single operator in domestic currency denominated contracts. Current government expenditure is normally primarily denominated in domestic currency, except for payments on foreign denominated debt. Government expenditure commitments, contracts (explicit or implicit), etc., constitute domestic currency denominated liabilities on a large scale. Government revenues may also largely be domestic currency denominated. There is therefore, for a bank with government capital, much more scope for developing DFI financial intermediation business without involving the cost of exchange risk than there is for private sector financial institutions whose capital is foreign denominated. This difference can make the development of DFI financial intermediation business more profitable for a government bank than it would be to the private sector.

The principle just described would have particular pertinence in an economy in which the imported share of expenditure among the wealthy classes is known to be high. It can be a reason for the failure of the private sector to take up domestic currency denominated shares offered to raise capital for a financial institution whose business is to be DFI, when such an enterprise would be a profitable investment of capital for government.

The immensely successful Banco de la Nacion, in Buenos Aires, founded in 1892, appears to me to have been just such a case; the shares for

this institution were offered to the public but the issue was not taken up. The extraordinarily high rate of capital formation during the period rules out, in my view, the idea that a lack of domestic capital can explain the failure of the public to take up this issue. The important contribution made by this bank in developing DFI financial intermediation business will be seen in the final section of this thesis.

8 Conclusions

An important role for government in developing DFI financial intermediation, in economies where the private sector financial structure is dominated by EFI, has emerged through the analysis offered above. This role has emerged for government because there are gains to the economy in developing the relative share of DFI, and because the government, as an investor, has opportunities for developing DFI business profitably which are not necessarily available to the private sector.

It should be noted that the development of more extensive DFI financial services is of particular pertinence to the development of the non-traded goods sector. This sector is carrying a burden of exchange risk when it relies on EFI financial intermediation from which it is relieved by access to DFI financial services. Therefore, as in the regional distribution of financial services and development examined by Sylla, the relative weakness of DFI would presumably be associated with a relative under-utilization of productive resources in the non-traded goods sectors, in comparison with traded goods sectors: If prices of traded goods move pari passu with exchange rates, producers borrowing via the issue foreign denominated financial instruments are not burdened with exchange risk. Producers of non-traded goods, on the other hand, do bear exchange risk through such borrowing. In an EFI economy, therefore, the exchange risk involved in

access to financial markets would tend to yield a relative under-utilization of productive resources in non-traded goods sectors. These sectors would therefore be particular beneficiaries of the development of more extensive DFI financial services.

The implications of the structure of the money supply for the non-traded goods sector will be analyzed further in Chapter IV.

The determination of (G/F)* has been seen to depend upon the following factors: (a) the openness of the economy; (b) the variability of the trade balance; for this factor export concentration is here treated as a proxy; (c) the ratio of net debt service S to income; (d) the predominance of EFI relative to DFI; and (e) the quality of the performance of the central bank as a bank, i.e., the factors determining W*. Among the factors determining W* the soundness and profitability of its DFI asset portfolio has been stressed. The central bank can reduce (G/F)* by improving the quality of its banking performance.

The justification for using export concentration as a proxy for variability of the trade balance is simply the "law of averages", or the principle of portfolio diversification.

The first two of these factors, i.e. (a) and (b), have been identified in Chapter II as factors which contribute to the development of EFI at the expense of DFI also, while the third factor, S, is in part determined by the relative predominance of EFI in its geographical version. The determination of (G/F)* has thus been attributed to two factors which are also determinants of currency type EFI, and to one factor which is partly determined by geographical EFI, as well as to the relative predominance of EFI itself. EFI thus emerges as a major factor in the determination of (G/F)*.

The fifth factor identified as determining (G/F)*, the quality of the performance of the central bank as a bank, particularly in developing the quality of its DFI asset portfolio, is the factor which gives government a direct policy approach to (G/F)*. The analysis developed

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above shows that (G/F)* can be reduced by the successful operation of the central bank, as a bank, in developing a sound and profitable DFI asset portfolio. The very old-fashioned notion that a central bank needs to be protected from destructive pressures of government budget thus has re-emerged from the analysis developed here. In particular, the analysis shows that the bank needs to have sufficient independence from political pressure to enable it to reject excessive pressures to accept the "consumption loan" type of government borrowing and to develop a strong "production loan" DFI portfolio. We have seen that this would include the financing of productive forms of government expenditure, such as maintenance of infrastructure, as well as private sector investment. If, on the other hand, the central bank succumbs to political pressures which weaken the quality of its DFI asset portfolio, (G/F)* will tend to rise. The consequences of a rise in (G/F)* are not pleasant, as will be seen when they are analyzed in Chapter IV.

The analysis developed here leads me to reject the ordinary notion of monetary policy independence as both unrealistic and dangerous. It is unrealistic because it ignores (G/F)*; it is dangerous because persistence in inflationary monetary expansion will tend to push up (G/F)*, with the very disagreeable consequences which will be analyzed in Chapter IV.

The central conclusion of the analysis, however, is that it is possible for governments to operate successfully on (G/F)*, to reduce it, by means of improving the quality of the central bank's DFI asset portfolio. Moreover, the government is not inexorably stuck in a trap between the hazards of excessive monetary expansion on the one hand, and intolerable unemployment on the other. Credit creation for the financing of profitable productive expenditure has been the backbone of successful and profitable banking throughout history; there is no need to allow, as it were, the quality of the grazing commons to deteriorate for lack of finance, nor the fish pond to be drained for lack of

maintenance. The productive forms of government expenditure which are essential to the efficient and profitable functioning of private markets can be profitably financed through the central bank; such "production loan" type DFI assets will strengthen the bank in the same way that any other form of profitable "production loan" asset will.

The importance of the central banks' role in the determination of (G/F)* will become more fully apparent when we analyze some of the consequences of changes in (G/F)* in Chapter IV.

9 Empirical conclusions

Table III.1 gives figures taken from Cameron (ed.) "Banking in the Early Stages of Industrialization", concerning the historical evolution of the structure of the money in England and Wales, and in France. "Specie in circulation" corresponds to what has here been referred to as Gp, and banknotes (in circulation) correspond to Hp, while deposits are "low-powered inside money".

The historical fall in the share of Gp, and the increase in the share of deposits, in the circulating medium shows clearly for both countries. This fall in Gp relative to the domestic forms of money (banknotes and deposits) was the result of development of the domestic financial structure, as Cameron's discussion of banking history in the two cases makes clear. In his discussion of French banking history, Cameron stresses the importance of certain weaknesses in the development of French banking which caused the populace to continue holding private hoards of specie, to a much greater extent than in the English case, instead of relying on the use of bank deposits. Comparing the French and English figures for specie in circulation as a percentage of the total money stock (i.e. Gp/F) this difference in the structure of the money supply shows clearly.

The column given for France entitled "total specie" gives the ratio (G/F) expressed as a percentage, i.e. it gives total specie (G) as a

percentage of the money stock. Unfortunately data on total G were not given for the English case, so that construction of (G/F) was not possible.

In 1910, the French ratio (G/F) was 35.9%, having fallen over the preceding century from 97.4% (in 1803). This figure of 35.9% may be compared with the estimate (mentioned above in the text) of 6-8% of total monetary liabilities covered by gold in England during this period. This comparison is not precise, and, as mentioned in the text above, the actual percentage of gold coverage was seen as too low in England at this time. Nevertheless, it seems clear that the stronger development of the financial structure in Britain throughout this period gave Britain a lower (G/F)* than that achieved by France.

In the historical literature, indeed, the fact that Britain was able to maintain such a strong currency, and such a strong financial centre in London, with gold reserves which were very low by the standards of the time, has often been remarked upon. I attribute this largely to the strength of British (DFI) financial development during this period, but also (and the two are not independent) to British leadership in the industrial revolution, which made Britain a major exporter of the new capital goods in much of the 19th century. This second factor, the strength of the international demand for these new British goods of the industrial revolution, was identified in the text above, in the discussion of fiat money, as one of the factors influencing the acceptance of a particular fiat money. In that context it was observed that people are willing to accept paper money in discharge of a debt when they know that their creditors, actual or potential, will accept the paper money in turn. People all over the world were willing to hold sterling paper money during this period because the creditors who would accept sterling paper money in discharge of debts were offering these exciting new goods of the British industrial revolution; in other words, it was not so much that sterling was "as good as gold", as is often said, but rather that sterling itself was so desirable because of the products of the industrial revolution which could be purchased with

it. Thus it was the international demand for British goods purchasable with sterling, as well as the international (and domestic) demand for the high quality financial services offered in sterling (i.e. the great strength of British DFI financial development), which gave Britain such a low (G/F)* during this period.

Appendix III.1 shows us that things have changed substantially concerning sterling. The figures given are taken from Bryant (1987), as noted, and correspond to what has here been called pure currency type EFI. The ratios given are the ratio of pure currency type EFI to the pure currency type DFI, for banking offices. This is distinct from the total currency type EFI/DFI ratio in that claims involving non-residents, which would be also of the geographical form, are not included.

The data shows that this EFI/DFI ratio is now very much higher for Britain than for the other countries on the list (except for Singapore and Hong Kong). It also shows that this ratio has risen very substantially for Britain, from 0.03 in 1963 to 0.71 in 1983, while, by contrast, no such rise is shown for Germany. In accordance with the analysis developed above, I attribute the contrasting behaviour of the ratio in the British and German cases to the tendency for Britain to pursue a more inflationary monetary policy than has been characteristic of Germany. The banking sector in Britain has been evidently defending itself against the loss of its clientele to other financial centres, which the persistence in such inflationary policy would tend to threaten, by shifting out of DFI into EFI operations. It will be recalled that this means of the banking system defending itself from the dangers of losing its clientele because of excessive government issue of H was discussed in the text above: when excessive issue of H erodes the public's willingness to hold DFI (i.e. H denominated) assets, banks can defend themselves by shifting into EFI operations.

According to the arguments developed above, this rise in the EFI/DFI ratio will have been causing (G/F)* to rise in Britain during this

period. As noted above, the case of a rise in (G/F)* will be analyzed in Chapter IV.

As indicated in the notes given in Appendix II.1, Bryant stresses that these foreign currency denominated claims held by UK banks are largely interbank claims, and London is, of course, a major international financial centre. These factors may help to explain the scale of the increase in the EFI/DFI ratio shown for the UK in the data here. The weakening of sterling during this period, as measured by the rise in its dollar exchange rate (see Table II.2) would not seem sufficient to have caused such a dramatic change in the EFI/DFI ratio over such a short period, except in the case of a highly sophisticated financial centre. The Italian dollar exchange rate, for example, has risen very much more than the sterling exchange rate over the period, whereas the EFI/DFI figure given in Appendix II.1 for Italy, for 1982, is only 0.04. I would explain the difference in the London response at least partly in terms of the discussion of the "diversifiers" and the "single currency strategy group" discussed at the beginning of this chapter: London's response to the softening of sterling has been stronger than elsewhere because of its position at the top end of the range of international financial sophistication. It is possible however that comparison of the ratio of interbank claims to private customer claims would be sufficient to explain the difference in the London response.

The EFI/DFI ratios given for Japan also show a rise over the period 1973-1985, but on a very much smaller scale than the rise in the British figures. The ratio remains low however.

In Table III.2, figures are given for 36 countries on Go, Gb, F, various versions of (G/F), and exchange rates, for the fourth quarter in 1967, in 1977, and in 1987. The data are taken from various issues of "International Financial Statistics", as indicated. The figures are all given in local currency, while the exchange rates are local currency per US$. The country list includes most of those on the

tables of Goldsmith data given in Chapter II above.

The ratios (G/F) shown in the tables exclude Gp, i.e. they are really [(Go+Gb)/F], because figures for Gp are unavailable. These ratios are given in two forms: (G/F) net, and "assets/(liab.+F)". Gross and net refer to the foreign assets Go and Gb; "assets / (liab. + F)" refers to the ratio {(Go+Gb) gross assets / [F + (Go+Gb) gross liabilities]}. One of these ratios will be more pertinent than another under different circumstances, depending, for instance, on the nature of the liabilities.

The first point to note from these tables is that gross assets and liabilities of commercial banks, "Gb assets" and "Gb liabil.", are not small relative to the foreign assets and liabilities held by central banks; in some cases Gb assets and liabilities are indeed very much larger than those for Go. Net changes in Gb can thus be very large relative to Go. Therefore the use of an analytical formulation of the monetary base which leaves out Gb is surely not satisfactory, and must run risks of deriving very misleading results. The more general version used here seems much better suited to the realities shown in these tables.

It will be noted that the net positions of Gb are quite often negative, while the official net Go position is much less frequently so. The negative figures for the net (G/F) ratios are of course due to negative figures for the sum of net Gb and net Go, since no country has a negative money supply F.

Cross-country differences in these various (G/F) ratios are wide. What we would expect from the arguments developed above concerning the determination of (G/F)*, is that the countries which have strong domestic financial structures would be able to successfully maintain a lower ratio (G/F), relative to the openness of the economy, than would countries with weaker financial development. Countries with the weaker, LDC type, financial structure, which nevertheless maintain a low ratio (G/F) relative to the (X/Y) ratio, would be expected to show losses in the value of their domestic money F against G, i.e. a rise in

the exchange rate from one period to the next. Table II.2 includes figures for the ratio of (G/F net) to (X/Y).

Certain cases may be pointed out which illustrate the arguments developed here, but it can not be said that any very clear picture emerges. Looking at the net (G/F) ratios for 1977, for instance, we can pick out the following group of 16 countries with net (G/F) ratios of less than 10%: Chile, Egypt, Ghana, Greece, Italy, Japan, New Zealand, Peru, Philippines, Sierra Leone, South Africa, Spain, Sudan, UK, USA, and Yugoslavia. Among these 16, only 6 countries (New Zealand, Spain, South Africa, Japan, UK, and USA) have the developed country (DC) type financial structure, according to the criteria used in discussing the Goldsmith data in Chapter II. If we look at the column in Table III.2 in which these net G/F figures are deflated by the export ratio, and identify countries with low reserves as being those with ratios of (G/F net) to (X/Y) under 50%, the only difference in the country list which emerges is that the reserve ratio is not low (relative to the export ratio) for the USA, and it is low for Belgium/Lux. On the Goldsmith data criteria, the financial structure of Belgium/Lux is of the DC type.

Looking at the exchange rates for 1977 and those for 10 years later, the arguments of this chapter lead us to expect that countries with the weaker (i.e. LDC type) financial structure which maintain low (G/F net) ratios would show a rise in the dollar exchange rate. The rise in the dollar exchange rate is interpreted, according to this argument, as resulting from the attempts by wealth holders to re-impose (G/F)*, while the government has been attempting to maintain in circulation a money supply with a ratio (G/F) which is below (G/F)*. When we compare the exchange rates, between 1977 and 1987, for the 8 countries with the LDC type financial structure which have been identified as having low G/F ratios, we see that the currencies of all 8 have lost considerable value against the US$ over that period (exchange rates for Peru are not comparable, but the currency did deteriorate in value). Among the 9 countries with the DC type financial structure which we

identified as having low G/F ratios, the currencies of the following five countries lost value against the US$ over that period: Italy, New Zealand, South Africa, Spain, and Yugoslavia; only in the case of Yugoslavia was the loss in value as great as the losses in value suffered by currencies in the LDC financial structure group, although the case of South Africa comes near (and is greater than the loss in value of the Egyptian currency). The rises in the price of a US$ among the 8 countries in the LDC type financial structure group range from 255% in the case of Greece to 15200% in the case of Ghana; the deterioration in the Peruvian currency was presumably worse still, since the units in which it is quoted have changed.

Performing a similar exercise with the data given for 1967 yields similar, but more diverse, results. Fourteen countries have net (G/F) ratios of less than 10%. Among these 14 countries, we again see that the currencies of the LDC type countries have tended to lose value against the US$, while those of the DC type are able to maintain the value of the currency despite the low (G/F) ratio. There are a good many anomalies, however: The currencies of five of the LDC type countries maintain their value quite well over the period despite the low (G/F) ratio. In the case of Rwanda, this seems to be due to a change in monetary system, since the figures for 1977 and 1987 show Rwanda as maintaining very high (G/F) ratios. In the case of Sudan, the enormous size of the official foreign liabilities which shows in the figures for 1977 and 1987 suggests that the explanation for the maintenance of the value of the currency during the period 1967-77 lies in the scale of foreign borrowing. India, albeit to a lesser extent than Rwanda, built up its (G/F) ratio over this period, and the maintenance of the value of the rupee against the US$ may be attributable to this trend. The other two LDC type countries with low (G/F) ratios in 1967, Egypt and Ghana, however, both also show low (G/F) ratios in 1977. The theory of this chapter would lead us to expect that their currencies would show a deterioration over this period; however, the figures for the dollar exchange rate show that

this deterioration does not occur until after 1977. We saw above that the currency of Ghana experienced a very severe loss in value between 1977-87; I can offer no explanation for the deterioration not having begun sooner. The case of Egypt may be akin to that of the Sudan, as the figures for Go liabilities do rise substantially between 1967 and 1977.

It will be recalled that the arguments of this chapter were concerned with the relative shares of EFI and DFI in the financial structure, rather than with the information which is covered directly by the Goldsmith data. It would be possible, in theory, for an economy to develop a full range of financial institutions on the basis of currency type EFI, such that it appeared in the Goldsmith data as being of the DC type, whereas the arguments of this chapter would still identify it as in the high (G/F)* range. The use of the Goldsmith data here has therefore been on the basis of the assumption that the pure currency type of EFI is not on such a scale in economies with the DC type of financial structure as would put them in the high (G/F)* category. In the case of Belgium and the UK this assumption may not be valid, according to the EFI/DFI figures shown in Appendix II.1. However, in general terms the use of the Goldsmith data seems a valid approach to testing the theory, in view of the arguments which will be developed in Chapter III concerning the implications of EFI for cross-country differences in financial structure.

In a crude way, the data given in Table II.2 gives some support to the argument developed in this chapter that there are cross-country differences in (G/F)*, and that these differences are related in an important way to cross-country differences in financial structure. I would argue that the exercises just performed give support to the idea that (G/F)* is lower in countries which have a more strongly developed financial structure than in countries which have a weaker financial structure. In other words, the development of a strong financial

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structure enables an economy to be successful in maintaining the value of its currency with a lower (G/F) ratio than is usually required for economies with weaker financial structures.

Cross-country differences in (G/F)* imply cross-country differences in the structure of incremental money demand as between the imported and domestic components of the money supply. As has been explained earlier in this chapter, incremental demand for imported money

can loom large relative to total export earnings, and thereby put considerable pressure on the balance of payments. For this reason analysis of the determination of (G/F)* is of immense practical importance. An implication of the conclusions drawn here is that the development of a stronger domestic financial structure can alleviate balance of payments pressures by reducing (G/F)* and altering the structure of incremental money demand.

Notes

1. See Table II.1, below. Data from Cameron, R., ed. (1967), p. 116.
2. See Table II.1 below.
3. Cameron, R., ed. (1967), p.87. It has been argued that the Scottish banks could operate on such slender reserves because they were able to make use of the Bank of England in a crisis. However, as the arguments developed here will make clear, I do not believe that to be the only factor, nor even the most important factor. A comparison of Scottish and English banks' reserve practices during this period would clarify the issue.
4. Ford, A.G. (1962), page 90.
5. Hansen, E. (Bancos 460), page 376. Translated from the Spanish by H. Booth di Giovanni.
6. Hansen, E. op cit, pp. 376-9.
7. Hansen, E. op cit, p. 378.
8. Sayers, R.S., "Central Banking After Bagehot", 1957. Oxford: Clarendon Press. Chapter 9. "Central Banking in Underdeveloped Countries".
9. Ralph C. Bryant, 1987. "International Financial Intermediation". Washington D.C.: The Brookings Institution
10. John G. Gurley and Edward S. Shaw, 1960. "Money in a Theory of Finance". Washington D.C.: The Brookings Institution.
11. "The New Palgrave: Money", John Eatwell, Murray Milgate, and Peter Newman, eds., 1989. London and Basingstoke: The Macmillan Press. Page 175.
12. Application to the case of a currency area which does produce gold, for instance, might be adequately achieved, at least for some purposes, by treating gold retained for the domestic monetary base as

being related to the balance of payments in an analytically similar way. However, the involvement of domestic labour in the production of domestic gold, especially if the labour involved is not internationally mobile, may complicated the position significantly. No attempt is made in this thesis to tackle any special issues concerning gold producers.

13. See for example the study of gold movements and the structure of the monetary base in Germany during the gold standard era, by Paul McGouldrick: "Operation of the German Central Bank and the Rules of the Game, 1879-1913", chapter 7 in Michael D. Bordo and Anna J. Schwartz, eds., "A Retrospective on the Classical Gold Standard 1821-1931", NBER, 1984. Chicago and London: University of Chicago Press.

14. Alfred Marshall: "Memoranda and evidence before the gold and silver commission", 1887, and "Evidence before the Indian Currency Committee", 1899; in "Official Papers", 1926. London: Macmillan.

15. See Hansen, E., Bancos 460, op cit.

16. R.G. Hawtrey, "The Gold Standard in Theory and Practice", p. 5, 5th edition, 1947. London: Longmans, Green and Co.

17. There is a most interesting discussion of the factors involved in the successful establishment of a paper money circulation in the 19th century Argentine case in the monetary history of Argentina by Emilio Hansen: "La Moneda Argentina: Estudio Historico", Bancos 460.

18. One highly successful example of this is offered by the history of the Argentine National Mortgage Bank (Banco Hipotecario Nacional) prior to 1930. The bonds issued by this bank were accepted by the bank at nominal value in discharge of debts; these bonds gained and retained the status of a high quality, highly liquid asset, until succumbing to the general factors contributing to the deterioration of the Argentine financial structure from the 1930's onward.

19. I have taken the term "the proportion" from Bank of England usage during the gold standard era. Data on "The Proportion" were published regularly by the Bank of England, as we are reminded by Charles Goodhart in his book entitled "The Business of Banking, 1891-1914" (London: Weidenfeld and Nicolson. 1972. Published jointly with the London School of Economics and Political Science). Data on "The Proportion" for the Bank of England are reproduced by Goodhart for these years in this volume. I am grateful to Professor Goodhart for lending me a copy of this book.

20. Lars Jonung, "Swedish Experience under the Classical Gold Standard, 1873-1914", ch. 8 in Bordo and Schwartz, eds., op cit.

21. See, for instance, W.F. Crick, "Commonwealth Banking Systems", 1965. Oxford: Clarendon Press.

22. In both the English and the Argentine cases the actual origin of what eventually became part of the fixed fiat issue had been some form of government debt, making these notes "inside" money in origin.

23. R.G. Hawtrey, op.cit., page 6.

24. This idea has been under discussion in Buenos Aires, for instance. It was voiced with particular strength in December - January 1989-90, in response to the distress of the hyper-inflations.

25. If W=1, then a change in private money portfolios between Gp and Hp gives no change in G/F, as is clear from (3.3): $F = Gp + [(Go/W) + Gb] / g$. Reduction in the cost of the money supply therefore would only be achieved if the private portfolio shift is between Gp and D, in favour of the latter.

26. "Working classes" are denoted as such because their main, or primary asset is labour, marketed in exchange for a wage contract which however does have some characteristics of a financial instrument: for instance, it has some specified currency or currencies of denomination. If financial wealth, in the ordinary sense of the term were a large share of a person's total assets he would be a rentier as well as a worker, sharing characteristics of both.

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27. The "magnitude of the exchange rate change" would be per period of time when the currency is being allowed to depreciate continuously. We would then have a case of wealth holders "chasing" (G/F)*, as it were, without ever catching up, since F continues to expand and bring down the actual ratio (G/F).
28. "Indexation", which is often a response to inflation and depreciating currency, would in this context be considered a diversification strategy, as opposed to a single currency strategy, as described concerning EFI in Chapter II. A contract, whether financial or wage, which is indexed to the exchange rate is here considered to be denominated in the foreign currency. Indexation to the domestic price index is viewed as a form of diversification also, as the contract in effect is partially linked to the exchange rate and partially to the domestic currency: prices of some items in the index bundle move with the exchange rate, and others lag.
29. I am ignoring here the use of commodities such as beads, wampum, shells, etc., which have served as money historically. Analytically, these could be fit into the categories of money types used here as follows: If they are items which enter into foreign trade, they can be identified, analytically, as in the category of "imported Money"; if they are produced at home, the position can be analyzed as that of a gold or silver producing country which uses the metal as money at home but also exports it.
30. McKinnon, R. (1982).
31. See, for example, "The international monetary system and financial markets: Recent developments and the policy challenge", Report by the UNCTAD secretariat. United Nations, New York. 1985. p. 15, paragraph 34.
32. UNCTAD secretariat, (1985), op. cit.
33. Scammell, W. M., (1987), p.62.
34. Lindert, Peter H., "Key Currencies and Gold 1900-1913". Princeton Studies in International Finance no. 24, Princeton New Jersey. 1969. pp. 15-16, p.28.
35. McKinnon, R., (1963).
36. Goodhart informs us that banks had come to hold their reserves in the form of Consols instead of gold, as well as in Bank of England notes and deposits. In terms of this framework, it was not just Hb displacing Gb, but also Consols.
37. Goodhart (1972), p. 104.
38. Cameron, R. (1967), p. 92.
39. See for example the descriptions of various historical cases offered in Goodhart, C. (1988). See also the descriptions in Cameron, ed., op.cit.
40. Cameron, p.vii, op.cit. The quote is from Joseph A. Schumpeter (1934), p.106.
41. Mao Zedong: "Economic and Financial Problems", quoted in "Mao Zedong and the Political Economy of the Border Region", ed. Andrew Watson. Contemporary China Institute Publications, 1980. Cambridge: Cambridge University Press. Page 61.

I quote the passage to make the context clear: "...Another mistake is 'draining the pond to catch the fish', that is, making endless demands on the people, disregarding their hardships and considering only the needs of the government and the army....The greater our self-supporting [i.e. government and army self-supporting] economic activities, the more we shall be able to lighten the people's tax burdens....We can guarantee our financial needs only by expanding both the public and private sectors of our economy in a realistic and practical way. Even in difficult times we must take care to set a limit to taxation so that the burdens, though heavy, will not hurt the people. And as soon as we can, we should lighten the burdens so that

the people can build up strength..."
42. Cameron, Rondo, ed., "Banking and Economic Development: Some Lessons of History". 1972. New York: OUP. Pages 17 and 19.
43. Sylla, Richard, "The United States 1863-1913". Chapter VIII in Rondo Cameron, ed., 1972, op.cit., pp. 244-246.
44. Sylla, R. (1972), op. cit., p.257.

Appendix II.1

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Data on EFI/DFI ratios

Data from Bryant (1987), pp. 26-27, table 3.2. "Assets (including Interbank Claims) Reported by Banking Offices in Fifteen Industrial Countries and Eight Offshore Banking Centres, December 31, 1982."

The following figures are the ratio of column (3), "Claims on home residents denominated in foreign currencies", to column (4), "Traditional domestic assets (claims on home residents denominated in home currency)":

United Kingdom: 0.74
Germany: 0.002
France: 0.09
Switzerland: 0.03 (excluding trustee accounts)
Austria: 0.075
Belgium: 0.52
Ireland: 0.2
Denmark: 0.08
Italy: 0.04
Netherlands: 0.08
Sweden: 0.19
Japan: 0.06
Canada: 0.15
USA: (data not given for column 3, but believed to be negligible)
Singapore: 1.55
Hong Kong: 0.6

Table 3.9, p. 45, gives "Financial Assets of All Banking Offices in the United Kingdom, Selected Years, 1963-83". The following figures are the ratio of "Claims on UK residents Denominated in foreign currencies" to "Claims on UK residents Denominated in sterling":

1963: 0.03

1968: 0.14

1972: 0.35

1975: 0.56

1978: 0.56

1981: 0.64

1983: 0.71

The increase in the ratio for the UK has been very remarkable. Bryant stresses that these foreign currency denominated claims are largely inter-bank.

Table 3.10, page 48, gives "Assets of All Banking Offices in the Federal Republic of Germany, Selected Years, 1952-85". The following figures are the ratio of "Claims on domestic residents" denominated in Deutsche marks, to "Claims on domestic residents" denominated in foreign currencies:

1975: 0.002

1978: 0.002

1981: 0.002

1983: 0.002

Table 3.12, p. 52, gives "Assets of All Banking Offices in Japan, Selected Years, 1973-85". The following figures are the ratio of "Claims on domestic residents Denominated in foreign currencies" to Claims on domestic residents Denominated in Yen":

1973: 0.02

1975: 0.03

1978: 0.02

1981: 0.05

1983: 0.065

1985: 0.063

Table II.1: Historical structure of money supplies
Components of money stock
(percentage of total money stock)

England and Wales

	specie in circulation	banknotes	deposits	V1 = 1/k
1688	83.3%	16.7%		4.
1800	40.0%	50.0%	10.0%	3.9
1844	25.0%	20.0%	55.0%	2.8
1885	18.3%	4.7%	77.0%	1.6
1913	11.5%	3.5%	85.0%	1.8

Source: Cameron, ed. (1967) p. 42 table II.2

France

	total specie	specie in circulation	banknotes	deposits
1803	97.4%	94.7%	5.3%	0.0%
1845	89.7%	82.1%	7.7%	10.3%
1885	69.8%	51.9%	29.2%	18.9%
1910	35.9%	32.9%	22.6%	44.4%

Source: Cameron, ed. (1967) p. 116 table IV.3

Note:
k is defined as the ratio of total money supply to nominal income.

Table II.2: Cross-country monetary data

Country	Go assets 1967 IV	Go liabil. 1967 IV	Go net 1967 IV	Gb assets 1967 IV	Gb liabil. 1967 IV	Gb net 1967 IV
Argentina	232	84	148		28	-28
Australia	1223		1223	52		52
Belgium / Lux	137.6	137.6		80.1	119.1	-39
Bolivia	448.4	212.6	235.8	22.9	38.7	-15.8
Brazil	5974		5974			0
Canada	2.93		2.93			0
Chile	735	1166	-431	297	387	-90
Colombia	1749	2361	-612	145	202	-57
Costa Rica	140	186.6	-46.6	59.9	69.2	-9.3
Denmark	3.85		3.85	1.98	1.82	0.16
Egypt	98.9	210.4	-111.5	48	64.2	-16.2
France	34.57		34.57			0
Germany	35.4		35.4	21.5	10.4	11.1
Ghana	108.2	135.2	-27	1.1	16.6	-15.5
Greece	9.27		9.27			0
India	3.76	3.42	0.34			0
Italy	3545		3545	2248	2226	22
Japan	731		731	1118	1488	-370
Mexico	7.33		7.33			0
Netherlands	9.5		9.5	6.24	5.93	0.31
New Zealand	120	182.2	-62.2	36.6	10.4	26.2
Nigeria	40.2		40.2	14.9	27.4	-12.5
Norway	4.79		4.79	1.85	1.92	-0.07
Peru	4.34		4.34	2.66		2.66
Philippines	432	921	-489	675	640	35
Rwanda	708	788	-80	42	40	2
Sierra Leone	13.25	3.81	9.44	0.21	5.17	-4.96
South Africa	559	26	533	50	84	-34
Spain	76.6		76.6			0
Sudan	23.07	15.58	7.49	1	5.5	-4.5
Sweden	4.35		4.35	4.04	1.9	2.14
Switzerland	15.98		15.98			0
UK	1123	3601	-2478			0
USA	14.8		14.8			0
Venezuela	3307		3307	116		116
Yugoslavia	3.18	2.12	1.06	0.84	1.12	-0.28

Source:
IMF International Financial Statistics,
various years, as follows:
Go assets: line 11(Monetary authorities foreign assets)
Go liabil.: line 16c(Monetary authorities foreign liabilities)
Gb assets: line 21(Commercial banks foreign assets)
Gb liabil.: line 26c(Commercial banks foreign liabilities)

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Country	F (G/F net)/ (X/Y)	G/F net	assets / ex. rate liab. + F	$1 =
	Go assets			
	1967 IV	1967 IV	1967 IV	1967 IV	1967 IV	1977 IV
Argentina	1092	1.37	0.11	0.19	3.5	1757.3
Australia	4495	1.89	0.28	0.28	0.895	3053
Belgium / Lux	350.5	0.78	0.28	0.46	49.63	
Bolivia	1192	0.88	0.18	0.33	11.88	4726
Brazil	15055	4.96	0.40	0.40	11.88	142.12
Canada	11.92	1.29	0.25	0.25	1.08	
Chile	3241	-1.15	-0.16	0.22	5.79	18856
Colombia	13112	-0.46	-0.05	0.12	15.82	69752
Costa Rica	832.4	-0.29	-0.07	0.18	6.62	1725
Denmark	21.21	0.65	0.19	0.25	7.462	9.76
Egypt	704.8	-1.01	-0.18	0.15	0.43	344.5
France	199.58	1.33	0.17	0.17	4.908	110.05
Germany	81.5	3.00	0.57	0.62	3.999	90.1
Ghana	241	-1.04	-0.18	0.28	1.02	250
Greece	44.03	2.34	0.21	0.21	30	42.83
India	51.01	0.17	0.01	0.07	7.547	38.91
Italy	18699	1.47	0.19	0.28	623.86	17836
Japan	13369	0.25	0.03	0.12	361.9	7057
Mexico	37.02	2.48	0.20	0.20	12.49	44.16
Netherlands	19.5	1.17	0.50	0.62	3.596	20.47
New Zealand	780.1	-0.21	-0.05	0.16	0.895	431.3
Nigeria	160.1	1.33	0.17	0.29	0.36	2765.5
Norway	12.21	0.94	0.39	0.47	7.15	12.22
Peru	16.53	2.65	0.42	0.42	38.7	43.83
Philippines	3345	-0.80	-0.14	0.23	3.92	11859

Rwanda	1473	-0.44	-0.05	0.33	100	7447
Sierra Leone	22.39	0.67	0.20	0.43	0.36	36.04
South Africa	499	3.85	1.00	1.00	0.72	883
Spain	565.2	1.36	0.14	0.14	69.7	486
Sudan	75.41	0.26	0.04	0.25	0.35	9.05
Sweden	17.14	1.72	0.38	0.44	5.165	17.04
Switzerland	32.8	1.68	0.49	0.49	4.325	36.37
UK	14691	-0.94	-0.17	0.06	0.36	7100
USA	191.9	1.29	0.08	0.08	1	19.3
Venezuela	5537	2.38	0.62	0.62	4.5	35167
Yugoslavia	23.08	0.15	0.03	0.15	12.5	41.6

Source:
IMF International Financial Statistics,
various years, as follows:
F: line 34 (Money supply)
G/F net: (Go net + Gb net) / F
X/Y: World Bank Development Report, 1979, 1985, 1989
Assets / (liab. + F): (Go assets + Gb assets) / (Go liabil.+ Gb liabil.+ F)
Exchange rate: local currency per us$ line aa

Note: All data given in local currency

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Country	Go liabil. 1977 IV	Go net 1977 IV	Gb assets 1977 IV	Gb liabil. 1977 IV	Gb net 1977 IV	F 1977 IV
Argentina	538.8	1218.5	507		507	3216.7
Australia	354	2699			0	11343
Belgium / Lux		247.9	940.2	1049.2	-109	748.5
Bolivia	662	4064	459	1610	-1151	7855
Brazil	2.46	139.66	19.49	95.76	-76.27	338.39
Canada		5.04	19.39	18.27	1.12	27.79
Chile	29432	-10576	3379	11489	-8110	18314
Colombia	226	69526	2432	17825	-15393	103503
Costa Rica	379	1346	345	73	272	4844
Denmark	0.38	9.38	15.85	12.99	2.86	58.83
Egypt	1706.6	-1362.1	1333	625.3	707.7	2943
France	2.01	108.04	257.28	280.94	-23.66	518.05
Germany		90.1	125.5	80.8	44.7	197.6
Ghana	181.1	68.9	7.2	16.7	-9.5	2384.5
Greece		42.83	15.81	80.23	-64.42	186.55
India	1.25	37.66			0	167.48
Italy	5721	12115	16103	20359	-4256	96876
Japan		7057	4452	8274	-3822	60786
Mexico	11.58	32.58			0	199.04
Netherlands		20.47	76.08	70.85	5.23	57.52
New Zealand	800.8	-369.5	127.1		127.1	1980.4

Nigeria		2765.5	225.1	25.2	199.9	5184.1
Norway		12.22	4.22	2.99	1.23	37
Peru	148.04	-104.21	18.28		-18.28	182.43
Philippines	5670	6189	6082	11123	-5041	14939
Rwanda	1489	5958	1292	23	1269	9355
Sierra Leone	40.91	-4.87	8.06	0.91	7.15	84.45
South Africa	935	-52	138	665	-527	4647
Spain		486	371	805	-434	2833
Sudan	228.76	-219.71	60.09	50.6	9.49	423.77
Sweden		17.04	18.85	19.43	-0.58	36.22
Switzerland		36.37			0	63.26
UK	8096	-996	87159	94183	-7024	23660
USA	0.6	18.7	75.6	71.4	4.2	342.5
Venezuela		35167	1393		1393	38477
Yugoslavia	29.6	12	16.5	45.8	-29.3	254.4

Country	(G/F net)/ Go (X/Y) assets	G/F net liabil.	G/F net liab. + F	assets /	ex. rate Go $1 = ...	
	1977 IV	1977 IV	1977 IV	1977 IV	1987 IV	1987 IV
Argentina	4.13	0.54	0.60	597.5	20020	40348
Australia	1.49	0.24	0.26	0.87	17439	
Belgium / Lux	0.39	0.19	0.66	32.94	365.6	
Bolivia	1.85	0.37	0.51	20	915	542
Brazil	2.34	0.19	0.37	16.05	739.9	743.1
Canada	0.92	0.22	0.53	1.09	10.65	
Chile	-6.00	-1.02	0.38	27.96		
Colombia	3.27	0.52	0.59	38.112	1182.9	11.7
Costa Rica	1.01	0.33	0.39	8.57	35484	14192
Denmark	0.72	0.21	0.35	5.78	67.07	0.8
Egypt	-1.11	-0.22	0.32	0.39	2646	6579
France	0.81	0.16	0.46	4.705	401	13
Germany	2.62	0.68	0.77	2.105	140.7	20.2
Ghana	0.31	0.02	0.10	1.15	57.5	184.41
Greece	-0.72	-0.12	0.22	35.5	476.4	
India	2.81	0.22	0.23	8.21	83.81	52.18
Italy	0.31	0.08	0.28	871.55	75333	127
Japan	0.38	0.05	0.17	240	11816	
Mexico	1.64	0.16	0.21	22.74	30306	11411
Netherlands	0.83	0.45	0.75	2.28	56.9	
New Zealand	-0.44	-0.12	0.20	0.98	4998.5	1447.6
Nigeria	1.79	0.57	0.57	0.65	4661	41
Norway	0.91	0.36	0.41	5.14	89.62	
Peru	-3.95	-0.67	0.13	130.38	34	31
Philippines	0.40	0.08	0.57	7.38	41.88	

	56.59					
Rwanda			0.77	0.80	92.84	11989	1758
Sierra Leone	0.13	0.03	0.35		1.05	3560	7850
South Africa			-0.12	0.16	0.87	6867	963
Spain	0.12	0.02	0.24	80.912	3617	
Sudan	ERR	-0.50	0.10	0.35	67.2	
	8438.2					
Sweden	1.62	0.45	0.64	4.67	50.29	0.04
Switzerland	1.55	0.57	0.57	2	49.38	
UK	-1.09	-0.34	0.75	0.52	61.53	9.36
USA	0.84	0.07	0.23	1	45.8	0.3
Venezuela	2.88	0.95	0.95	4.293	109442	
Yugoslavia	-0.38	-0.07	0.18	18.445	3204	7918

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Country	Go net 1987 IV	Gb assets 1987 IV	Gb liabil. 1987 IV	Gb net 1987 IV	F 1987 IV	(G/F net)/ (X/Y) 1987 IV
Argentina	-20328	4932	29845	-24913	12580	-35.96
Australia	17439	7473	16706	-9233	31218	1.64
Belgium / Lux	365.6	4943.9	6126.4	-1182.5	1088	-1.19
Bolivia ·	373	80	145	-65	502	4.38
Brazil	-3.2	254.8	576.4	-321.6		
Canada	10.65	63.93	87.33	-23.4	85.07	-0.58
Chile						
Colombia	1171.2	83.7	249	-165.3		
Costa Rica	21292	6017	1441	4576	42611	1.79
Denmark	66.27	167.75	159.1	8.65	235.4	0.99
Egypt	-3933	14581	8172	6409	18241	0.90
France	388	474	104	370	1318	2.74
Germany	120.5	367.9	207.8	160.1	365.7	2.40
Ghana	-126.91	4.78	8.66	-3.88	84.17	-7.77
Greece	476.4	235.8	1053.1	-817.3	1000	-1.62
India	31.63				543.17	0.83
Italy	75206	71462	103453	-31991	368.261	651.94
Japan	11816	48346	80041	-31695	102.973	-1485.00
Mexico	18895	6241	1752	4489	12627	26.46
Netherlands	56.9	206.15	193.17	12.98	103.71	1.30
New Zealand	3550.9	1391.7	1555.4	-163.7	6666.6	1.95

Nigeria	4620	3128	882	2246	14906	1.49
Norway	89.62	52.99	124.44	-71.45	152.63	0.33
Peru	3	10	7	3		
Philippines	-14.71	46.25	59.37	-13.12	52.38	
-2.31						
Rwanda	10231	2117	674	1443	17791	8.20
Sierra Leone	-4290	288	33	255	2889	
-1.55						
South Africa	5904	2101	4365	-2264	32026	0.39
Spain	3617	2804	3617	-813	8899	1.58
Sudan	-8371	1595.3	618.9	976.4	7510.3	
-12.31						
Sweden	50.25					0.00
Switzerland	49.38	202.61	140.55	62.06	84.02	3.79
UK	52.17	460.77	474.21	-13.44	91.91	1.62
USA	45.5	229.3	264	-34.7	765.9	0.14
Venezuela	109442	13501	5558	7943	133779	3.99
Yugoslavia	-4714	2534	14625	-12091	7644	-9.16

Chapter III
Currency area structure and patterns of

international financial intermediation

1 Introduction

In this chapter of the thesis I look at the influence of certain characteristics of the currency area structure of the international economy on patterns of international financial intermediation. The analysis will make use of certain concepts, including that of "the currency area structure of the international economy", and that of "external financial intermediation", which will be given explanation in some detail below.

The question being addressed in this section is the following: What features of a currency area might we be able to identify as giving rise to a tendency for residents of that currency area to make use of external financial intermediation rather than domestic financial intermediation? That is, are there identifiable structural features of a currency area which would tend to cause resident savers to prefer to hold their savings abroad, or in foreign denominated financial instruments, or both? If the resident saver of a currency area do have a preference for foreign financial instruments for reasons which do not necessarily affect foreign lenders in the same direction, then there is a basis for a market involving external financial intermediation. Borrowers in such a currency area would tend to be faced with the choice of paying their fellow residents a sufficiently high return as would persuade them to accept domestic financial assets, or alternatively of seeking to obtain finance on better terms in a foreign financial centre. In such circumstances it may be that the use of a foreign financial centre would be advantageous to both borrowers and savers. When this is the case, we have the profitable basis for a market in external financial intermediation.

In asking this question I am picking up a thread from an argument

which was offered by Ronald McKinnon in his 1963 article entitled "Optimum Currency Areas". McKinnon was exploring some ideas about how structural features of a currency area might cause a tendency for residents to export savings. The question seems worth exploring further for the light it sheds on ways in which the currency area structure of the international economy has been contributing to the patterns of international financial intermediation which have been evolving.

A second way of phrasing essentially the same question is to ask what features of a currency area might give rise to reasons for residents to prefer to use two currencies, or denominations, for the performance of the various functions of money rather than one, preferring foreign denominated financial instruments for the store of value function, while retaining the domestic currency as the medium of exchange. I will argue that there are advantages for wealth holders in using two currencies which are not obtainable through merely choosing the stronger of the two currencies for all monetary functions.

The most frequently offered explanations for the observed tendency for the wealthy in many countries to hold much of their financial wealth abroad run in terms of inflation rates, interest rates, and political instability. And indeed, these elements of explanation are undeniably indispensable. However, here my focus is instead on analysis of influences stemming from fundamental features of currency area structure.

In his 1963 article McKinnon offered an explanation for a tendency to prefer foreign financial assets which ran in terms of the relationship between the structure of production in the currency area and the structure of representative consumption bundles. The idea was that domestic currency denominated financial assets of a currency area which featured a high ratio of traded to non-traded goods, T/NT, would not offer a store of value in a "representative bundle of goods", and that residents would therefore prefer to hold financial assets denominated in a foreign currency which offered a store of value in a more

attractive bundle of goods. "...Thus we have capital outflows from countries where the need for capital may be rather high and which arise from 'monetary' rather than 'real' considerations." The implication for patterns of international financial intermediation is that capital outflows from such currency areas would tend to concentrate in financial centres situated in currency areas whose production structure featured the attractive bundles of goods, and that small currency areas would suffer a chronic shortage of capital.

The ideas developed by McKinnon in that article concerning the contribution of the production structure of a currency area to the ability of that currency to perform the functions of money have always struck me as immensely rich and valuable, and I think more can be drawn from them. However, in terms of explaining patterns of international financial intermediation, what this line of argument does not offer is an explanation for the reverse flows of foreign capital into the small currency areas.

McKinnon's line of argument could also be made to yield a somewhat different conclusion, as follows: McKinnon's conclusion was that residents of a small currency area would tend to export savings because they prefer to hold their savings in foreign currencies, thereby tending to cause a shortage of capital, on a "chronic" basis. However, we could argue that when capital scarcity pushes up local rates of return, innovative domestic financial institutions would find it profitable to develop a local market in financial instruments denominated in the more attractive currency. Domestic resident financial intermediaries may be supposed to have some informational and other advantages over foreign or non-resident financial intermediaries, and it may therefore be argued that they could compete successfully with foreign institutions for a good share of the domestic loan business. In other words, the factors identified by McKinnon could lead to the development of domestic capital markets on the basis of foreign denominated financial instruments, instead of just to the export of capital. If financial instruments denominated in the desired

currency are available at home, the desire to hold savings in a foreign currency need not, by itself, lead to capital export. Savers may prefer the wider array of financial instruments available in a major foreign financial centre of course, but this is a different line of argument.

Thus to reach McKinnon's conclusion actually needs another step in the argument: Having argued that savers who are residents of small currency areas would prefer foreign denominated financial instruments, we must then also explain why this preference leads to capital export rather than to the development of a domestic financial structure which makes use of foreign denominated financial instruments. Legal factors may be one reason; the attractions of a larger financial centre may be another reason. In fact, of course, we do sometimes observe the use of foreign denominated financial instruments, as well as the use of foreign financial centres.

In this thesis I make use of a simple principle of portfolio diversification to develop a further explanation for a tendency among residents of certain types of currency areas to prefer foreign currency denominated financial assets. The idea, taken from standard modern theory of finance, is simply that wealth holders take into account covariance risk when choosing among alternative financial assets. The covariance risk of present interest is that between the returns on wealth holders' major real assets and returns on alternative available financial assets. The argument is that wealth holders have an incentive to avoid financial assets denominated in domestic currency when the returns on their major real assets are closely related to exchange rate behaviour; that is, wealth holders have an incentive to choose financial assets denominated in a currency which has a high probability of appreciating against their domestic currency at the same times as the returns on their major real assets are low. A wealth holder who was the single exporter of the sole export item from his domestic currency area would be in this position in its most extreme form.

It should be noted that this argument is a "structural" one in the sense that wealth holders are pictured as having long term ties to their major real assets, as opposed to treating these real assets as freely tradable. Although there can be a variety of reasons for wealth holders to have long term ties to particular real assets, the most obvious case historically has been that of wealth holders whose social position and personal identity are tied up with the ownership of land. Indeed, the argument has particular force, as will be seen, when the ownership of the major real assets in question is associated with a sufficiently strong social position to give these owners significant influence in government policy.

The line of argument offers an explanation both for savings outflows and for reverse inflows, since the covariance risk considerations causing the outflows need not influence prospective foreign lenders in the same directions. Therefore it is possible for foreign lenders to find it attractive to offer finance to domestic borrowers at a lower price than domestic savers would find attractive. By contrast, explanations for savings export which are based on inflation rates, interest rates, political instability, or the T/NT ratio would apply with at least equal force to prospective foreign lenders, so that the reverse inflow characteristic of external financial intermediation is not thereby explained. A line of argument based on consideration of covariance risk, however, offers an explanation for a tendency for certain types of currency area not just to export savings, but to make use of financial intermediation conducted through foreign denominated financial instruments. Since financial intermediation conducted through foreign denominated financial instruments has tended to be concentrated in channels which run through major foreign financial centres, this line of argument does yield an explanation for capital flows in both directions between major financial centres and currency areas with these structural characteristics.

An implication of the argument is that when the international economy is divided into a large number of currency areas, many of which are

characterized by the particular features to be analyzed, there would tend to emerge a few major financial centres serving many of these currency areas, while the currency areas tending to use external financial intermediation would show relatively underdeveloped institutions specializing in domestic financial intermediation. The influences to be analyzed here should thus be seen as elements among what Kindleberger [1984] has called the "centripetal forces" in banking which tend towards the growth of major financial centres as opposed to the growth of similar financial structures in every country. The argument therefore offers a contribution towards the explanation of patterns of international financial intermediation in terms of the currency area structure of the international economy.

The argument that we can identify certain structural features which would give rise to a tendency for a currency area to use external rather than domestic financial intermediation is equally pertinent to questions about issues in financial structure and economic development, since it leads to predictions about characteristics of the financial structure which is likely to emerge in such currency areas. Some of these predictions will be considered here, and related to Goldsmith's [1969 and 1972] data on financial structure. Policies designed to foster the development of domestic financial intermediation would need to take into account the influence of structural features of the currency area which would lead residents to prefer external financial intermediation.

The concept of the "currency area structure of the international economy" was explained in detail in Chapter II. The present chapter builds on that concept. I will identify and discuss certain structural features of a currency area which would tend to give rise to the development of external financial intermediation at the expense of domestic financial intermediation. A simple cross country comparison of some of the structural features in question will be offered, together with some of Goldsmith's cross country data on financial

structure, with the claim that this comparison does lend support to the argument. Some more detailed statistical information will be given for the case of Argentina in Chapter V.

2 Covariance risk and external financial intermediation

Structural features of the type of currency area under consideration give rise to a preference among domestic savers for foreign denominated financial assets. Three structural features characterize the type of currency area in question. These features will first be described, and the reason why they give rise to currency type EFI will then be explained.

Consider a currency area with the following features:

(1) Earnings of foreign exchange are concentrated on the export of a single item, or of a very few items. These earnings are subject to fluctuations which are beyond the control of the exporters.

(2) The major real assets in the wealth portfolios of large wealth holders are in the export sector. By "real assets" I refer to such things as land and buildings and machinery, and other tangible assets which are used in the production of real output, and thereby yield an income to their owners; "real assets" are to be distinguished from "financial assets". As noted earlier, wealth holders are here treated as having a long term tie to their major real assets, as opposed to treating these as freely tradable. As indicated previously, the most familiar reason for this historically has been that the social position and identity of wealth holders has been tied up with the ownership of land. However, the major real assets might instead be a factory producing for export, or any other tangible productive assets.

Note that this feature derives from the distribution of wealth and income in the economy and not solely from the share of exports in national income. This feature would naturally tend to arise in an

economy which has experienced very rapid growth concentrated in the export sector, such as was the case for so many "primary export economies" during the period of rapid growth of international trade prior to WWI.

(3) The currency area features a tax structure which relies heavily on customs duties. Actually, this tax structure feature may be the consequence of the use of external financial intermediation (EFI) at least as much as it is a contributing cause, as will be seen. To the extent that the tax structure is influenced by EFI it could be argued that feature (3) derives from features (1) and (2). However, for the present it will be treated as an independent feature.

Next consider the reasons why features (1) and (2) result in covariance risk considerations giving rise to a preference for foreign denominated financial assets.

Implications of feature (1)

The implication of feature (1) is that fluctuations in the earnings on one individual item will have a significant influence on the total supply of foreign exchange to the currency area. In the case of a currency area which exports a single item, and ignoring capital flows and all other sources of foreign exchange such as inflows on factor services, etc., fluctuations in earnings on this export determine the total supply of foreign exchange. As the number of exports increases, if fluctuations in the earnings on each item are independent, then the probability of the total supply of foreign exchange rising and falling with the fluctuations in earnings on one individual item is reduced.[1]

When earnings on a single export item are thus strongly correlated with total foreign exchange supply, the probability of an exchange rate depreciation resulting from a fall in the earnings on an individual export item is also high, unless foreign exchange reserves are kept so high that a fixed exchange rate can always be maintained by drawing on these reserves. Thus the covariance of fluctuations in earnings on

each of these export items with exchange losses on financial assets denominated in the domestic currency would be strongly positive. Considerations of covariance risk would lead holders of such export sector real assets to prefer foreign denominated financial assets on which there is a high probability of exchange rate gains being made precisely in those times when returns on the export assets are in a slump.

In such a case, as in standard modern theory of finance, it would be rational for a wealth holder to choose a foreign financial asset carrying a lower expected return than those offered on domestic financial assets in order to achieve a desired reduction in the variance of the returns on his total wealth portfolio. Simple comparison of rates of return on domestic and foreign financial assets does not constitute an adequate assessment of the portfolio choice being made, any more than it does within domestic financial markets.

Now consider a borrower in such a currency area. If he issues financial instruments denominated in the domestic currency to these export sector lenders, he will have to offer a return that is sufficiently high to offset the covariance risk reasons for these lenders to prefer foreign denominated assets. Foreign lenders, on the other hand, will not necessarily be influenced by covariance risk in the same direction, and indeed may find these assets useful in their own pursuit of portfolio diversification. The borrower may therefore be able to obtain cheaper finance from the foreign lenders.

However, foreign lenders may be supposed to use the foreign currency as the unit of account when valuing returns on these assets, and therefore if domestic currency denominated assets are to attract foreign lenders, returns would normally have to cover exchange risk. Finance from foreign lenders may therefore be attainable on better terms through foreign denominated financial instruments, with the borrower assuming the exchange risk.

In order to borrow through a domestic currency denominated instrument, the borrower in this currency area thus faces the choice of

paying the domestic lender a high enough return to offset the covariance reasons for preferring foreign denominated assets, or paying foreign lenders a high enough return to cover exchange risk. Alternatively, he can assume the exchange risk himself, and offer a foreign denominated financial asset to either domestic or foreign investors.

Thus covariance risk considerations could lead to domestic savers lending to domestic borrowers through financial instruments denominated in a foreign currency. This financial intermediation could be achieved through domestic financial institutions, unless there were legal restrictions on enforcing contracts payable in foreign currency. As noted earlier, local investors and financial intermediaries are likely to have informational and other advantages over their foreign counterparts, so that they could profitably compete for a good share of this local loan business, if permitted to conduct business using foreign denominated financial instruments.

However, when issuing financial instruments denominated in the foreign currency, large borrowers are likely to find that better terms are attainable in a bigger market, so that they would choose to issue those instruments in a major financial centre rather than in a narrower domestic market. Similarly, savers may be attracted by the broader array of assets offered in a big financial centre.

Therefore these covariance risk considerations are likely to lead to external financial intermediation both in the sense of using financial instruments denominated in the foreign currency (currency type EFI) and in the sense of domestic savers and borrowers both making use of a major foreign financial centre (geographical EFI).

Implications of feature (2)

Feature (2) determines whether the covariance risk considerations deriving from feature (1) have significance for the economy as a whole. If these influences pertain only to a small proportion of the wealth holders, then even if these few do use foreign financial markets their

influence on the structure of financial intermediation patterns will be slight. On the other hand, if feature (2) is pronounced, external financial intermediation is likely to make a significant impact on the development of domestic financial institutions.

If feature (2) is sufficiently pronounced that these export sector wealth holders have a dominant position in determining government policy, then the familiar asymmetry between surplus and deficit positions in balance of payments adjustment introduces a further element into the situation which will accentuate the tendency for residents to hold foreign denominated financial assets. However, unlike the covariance risk considerations, this further element would apply with equal force to all prospective lenders, both domestic and foreign.

The asymmetry in question here is that it is possible to prevent exchange rate appreciation by hoarding foreign exchange without very definite limits, but it is not possible to prevent the exchange rate from depreciating when reserves are gone (and borrowing opportunities have been exhausted). It follows that it is possible for our export sector wealth holders to remove exchange risk on their holdings of foreign denominated assets through influencing the government's exchange rate policy such that the exchange rate is not allowed to appreciate. Then they have only to ensure that the exchange rate is allowed to depreciate during the downturns in foreign exchange earnings for the foreign denominated financial asset to become one on which they can win exchange rate gains but do not face risks of exchange rate losses (against the domestic currency). This is attainable because our wealth holders can themselves force a depreciation during the downturns in foreign exchange earnings by speculative buying of foreign exchange. Such an exchange rate policy of course makes domestic currency denominated financial assets less attractive to all lenders; it would therefore tend to increase the cost of borrowing in domestic currency denominated financial instruments.

Lest the description of this asymmetric exchange rate policy appear

unrealistic, I should point out that it has historically been characteristic of various economies. Prior to 1930, in Argentina, for example, the occasions when the exchange rate was fixed, by means of the issue of paper money in exchange for the purchase of gold, were in each case during periods when the domestic currency was appreciating against gold, and threatening interests in the export sector. Export sector interests in favour of a "soft", or depreciating, domestic medium of exchange have been discussed in a range of different contexts with reference to other economies also. De Cecco, for instance, discusses these quite extensively, with particular reference to India; the Indian case was also analyzed by Alfred Marshall. The same export sector preference for a "soft" medium of exchange are also described with reference to the Philippines in the 1904 "Report on the Introduction of the Gold-Exchange Standard" prepared by the US Commission on International Exchange.[2]

Reconciling the conflict of interest between producers and wealth holders: the asymmetric exchange rate policy and EFI

The combination of pursuing this asymmetric exchange rate policy and holding financial wealth abroad may be seen as representing a successful method of reconciling the conflict of interests between producers and holders of financial assets over exchange rate policy to which attention has often been drawn in the currency area literature. This conflict is that while producers benefit from the stabilization of nominal income against fluctuations in export earnings which is attainable through flexible exchange rates, financial interests lose through the resulting exchange risk. When the same wealth holders are both producers and holders of financial assets, how is this conflict to be reconciled? It can be reconciled through the use of two currencies, by holding savings in foreign currency denominated financial assets and pursuing the above asymmetric exchange rate policy. Thus in a downturn for foreign exchange earnings the depreciation of the exchange rate reduces the resulting contraction in nominal domestic income while at

the same time producing gains for wealth holders on their foreign denominated assets. There will be losers of course, but we have been considering the case when feature (2) is sufficiently pronounced that it is the gainers who are dominating government policy, with the help of the natural asymmetry between deficit and surplus positions in balance of payments adjustment.

Reconciliation of the conflicting interests of producers and holders of financial assets over exchange rate policy thus offers one line of explanation for the "two money strategy". Here we do have advantages in the use of two currencies for the functions of money which could not be attained by using the stronger of the two currencies for all monetary functions.

Implications of feature (3)

Next consider the implications of feature (3) on the choice facing our domestic wealth holders between domestic and foreign government bonds, on the assumption that both are issued in the same foreign currency.

The large share of customs duties in government revenues implies that government revenues will fluctuate with foreign trade. The combination of this feature (3) with feature (1) then implies that fluctuations on earnings on a particular export item will have a high probability of moving with government revenues. During depressions in international trade declines in export earnings will be accompanied by declines in government revenues. Since the ability of the government to pay its bondholders depends on the government budget, it follows that domestic government bond prices could have good reason to fall at the same time that export revenues are depressed. Indeed, a really severe decline in export earnings can make it very difficult for such a government to pay its bondholders.

Moreover, exchange rate depreciation increases the domestic currency costs of such debt service, so that government budget difficulties are aggravated. Thus there is a significant danger that the big downturns in export earnings will coincide with downturns in domestic government

bond prices, while I can not think of any reason to hope for a systematic negative covariance between these returns. Therefore covariance risk considerations would point towards a preference for foreign government bonds rather than domestic government bonds even when these are denominated in the same foreign currency. And again, these covariance risk considerations will not necessarily influence other lenders in the same direction, so that our domestic government is likely to obtain finance on better terms by floating its bonds in a major financial centre abroad than by offering them at home.

Thus features (1), (2), and (3) give rise to a preference for external financial intermediation as the consequence of covariance risk considerations. Moreover, since these considerations apply with particular force to the case when the government is the borrower, the above arguments lead to the prediction that the government of a currency area with these features would tend to borrow abroad, while the private residents of the currency area lend substantially to foreign governments.

Notes on feature (1)

The operational significance of feature (1) is the nature of the resulting covariance risk facing wealth holders with real assets in this sector. I have observed that this feature will fade as exports become more diversified on the important assumption that fluctuations in returns on different export items are independent. If, on the other hand, these fluctuations are not independent, then a currency area may have diversified exports and nevertheless display this feature of strong positive covariance between exchange rate movements and returns on individual real assets in the export sector, such that considerations of covariance risk lead these wealth holders to prefer foreign denominated financial assets. In the case of primary exports such as wool and corn, for instance, the assumption of independence is normally valid, since export earnings on corn are likely to be

dominated by the effects of the weather on the harvest in any given season, while earnings on wool depend on other factors. There is thus some hope that the effect of a bad corn crop on total export earnings may be partly offset by good earnings on wool; at worst there is no reason to expect a bad year for wool to coincide with a bad corn crop. However, there can be circumstances when this assumption of independence is not appropriate.

One reason why fluctuations in earnings on various export items would not be independent would be if the exports were all being sold in the same market, and if the normal cause of fluctuations in earnings was demand fluctuations in that market, as opposed to supply fluctuations caused by such things as weather. Consider for instance an economy which exports a variety of manufactured exports, the majority of these going to a single large market. Ignore supply shocks, and assume that fluctuations in export earnings are caused by demand fluctuations in that single large market. In this case, as in the case of the economy which exports a single item, wealth holders whose major real assets are in this export sector will face a high probability that the exchange rate will depreciate at the same time as the earnings on their export assets are down, so that covariance risk considerations would lead them to prefer foreign financial assets. If the downturns in that single large market are normally associated with high interest rates, then financial assets featuring variable interest rates, denominated in the currency of this large market, would prove particularly valuable to these export sector wealth holders, for portfolio diversification purposes. We should expect wealth holders with real assets in the export sector in a currency area of this type to take covariance risk into account when choosing among financial assets, and to choose to hold substantial financial assets in this large foreign market.

These considerations might, for instance, have relevance to Taiwan. A recent study by Maxwell Fry [1989], entitled "Taiwan's Current Account Surplus: Incipient Dutch Disease?", begins with a quote from Bela Balassa and John Williamson: "It does not make sense, in terms of

future development or current welfare, to place 20% of GDP in low-yielding foreign assets." Fry agrees with the general assessment that Taiwanese are choosing to hold foreign assets when domestic yields are higher. I would suggest the following questions might be asked: Does this portfolio choice result from Taiwanese wealth holders taking into account considerations of covariance risk such as those described above? How do returns on these foreign financial assets vary in relation to returns on domestic assets? It would be rational for Taiwanese to choose foreign financial assets with lower yields if holding these assets achieved a desired reduction in the variance of their total wealth portfolios; simple comparison of returns is not an adequate assessment of the choice.

Notes on feature (2)

It should be noted that, for an identical share of exports in national income, feature (2) may be more pronounced in one economy than in another, according to differences in the distribution of wealth and income within sectors, as follows. An economy which features a very egalitarian distribution of wealth and income within the export sector, but a very unequal distribution of wealth in other sectors, would not tend to have this feature (2), since in this case the economy may have large wealth holders but they are not in the export sector; in a relatively poor economy especially, an egalitarian distribution of wealth in the export sector would not give rise to large wealth holders in that sector. In this type of economy feature (2) might not be present even if the share of exports in income is large. By contrast, feature (2) would be most pronounced in an economy in which the distribution of wealth and income is most unequal in the export sector, and egalitarian in sectors producing for the domestic market. Although I can not offer cross country data on this feature, this latter pattern, of wealth distribution being more unequal in the export sector, was probably characteristic of many of the "primary export economies" prior to the great industrialization drives which began

during the depression of international trade in the 1930's. (See, for instance, Foreman-Peck [1983], Furtado [1976], Lewis [1978], and Munro [1976].) Among these primary export economies, this feature might have been more pronounced when exports derived from plantation production than when they derived from peasant production, although in the latter case great concentrations of wealth certainly did emerge among the export traders. One of the effects of industrialization drives has been to alter this feature, although often in such ways as have not reduced incentives to make use of EFI.

Notes on feature (3)

It was noted above that the tax structure feature, feature(3), may be as much consequence as cause of EFI. In this case it is geographical EFI which is particularly important. The tax structure of a currency area is influenced by EFI, and indeed restricted by EFI, for the following reasons: (a) EFI involves major domestic wealth holders holding much of their financial wealth abroad, which gives them the opportunity to avoid paying domestic income taxes on the earnings of that share of their income. (b) The other side of EFI is that domestic borrowers are selling financial assets abroad; such assets are more attractive to foreign lenders if they are not subject to taxation. Thus when a large share of financial intermediation is done through EFI rather than through domestic financial intermediation, serious difficulties arise for imposing an effective income tax system, and the government is forced to rely more heavily on revenues from customs duties.[3] Moreover, if the share of foreign trade in total income is falling but the share of financial intermediation done through EFI is not falling, revenues derived from international trade taxes would tend to be an increasingly inadequate source of government revenue. Pressures therefore emerge on the government budget towards increasing reliance on the inflation tax, which in turn will intensify pressures on residents to hold financial wealth abroad.

Why should the share of EFI not fall as the natural consequence of a

falling share of foreign trade in national income, since this would tend to involve a weakening of feature (2) above, as well as a decline in the T/NT ratio? The arguments developed here would suggest that the share of EFI would tend to fall with the share of foreign trade. However, much depends upon the historical circumstances causing the share of foreign trade to fall. In particular, if the change is precipitated by a major adverse foreign shock, there would be strong pressures on a government which depends on EFI towards policy responses which would intensify incentives for residents to hold foreign financial assets. The role of EFI might then not diminish. These pressures emerge in the following manner.

Consider an economy which has been using EFI such that government long term debt is held abroad and denominated in the foreign currency; the costs of debt service as measured in the domestic currency then depend on the exchange rate. Suppose that initially the government budget is balanced, and that the tax revenue structure is as feature (3). Now consider a sudden decline in export values due to world price movements, such that the equilibrium price of foreign exchange for this currency area has risen sharply. As is well known, the crisis of 1929/30 put many economies in this position. How is such a government to survive such a sharp rise in the domestic currency cost of its debt service as would result from allowing the exchange rate to depreciate to a new, much lower, equilibrium value? Suppose the price of foreign exchange would have to rise 30% to reach a new equilibrium, so that the cost of foreign debt service likewise rose 30%. To stay solvent, the government must suddenly increase its domestic currency revenues accordingly. Its customs revenues might also be denominated in the foreign currency, which would help, but help from this source would be offset by declines in the values of exports and imports. A government in such a position would be caught between the threat of its own collapse, on the one hand, if it tries to be too drastic in raising domestic revenues or cutting expenditures, and the threat of insolvency on the other, with foreign bondholders taking major losses. Therefore

such a government would be under considerable pressure to prevent the exchange rate from such severe depreciation via the introduction of controls on capital movements, on the exchange rate, and restrictions on imports. By these means the domestic currency cost of foreign debt service is reduced, and government solvency defended.

The policy response just described could be seen as a form of increasing taxation: the increased domestic currency cost of the debt service is in this case being paid by buyers of restricted imports and black market foreign exchange, as the prices of these items are driven up by the restrictions. This indirect method of meeting the increased domestic currency costs of external debt service may be politically much easier to implement than large and visible increases in taxation; large and visible tax increases have been known to precipitate the collapse of governments in the past, and may be quite impossible to implement. Also, this indirect method invites the support of large and concentrated interests which will be the beneficiaries of the quota rents, cheap official foreign exchange, etc., created by the restrictions, whereas the incidence of costs of the restrictions is more diffuse. Thus it is difficult to imagine the emergence of any politically powerful groups pressing the government to raise the needed revenues through less distortionary forms of taxation.

But the maintenance of an exchange rate which is above its equilibrium creates new incentives to hold savings abroad. And the larger the share of residents' financial assets which is held abroad, the larger the share of residents' income which escapes taxation, so that the weakness of the government's tax base is aggravated, and pressures to rely on the inflation tax intensified. Moreover, the more residents hold their financial assets abroad and the stronger their incentives to do so, the weaker must become the market for domestic currency denominated government bonds; therefore it is hard to see how such a government could reduce the foreign denominated share of its funded debt and thereby reduce the sensitivity of its expenditures to the exchange rate.

As the consequence of these pressures, a currency area which has been relying heavily on EFI as the natural and healthy market response to features (1) and (2), may emerge from the adjustment to a major change in international trade and relative prices in the manner just described. It is not at all obvious how a government in such a position might be able to escape (other than by letting its foreign bondholders take losses and defaulting on the external debt), although the destructive effects of the distortionary policies used to cope with such pressures have abundantly been observed in analyses of particular historical cases.

Thus the historical circumstances associated with a given decline in the share of foreign trade in national income are of critical importance in answering the question of why EFI might not fall with the share of foreign trade. And the subsequent evolution of the tax structure is not independent of the economy's historical dependence on EFI as just described.

Argentina offers an example of an economy in which the tax structure has evolved in precisely this way, to an extreme degree. The imposition of exchange controls in response to the 1929-32 international crisis has been described many times. (See for example, Diaz Alejandro [1970], Peters [1935], Quintero Ramos [1965], Prebisch [1932] and [1944], and Salera [1941].) The pertinence of the present argument to the formulation of these policy responses is indicated by the fact that in allocating the cheap official supplies of foreign exchange, government needs for external debt service were given first priority.

The magnitude of the effect of exchange rate depreciation on the domestic currency cost of foreign exchange may be illustrated by the September, 1932, figures: Cost of service of external national public debt in thousands of paper pesos: (a) at par: 94,854; (b) at actual rates of exchange: 131,832. At this time Argentine bonds were selling at about 50% of their face value in New York, but bondholders had been consistently paid.[4] In the Argentine case, the government was still at

this stage using gold held by the Conversion Bureau to service its foreign debt, and obtaining this gold at par; in effect the government took exchange rate gains on these gold holdings.

The figures given here show that the magnitude of the potential government budget problems resulting from the combination of EFI and adjustment to a major adverse foreign trade shock has not been exaggerated in the hypothetical case described above. The Argentine government budget position was already in difficulty prior to the crisis, and budget difficulties resulting from the economic crisis contributed to the collapse of the constitutional government, by military coup, in 1930.

The adverse effects on the Argentine economy of the policies of exchange and foreign trade restrictions have often been described. Among these have been intensified incentives to hold savings abroad. The entrenchment of interests built on the restrictions and consequent difficulties in reducing them, have also been discussed. In the Argentine case, to the pressures towards maintaining an overvalued exchange rate which derive from government budget implications of EFI are added pressures deriving from the fact that the country's major exports are basic foodstuffs, so that increases in the price of foreign exchange which push up the domestic price of exported items hit real wages hard. That this factor has been of considerable importance as an influence on exchange rate policy has often been persuasively argued. Nevertheless, influences deriving from the government budget implications of EFI have also been important.

An income tax was imposed in Argentina in 1931 as reliance on revenues from customs duties became increasingly inadequate, but effective collection of income taxes from a significant share of the population has never been achieved, so that the government still has to rely heavily on customs revenues and other indirect taxes, and persistent recourse to the inflation tax has been made in the post-WWII period. Recourse to the inflation tax and the associated depreciation of the currency have indeed stimulated savings outflows, weakening the

income tax base still further; at present only a tiny proportion of the Argentine population pays income tax, so that government revenue pressures on the customs duties and inflation taxes have been very severe, as is well known.

The historical evolution of the Argentine tax structure has been the consequence of many influences, and an adequate explanation of this evolution is certainly not being attempted here. However, there is a striking feature in the history of Argentine exchange and foreign trade policy which I do think the prior history of EFI helps to explain. This feature is that prior to 1930 Argentina was among the most open of economies, entirely free of exchange control and restrictions on capital movements, with a long history of strong dedication to free trade, while since 1930 the country has been noted for its protectionism and exchange controls. The sharpness and persistence of this policy reversal are very striking indeed, particularly when considered against the length and strength of the country's previous dedication to openness. The mechanisms I have described above in a hypothetical case do offer a possible approach to explaining such a remarkable and long term policy reversal. In applying these ideas to the Argentine case I have stressed the importance of other influences on exchange rate policy. Nevertheless, influences on the evolution of the tax structure deriving from the prior history and continued use of EFI do seem to be important.

For these reasons I would certainly not claim that the evolution of the Argentine tax structure has been independent of EFI.

More generally, while one might want to treat feature (3) as given and an independent third feature of a currency area at any particular moment, or for analytical purposes, it is surely not an independent feature in the longer view.

3 Currency area structure of the international economy: implications for patterns of

international financial intermediation

The considerations of covariance risk influences on choices made by wealth holders have very strong implications concerning the relationship between the currency area structure of the international economy and patterns of international financial intermediation. Consider two extreme possibilities.

Imagine first an international economy (call it structure A) which is divided into a small number of large currency areas, each of which exports an equally diversified range of items. For each of these currency areas, fluctuations on some of these items are largely due to supply shocks caused by such things as weather, while fluctuations on other items tend to be due more often to demand conditions. Fluctuations in earnings on individual items are approximately independent of fluctuations in the total supply of foreign exchange to the currency area, except in the case of fluctuations in the volume of international trade for the world as a whole. Assume each currency area pursues identical monetary policy, so that we can abstract from influences of differences in expected rates of inflation and the associated expectations of exchange rate movements. In such currency areas there would be no covariance risk reason for wealth holders with real assets in one of these export sectors to prefer foreign to domestic currency denominated financial assets, since the probability of gains from exchange rate movements coinciding with downturns in earnings on their real assets is approximately zero. Portfolio diversification could be adequately achieved through investing in the financial instruments issued by other domestic enterprises. In particular, investments in the issues of enterprises in sectors of the economy not directly connected with foreign trade would offer the advantage that fluctuations in the earnings on these assets might have some degree of independence from fluctuations in the total volumes of international trade.

An international economy with this first type of currency area

structure would not offer the basis for a market in external financial intermediation based on the considerations of covariance risk discussed in this chapter. On the contrary, the advantages, for exporters, of assets in non-traded goods sectors on which returns might be at least independent of returns on export assets, would be an influence tending to strengthen the basis for markets in domestic financial intermediation. In an international economy with this type of currency area structure, consideration of covariance risk influences would lead us to expect the development of domestic financial intermediation to be at least as strong as external financial intermediation, and give us no reason to expect any one particular currency area to emerge as a financial centre serving the others.

Now consider a second type of currency area structure, one which contrasts sharply with the first. In this version the international economy is divided into many small currency areas and a single large currency area. The small currency areas each display features (1), (2), and (3), above, while the large currency area displays none of these features; the large currency area features a diversified range of exports such as just described above for the first type of currency area structure. In an international economy with this type of currency area, the combination of the covariance risk influences with the advantages of a larger market would lead us to expect a major financial centre to emerge in the large currency area, and to expect the development of institutions serving external financial intermediation in each of the small currency areas to far outstrip the development of those serving domestic financial intermediation.

The currency area structure of the real world international economy is something between the two types described, and there are many other influences, notably striking differences in monetary policies and political stability, on patterns of international financial intermediation. Nevertheless, in very broad terms, we do observe patterns similar to those described. The many small economies with concentrated exports have a long history of using external financial

intermediation which has tended to be combined with much weaker development of institutions serving domestic financial intermediation. This use of external financial intermediation has contributed to the emergence of a few large financial centres which are situated in economies which do not display features (1), (2), and (3) above. This pattern will be discussed in more detail below, when we look at the Goldsmith data on financial structure in connection with statistical detail on features (1), (2), and (3).

4 Implications for characteristics of domestic financial structure

How can the above arguments be related to observable characteristics of domestic financial structure, so that a cross country study may be used to test the hypothesis that these features of currency area structure are important influences on the relative importance of EFI and DFI? I will look briefly at two possible approaches which I will not pursue, and then develop a third approach which will enable me to make use of Goldsmith's cross country data on financial structure.

One approach would be to begin with the observation that an economy which uses EFI to a substantial degree must be served by institutions which contribute to this process, and then to compare the relative prominence of such institutions in different countries with cross country information on the various features. In currency areas displaying these features we would expect to find important local financial institutions which borrow in the major foreign financial centres and on the basis of these funds distribute loans to domestic borrowers. However, the "institutions" which contribute to the outflows of residents' savings are often quite invisible because of the capital movements involved being illegal. The long history of such illegal acquisition of foreign financial assets makes the direct study of the institutional structure supporting this side of EFI quite impossible. The argument that currency areas displaying features (1),

(2), and (3) would tend to use EFI would, in the presence of a long history of restrictions on savings outflows, lead to the following further predictions: Financial structure in such currency areas would be characterized by well developed black markets and illegal channels for capital export, together with weak markets for domestic government bonds and domestic equity. Naylor [1987] has offered us a descriptive account of this aspect of EFI. While I do not deny that LDCs do tend to be troubled by well developed channels for illegal capital outflows as well as tending to have the structural features in question, I do not propose to develop this approach here.

A second approach would be to make use of a measure of EFI analogous to the sort of measures used by Goldsmith, and to compare this with Goldsmith's cross country data on financial structure. Construction of such a measure would involve summing the volumes of capital inflows and outflows, rather than using figures for net capital movements, since the process of EFI is netted out in these latter figures. A country which makes extensive use of geographical EFI would show relatively large gross capital movements, but not necessarily any substantial net capital movements; nor is there any reason to assume that extensive use of EFI would be associated with net capital movements in a particular direction. Analytically, comparison of the relative importance of EFI and DFI would be best served by using a measure of EFI based on information about gross capital flows. However, the availability of information, particularly in the face of a long history of illegal capital movements, is again a major obstacle. The cumulative effect of the inflow aspect of EFI would be visible in figures of external debt, while the accumulation of residents' assets abroad, which is the other side of the process of EFI, remains hidden. It is quite impossible to develop a new issue ratio or financial interrelations ratio for EFI which requires summing the volumes of inflows and outflows or the two sets of assets, when the outflow side of the process has been hidden to such an important extent.

It has already been noted that under these circumstances it is also

quite impossible to identify the direction of international net capital movements resulting from the use of EFI. An economy which looks like a spectacular international debtor might turn out not to be a net debtor, or even to be a net creditor, if there were full information about the outflow side of EFI. Studies of spectacular South American debtors have sometimes drawn attention to the accumulation of some of the types of foreign financial assets which were on the other side of the EFI process; however, figures for these foreign assets have necessarily excluded important ranges of assets, such as holdings of property and equity, on which statistical information is not available. Since these excluded assets are popularly known to be substantial, the available range of statistical information can not serve as a satisfactory measure of EFI.

The approach I will develop here is to return to the question posed in the currency area literature, of how structural characteristics of a currency area influence the ability of that currency to perform the functions of money. The functions of money are carried out through financial instruments and institutions of a wide range of types. Goldsmith has given us substantial statistical information on the structure of this range of financial instruments and institutions on a cross country basis. I propose to treat the Goldsmith data as information about the way in which the different currencies have been performing the functions of money in the different countries, comparing features of financial structure across countries and relating them to the structural features under discussion. I am ignoring the fact that the Goldsmith data does not include information about currency denomination of financial instruments, despite the relevance of the question; where domestic issues of foreign denominated financial instruments have been substantial the data is less relevant to the question at hand, but I do not believe the approach is fruitless, despite this difficulty.

The question addressed in this section of the thesis concerns the relationship between structural features of a currency area and the

ability of the currency to perform the store of value function. It will be recalled that I have been defining "currency area" as the geographical domain within which a particular currency has legal tender status, and that I have been using the word "currency" to refer to a denomination which includes a wide range of financial instruments. The currency performs the functions of money through the medium of the range of financial instruments denominated in that currency. The range of financial instruments denominated in the domestic currency reflects the range of monetary functions performed by that currency.

In a currency area which makes extensive use of external financial intermediation, we would expect the issue of domestic currency denominated financial instruments serving the store of value function to be low relative to the issue of domestic currency denominated financial instruments serving the medium of exchange function. An economy which is not much monetized would be expected to have low rates of issue for all types of financial instruments; on the other hand an economy which is highly monetized and financially sophisticated, but uses EFI extensively, relative to DFI, would show high new issue rates for financial instruments serving the medium of exchange function relative to the new issue rates for financial instruments serving the store of value function. While it is of course true that financial instruments cannot be so neatly divided into monetary functions, nevertheless I believe that the Goldsmith data on financial structure can be made to tell us something useful on this subject.

Goldsmith offers cross country data on the structure of new issue ratios for the main types of financial institutions.[5] What I suggest is that the issues of central and commercial banks are those which are to the greatest extent associated with the medium of exchange function, while the other types of institutions concentrate more on the issue of financial instruments designed to attract savers as a store of value. The crudeness of this categorization is readily acknowledged.

5 Empirical conclusions

I have mentioned that the three structural features which have been identified here as giving rise to incentives for using EFI are structural features which tend to be associated with LDCs as opposed to developed countries (DCs); the data given in Tables II.2 and II.3 will be seen to confirm this generalization for features (1) and (3). Data on feature (2) could not be offered however; as explained below, data on the ratio of exports to income is offered in these tables as a proxy for feature (2); it is an unsatisfactory and uninformative proxy, for the reasons explained in the notes on feature (2) above. Generalizations about the association of feature (2) with LDCs can therefore neither be confirmed nor denied by using the data in these tables.

As concerns cross-country differences in financial structure, one of Goldsmith's general conclusions is that the share in the total of new issues of financial institutions is greater for central and deposit banks in the less developed countries than for developed countries. That is, the types of financial institutions (central and deposit banks) which are associated with the provision of financial instruments serving the medium of exchange function have a relatively larger share in the total financial structure in LDCs than is characteristic of DCs. This is the pattern of financial structure which I have suggested would emerge if LDCs in general tend to make use of EFI to a greater extent than DCs. The interpretation of the pattern, following this line of argument, would be that the needs of the medium of exchange function are being met in LDCs by local financial institutions, whereas residents tend to make use of non-resident financial intermediaries (EFI) for financial instruments serving the store of value function; hence financial institutions serving the store of value function have remained undeveloped in LDCs relative to those serving the medium of exchange function. The Goldsmith data shows that this pattern has been consistently present, since the late 19th century, or early 20th

century, when the period covered by his data begins, so the pattern cannot be attributed to post-WWII policy changes.

This data tells us nothing about the volumes of capital inflows and outflows which geographical EFI involves, and without this information we can not know whether the relatively low issue ratios for the non-monetary financial institutions represent low financial savings relative to the monetization of the economy, or whether these low issue ratios represent the use of EFI as a substitute for DFI. However, the financial structure revealed in the Goldsmith data is at least consistent with the argument that these LDCs have shown a stronger tendency to make use of EFI than the developed economies.

Table II.1 gives data on financial structure taken from the Goldsmith books identified in the source note. The columns labelled A give the value of new issues for all types of financial institutions as a percentage of GNP, referred to as the "new issue ratio". The new issue ratio, A, for all financial institutions, is the sum of the new issue ratios for five different groups of financial institutions, data for only two of which are given here. The five groups used by Goldsmith are as follows: Ac, refers to central banks; Ab, refers to commercial (deposit) banks; At, refers to thrift institutions, such as savings and loans; Ai, refers to insurance organizations; and Ao, refers to miscellaneous financial institutions, among which mortgage banks have been of particular importance in certain countries (notably Denmark, especially, and also Argentina, Egypt, and Germany, each during particular periods only).

The data given in Table II.1a has been constructed from the figures given in Table II.1 in order to bring out the point mentioned above concerning the larger share of monetary financial instruments in the total new issue ratio for LDCs as compared with DCs. The data show the ratio (Ac+Ab)/A, i.e. the ratio of monetary new issues to total new issues of financial instruments. As shown in the table, the share of monetary financial instruments in the total new issue ratio is substantially larger for the group "average LDCs" than for the group

"average DCs", in both periods. (The figures for "average LDCs" and "average DCs" are as given by Goldsmith in the source indicated.)

Table II.2 gives data on the three structural features of a currency area which were identified above as, jointly, giving reason for a tendency to use EFI instead of DFI, particularly in the range of financial instruments which serve as a longer term store of value, i.e., the non-monetary range of financial instruments. Data is given for feature (1), export concentration (export conc.); for the ratio of exports to GDP, (X/Y); and for feature (3), the share of current government revenue derived from taxes on international trade and transactions (ITT). The figures given for export concentration are the values of the top three items (or group) as a percentage of total export earnings. The data on (X/Y) are given as a rather unsatisfactory proxy for feature (2), as well as in response to the suggestion from McKinnon [1963] concerning the openness of the economy and the issue of whether the domestic currency offers a store of value in a "representative bundle of goods".

Comparison of the data given on financial structure in Tables II.1 and II.1a, with the data given in Table II, does give a measure of support to the idea that the arguments developed above are pertinent to explaining the geographical pattern of cross-country differences in financial structure. The tables give figures for "average DC" and "average LDC" at the bottom. As I have just mentioned, for both periods the figure for the new issue ratio for all financial institutions is markedly higher for the "average DCs" than for the "average LDCs"; on the other hand the share of the central and deposit banks in this total new issue ratio, i.e. (Ac+Ab)/A, is higher in both periods for the "average LDCs". We can thus identify individual countries as having the "LDC type" financial structure by picking out countries which have these two features. I will do this by the method of picking out countries which have total new issue ratios (A) of 4 or less for the earlier period, and of 8 or less for the later

period; and which have a central and deposit bank share, (Ac+Ab)/A, of 70 or above in the early period and 50 or above in the later period.

The following 11 countries may be identified on these criteria as having the LDC type financial structure: Argentina, Brazil, Chile, Egypt, Greece, India, Mexico, Nigeria, Peru. Philippines, and Venezuela. In the more recent period, Argentina and Brazil show the LDC type structure only in the relative size of the central and deposit bank share of the total new issue ratio; an explanation of this pattern is suggested below. Mexico, on the other hand, has a figure for the relative share of the central and deposit banks which is in the DC range in the later period, while meeting the criteria used here for LDC type in other respects. It will be noticed also that certain developed countries (Belgium, Japan, Spain, and Switzerland) show high figures for the central and deposit bank share, in one or both periods, while showing total new issue ratios in the "average DC" range. Spain seems to be a sort of borderline case, since the total new issue ratio is on the low side of the DC range in both periods, while the central and deposit bank share in the total ratio is in the LDC range in both periods.

We can now use this categorization of countries by type of financial structure to relate the type of financial structure to the structural features which I have argued would tend to give rise to EFI. As a crude generalization, this exercise shows that the LDC type of financial structure does tend to be associated with features (1) and (3). Among the 11 countries identified above as having the LDC type of financial structure, only Mexico and India show export concentration percentages under 50%. By contrast, among the remaining countries listed in table II.1, only Australia, New Zealand, have export concentration percentages above 50%. As concerns feature (3), only three of the eleven countries have ITT shares of less than 10% (Venezuela, Brazil, and Greece), whereas among the remaining countries listed, only two (Switzerland, 16%, and Spain, 10%) have percentages of government revenue deriving from ITT as high as 10%. For Australia

and New Zealand, the two anomalies on the export concentration feature, the ITT shares are low, at 5.2% and 3.4% respectively. However, no identifiable pattern seems to relate the openness feature, (X/Y), to this data on financial structure. As concerns feature (2), as was explained above, the distribution of wealth in the economy is as important as the export ratio, so the (X/Y) data is an unsatisfactory proxy for feature (2). Therefore its failure to relate to the pattern of financial structure which appears in Table II.1 is not particularly informative concerning the relationship between feature (2) and financial structure.

The case of Brazil is particularly interesting in that, for the more recent period, the total new issue ratio A is in the DC range rather than the LDC range, while the structure of that issue ratio has continued to be of the LDC type, in having a large share for monetary financial instruments. This could be interpreted as the financing of investment expenditure through the (inflationary) issue of monetary financial instruments instead of through the issue of store of value type financial instruments, perhaps because resident wealth holders prefer to use EFI (in both geographical and currency sense) for financial instruments serving the store of value function. The real saving which is the counterpart of the investment expenditure is then imposed (as forced saving) by the inflation which results from the excessive issue of monetary financial instruments. In the more recent period, Argentina shows a similar pattern, which could be interpreted in the same way.

Argentina would not have been in the LDC type financial structure category, on either criteria, had I used the data given by Goldsmith for the earlier period, 1900-13, however: the figure given for A is 5.6, and the share of "central and deposit banks" in the total new issue ratio was 65.3%. The Goldsmith data thus identifies a sort of break in Argentine development as beginning with the first World War. It may be seen from Table V.1 that the rates of fixed capital formation in Argentina, which were extremely high in the period preceding WWI,

fell during WWI and have never returned to quite such high levels. It is beyond the scope of this study to speculate about what relation there might be between these two variables.

In Table III.3, data on the same three features is given for a larger group of countries. The strength of the association between features (1) and (3) stands out clearly in this table. The idea discussed above that feature (3) (the structure of government revenue), may not be independent of the other two features thus receives some support from the data given in this table. On the other hand, as above, no clear pattern appears concerning any relationship between the export ratio and the other two features. I would conclude from this that the openness of an economy by itself is not particularly important in determining the choice between EFI and DFI. As noted above, the pattern of wealth distribution is as important as the export ratio in giving rise to feature (2), so no conclusions can be drawn here concerning a possible relationship between feature (3) and feature (2).

The association of features (1), (2), and (3) with LDCs in contrast to developed countries is familiar, as has been mentioned above. The long history of the association of these structural features of currency areas with these characteristics of financial structure gives support to the idea that these phenomena are related in important ways. Moreover, the contrasts between the financial structures of these two main types of currency area were clearly visible long before the introduction of the distortionary (and inflationary) policies in the post-WWII period, associated with the various types of development drives, whose harmful effects on financial development have often been pointed out.

I do not for a moment deny the importance of policy differences, nor the fact that persistence in an inflationary policy can destroy the effective functioning of a financial structure. In Chapter III the influence of inflationary monetary policy on the relative predominance of EFI will be further discussed. However, as concerns the broad

patterns of international financial intermediation in the international economy as a whole, one would expect the geographical distribution of structural characteristics to dominate the geographical distribution of policy wisdom or error. As we have just seen, there has been a long history of the association of the structural currency area features identified above, with the international patterns of financial structure identified by Goldsmith; I would therefore argue that the influence of currency area structure on financial development is of considerable importance, and does indeed dominate the geographical distribution of policy wisdom or error. In Chapter III, however, I will be stressing the importance of policy measures which can be applied to overcoming the disadvantages of structural features which would tend to cause a predominance of EFI.

Notes

1. Capital flows and earnings on factor services may or may not be independent of earnings on individual export items, and their influence on the probability of the total foreign exchange supplies being correlated with movements in earnings on individual items would vary accordingly. I will not analyze here reasons why export earnings and capital flows have, historically, often moved together, as this has been analyzed by many people. Here the assumption is that the behaviour of capital flows and other sources of foreign exchange is such that the probabilities of earnings on individual export items moving with the total supplies of foreign exchange are not reduced.

2. De Cecco, Marcello, 1974. "Money and Empire". Oxford: Basil Blackwell.
Alfred Marshall, 1887. "Memoranda and evidence before the Gold and Silver Commission". Commission on International Exchange (1904).

3. This problem was discussed by H. E. Peters (1935).

4. Data from Economic Review, Banco de la Nacion, given in Peters (1935) pp. 148-9.

5. Raymond W. Goldsmith, 1969. "Financial Structure and Development". New Haven and London: Yale University Press.
—, 1972. "A Century of Financial Development in Latin America". Caracas, Venezuela: Banco Central de Venezuela.

Chapter III

Table III.1: Goldsmith data on financial structure

country	A 1914-29 1949-63	A 1949-63	Ac 1914-29	Ab 1914-29	Ac 1949-63	Ab
Argentina	2.9	9.6	0.87	1.27	2.51	4.12
Australia	5.2	8.5	0.58	1.85	0.6	1.76
Belgium	6.5	10.6	1.25	3.4	1.3	2.84
Brazil	4	19.5	0.81	2.84	8.7	6.32
Canada	7.4	10.1	0.25	2.83	0.31	3.06
Chile		7.7				
Colombia		8.7				
Denmark	7.4	11.8	0.25	1.96	0.2	4.84
Egypt / UAR	1.7	6.9	1.25	0.48	1.04	3.02
France	8.5	11.4	2.45	2.57	1.55	3.37
Germany	-2.9	12.8	0.66	0.17	0.92	2.17
Greece	5.7	9.3	1.53	3.28	2.77	3.39
India (b)	0.5	3.5	1.03	0.25	0.66	1.01
Italy	7.2	18.6	1.02	3	1.8	5.99
Japan	14	29.3	0.79	5.87	1.3	13.65
Mexico	-0.1	6.1	0.19	-0.49	0.93	1.02
Netherlands	5.9	13.5	0.61	2.62	0.65	2.39
New Zealand (b)	6.7	8.1	2.31	1.67	0.35	1.07
Nigeria (a)	0	1.8	0.06	0.03	0.67	1.07
Norway	9.8	8.8	0.56	3.02	0.14	1.07
Peru		7.15				
Philippines	1.5	5.2	0.24	0.95	0.97	1.97
South Africa	4.3	13.4	0.7	0.8	0.6	2.01
Spain	4.3	12	0.91	2.21	1.71	5.92
Sweden	6	10.9	0.4	1.99	0.7	3.12
Switzerland	12.2	20.4	0.69	6.98	1.63	10.03
UK	5.2	8.6	0.53	1.83	0.4	1.73
USA	7.8	9.6	0.43	3.53	0.13	2.54
Venezuela (c)	1.3	5.4	2.07	0.89	0.74	2.13
Yugoslavia (d)	0.7	21.5	0.24	0.79	4.86	-0.11
Average DC	6.81	13.34	0.68	2.76	1.11	3.95
Average LDC	2.55	6.8	0.72	1.35	1.83	2.86

Goldsmith data on financial structure

country	(Ac+Ab)/A 1914-29	(Ac+Ab)/A 1949-63
Argentina	73.79%	69.06%
Australia	46.73%	27.76%
Belgium	71.54%	39.06%
Brazil	91.25%	77.03%
Canada	41.62%	33.37%
Chile		
Colombia		
Denmark	29.86%	42.71%
Egypt / UAR	101.76%	58.84%
France	59.06%	43.16%
Germany	-28.62%	24.14%
Greece	84.39%	66.24%
India (b)		47.71%
Italy	55.83%	41.88%
Japan	47.57%	51.02%
Mexico	300.00%	31.97%
Netherlands	54.75%	22.52%
New Zealand (b)	17.53%	
Nigeria (a)		96.67%
Norway	36.53%	13.75%
Peru		
Philippines	79.33%	56.54%
South Africa	34.88%	19.48%
Spain	72.56%	63.58%
Sweden	39.83%	35.05%
Switzerland	62.87%	57.16%
UK	45.38%	24.77%
USA	50.77%	27.81%
Venezuela (c)	n/a	53.15%
Yugoslavia (d)		22.09%
Average DC	50.51%	37.93%
Average LDC	81.18%	68.97%

Source:
Figures for Chile, Colombia and Peru are from Goldsmith (1972) p. 100.
All other countries data from Goldsmith (1969) pp. 190-191, 218, 220, 226-227
Notes:
Some figures are for 1930-38, not 1914-29, as follows:
(a) all figures
(b) figures for Ac
(c) figures for A and Ab
(d) all figures; most recent figure for Ab is 1939-48
A is new issue ratio of all financial institutions (% GNP)

Ac is new issue ratio of central banks (% GNP)
Ab is new issue ratio of deposit (commercial) banks (% GNP)
"New issue ratio" means new issues of financial instruments as a percentage of GNP.

Chapter III

Table III.2: Cross-country data on structural features

country	export concentration (1965)	X/Y (1965)	ITT (1972)
Argentina	57%	8%	18.5%
Australia	52%	15%	5.2%
Belgium	16%	36%	1.0%
Brazil	57%	8%	7.0%
Canada	38%	19%	4.4%
Chile	85%	14%	10.0%
Colombia	85%	11%	20.3%
Denmark	28%	29%	3.1%
Egypt / UAR	81%	18%	18.7%
France	24%	14%	0.3%
Germany	25%	18%	0.8%
Greece	54%	9%	6.7%
India	42%	4%	23.5%
Italy	22%	16%	0.2%
Japan	34%	11%	
Mexico	33%	9%	13.1%
Netherlands	15%	43%	
New Zealand	81%	22%	3.4%
Nigeria	79%	18%	17.5%
Norway	26%	41%	1.6%
Peru	53%	16%	15.7%
Philippines	73%	17%	23.0%
South Africa	31%	26%	6.1%
Spain	20%	11%	10.0%
Sweden	28%	22%	1.5%
Switzerland	28%	29%	16.7%
UK	23%	20%	1.7%
USA	15%	5%	1.6%
USSR	18%		
Venezuela	99%	31%	6.1%
Yugoslavia	25%	22%	19.5%

Sources:
ITT, X/Y: World Bank Development Report, 1985
Export Concentration: Bird (1982) pp. 54-56
Also United Nations Yearbook of International Trade Statistics, 1965

Notes:
ITT is the percentage of current government revenue derived from taxes on international trade and transactions
X/Y is exports of goods and non-factor services as a percentage of GDP

Chapter III

Export concentration is the percentage of total export revenue
derived from the top three exports

Table III.3: Cross-country data on structural features

Country	(1972)	export concentration (1965)	X/Y (1965)	ITT
Venezuela	99%		31%	6.1%
Zambia	94%		50%	14.3%
Senegal	91%		24%	30.9%
Congo	90%		36%	26.5%
Chad	89%		23%	45.2%
Uganda	88%		26%	36.3%
Sudan	87%		15%	40.5%
Uruguay	87%		19%	6.1%
Chile	85%		14%	10.0%
Colombia	85%		11%	20.3%
Ghana	85%		17%	40.8%
Ethiopia	83%		12%	30.4%
Egypt	81%		18%	18.7%
Malawi	81%		16%	20.0%
New Zealand	81%		22%	3.4%
Bolivia	80%		17%	46.0%
Nigeria	79%		18%	17.5%
Malaya	77%		44%	27.9%
Indonesia	75%		5%	14.3%
Philippines	73%		17%	23.0%
Nicaragua	72%		29%	24.3%
Costa Rica	71%		23%	18.1%
Guatemala	70%		17%	26.2%
Honduras	68%		27%	28.2%
Paraguay	58%		15%	24.8%
Argentina	57%		8%	18.5%
Brazil	57%		8%	7.0%
Greece	54%		9%	6.7%
Tanzania	54%		26%	21.7%
Peru	53%		16%	15.7%
Australia	52%		15%	5.2%
Kenya	51%		31%	24.3%
Canada	38%		19%	4.4%
Mexico	33%		9%	13.1%
South Africa	31%		26%	6.1%
Denmark	28%		29%	3.1%
Sweden	28%		22%	1.5%
Switzerland	28%		29%	16.7%
Norway	26%		41%	1.6%
Germany	25%		18%	0.8%
France	24%		14%	0.3%
UK	23%		20%	1.7%
Italy	22%		16%	0.2%

Spain	20%	11%	10.0%
Belgium / Lux.	16%	36%	1.0%
USA	15%	5%	1.6%

Sources:
ITT, X/Y: World Bank Development Report, 1985
Export Concentration: Bird (1982) pp. 54-56
Also United Nations Yearbook of International Trade Statistics, 1965

Notes:
ITT is the percentage of current government revenue derived from taxes on international trade and transactions
X/Y is exports of goods and non-factor services as a percentage of GDP
Export concentration is the percentage of total export revenue derived from the top three exports

Chapter IV
Implications of using

an imported money supply

1 Introduction

In Chapter II I have developed a theoretical framework for analysis of cross-country differences in the "required", or long run equilibrium, share of the imported component of the money supply. I have denoted this share as (G/F)*. In the present section I will make use of this theoretical framework to explore some of the implications of this restriction on the imported share in the money supply.

This framework will enable us to analyze the proposal that countries with soft currencies and intractable inflation problems should change to using an imported money supply, or at least to an imported monetary base as in the currency board system. Many of the world's smaller (or poorer) countries have experienced intractable problems of monetary instability and capital flight associated in the post-WWII period with unsuccessful attempts to manage a monetary system based on a larger domestic credit component of the monetary base than had been maintained during gold standard or currency board days. In some of these economies "dollarization" has been quite severe. It is often argued that these economies should return to a Type II (currency board) monetary system. Eastern European countries which are presently opening their doors to western capital, and to western banks, are confronting similar questions of monetary system. Western banks may prefer to deal in hard currencies, and may perceive a Type II system as being in everyone's best interest. Analysis of the implications of using an imported monetary base is pertinent to all of these policy decisions.

The analysis offered here is also pertinent to economies which have undergone significant change in the imported share of the monetary base, or in any of the factors which have been identified by this

theory as determining the required structure of the monetary base. In short, it has a very wide application.

To illustrate the application of this theoretical framework, the analysis of this section will focus on three questions:

(1) What are the implications of using a completely imported monetary base, as in the Type II (currency board type) system which is sometimes advocated for "soft currency" countries?

(2) What are the implications for an economy of significant change in the required foreign share of the monetary base? The case of an increase in (G/F)* will be analyzed.

(3) What are the implications for an economy of a fall in the traded share of national output unaccompanied by a fall in (G/F)*? The analysis developed in Chapters II and III of this thesis identifies reasons why this can occur, which will be explained. I believe this question to be pertinent to the many countries which have, in the post WWII period, been pursuing import substitution industrialization policies associated with substantial restrictions on trade and capital flows. In particular, I believe it to be pertinent to the case of Argentina; the Argentine case will be examined in some detail in Chapter V.

The section begins by setting out the theoretical framework which has been developed in Chapters II and III, and elaborating on certain aspects of that framework.

Theoretical framework

The theoretical framework developed in Chapter II identified the following factors as influencing cross-country differences in (G/F)*: (1) the relative predominance of EFI in comparison with DFI, which I

denote as (EFI/DFI); (2) the share of imports in national expenditure, M/Y; (3) the variability of the trade balance, for which I have been using export concentration as a proxy, denoted (cov) in Chapter III; and (4) the ratio of net debt service, S, to national income, S/Y. In referring to G/F in Chapter II we had been implicitly expressing G, M, S, etc. in domestic currency. Now it is necessary to be explicit, and we will instead define G (and these other terms) as expressed in the foreign currency, so that the ratio we have been using becomes instead (eG/F)*, where e is the domestic currency price of a unit of G. Denoting (eG/F)* as "b*", for brevity, we have, therefore, the following:

(4.1) b* = (eG/F)* = f(EFI/DFI, M/Y, cov, S/Y)

In Chapter III EFI/DFI was seen as determined by the expected real return on alternative financial instruments, net of anticipated exchange losses, as well as by the structural features of an economy which were discussed in that context, and which included both M/Y and export concentration, "cov".

We now make the following assumptions:

(4.2) F = kY

(4.3) P = (PtT + PntNT) / (T + NT)

where P is a price index; Pt and Pnt are prices of traded and non-traded goods respectively, both expressed in terms of the domestic currency. T and NT are quantities of traded and non-traded goods respectively.

(4.4) dG = (X-M - S + K)

where X-M is the current account (except for returns to capital), S is net debt service payable abroad, and K is net capital inflow. X,M,S, and K are all expressed in the foreign currency.

(4.5) dG = dGo + dGb + dGp

or, for brevity,

(4.5a) dG = dGo + dGbp

where dGbp = dGb + dGp;

(4.6) Y = PQ

where P is as defined above, and Q = (T + NT).

(4.7) Pt = ePt*

where Pt* is the foreign currency price of traded goods. Foreign currency prices of both imports and exports are assumed to be determined in foreign markets, and to be independent of the exchange rate e.

Making use of (4.1) and (4.2) gives a relation between the imported money stock and nominal income:

(4.8) eG* = b*kY

Denoting the actual ratio (eG / F) as "b", we portray the actual relation at any particular moment as:

(4.8a) eG = bkY

Chapter IV

In Chapter II no interpretation was offered for the relationship between the total nominal money supply and nominal income, expressed as $F = kY$; k was simply defined as $k = F/Y$. Here however it is necessary to place some interpretation on the relationship because of the role k will have in the subsequent analysis.

The interpretation of the relationship $F = kY$ used here derives from the models developed by Gurley and Shaw in their book "Money in a Theory of Finance".[1] Following Gurley and Shaw money F is held by both households and firms. Liquidity for firms is seen as making some real contribution to the efficiency with which factor inputs can be transformed into output. Real money, or liquidity, thus enters into the production function, and has a real marginal product. This marginal product is assumed to be diminishing in relevant ranges; the marginal product is here assumed to fall to zero quite sharply as real money supply is increased beyond some $F = k^*Y$, to avoid the implausible implication that an increase in real money could by itself lead to substantial increases in real output. On the other hand, losses in real output caused by negative shocks to liquidity are not ruled out; at levels of liquidity under $F = k^*Y$ real output would be less than the level achieved at $F = k^*Y$. Since money enters the production function as a complementary input, growth in the supplies of other factor inputs will increase the marginal product of real money at any given level of real output. Following Gurley and Shaw, we assume that firms equate the value of the marginal product of money balances to the cost of holding these balances.

This gives the following production function:

$$(4.9)\quad Q = q(K,L,R,k)$$

where k is the liquidity term, defined as above; K is internationally mobile capital, L is internationally mobile labour, and R is "land", in which term is included all factor inputs which are not internationally mobile. The term R thus includes labour which is immobile

internationally due to restrictions on labour migrations (or for other reasons), as well as such things as immovable infrastructure, and land itself. Returns to internationally mobile factors are assumed to be determined abroad, like prices of traded goods, while returns to the fixed factor, R, are residual. The distinction is analytical rather than descriptive: an individual person or item may have an element of the mobile and an element of the fixed, with actual returns neither "horizontal", as in the mobile factor case, nor "vertical", as in the fixed factor case.

I assume the production function to be identical for both traded and non-traded sectors. This assumption is not intended to be realistic; differences in the range of technologies available to the different sectors are often described, and considerable importance has been attached to such differences. However, my purpose here is to analyze the implications of the assumption made here about the role of money, in the context of a model in which the marginal rate of transformation between traded and non-traded goods is not constant. I assume the production function to be identical for both sectors for the purpose of focusing attention on the role of money. This approach yields some new perspectives on observed differences between traded and non-traded goods sectors which I have found very illuminating, and which also have important policy implications.[2]

Analysis of the role of money seems particularly important in view of the fact that the facilitation of access to foreign technologies, via imports of foreign capital, is often stressed as a reason for adopting a Type II monetary system. This framework shows that adopting the Type II system, as opposed to using a Type IV system, would alter the way in which resources are allocated between the sectors. If these effects are not taken into account, the results of importing capital and technology may turn out rather differently than had been either anticipated or desired.

Households are assumed to equate marginal utilities of goods and monies. Portfolio choice between alternative financial assets, including money, is assumed to be as discussed earlier in the thesis: some households hold domestic currency only, others are "diversifiers" and hold both domestic currency and the imported money.

Firms, like households, can hold either domestic currency only or a combination of domestic currency and the imported money. Gp refers to balances of the imported money held by either non-banking firms or households.

As noted above, this formulation of the production function implies that in increase in the supply of other factor inputs would increase the productivity of money; likewise, as also noted, technological progress which enhanced the productivity of other factor inputs could also increase the productivity of money. These implications are in accordance with the "demand-led" explanations of banking and monetary development which have been put forward in studies of banking and monetary history. We could, for example, interpret the money creation of the English country banks of issue in the 18th and 19th centuries as a response to a rise in the productivity of money brought about by the technological advancements of the industrial revolution. Similarly, we could interpret the rapid expansion in the 19th century of money creation by banks of issue in both the USA (prior to the Civil War) and Argentina as a response to increases in other factor inputs, K, L, and R, as the value of R (land resources especially) was raised by the fall in ocean shipping costs (among other causes).

In the economic history literature there have also been "supply-led" arguments developed, in which financial innovations have been portrayed as bringing factor resources into more productive use and thereby taking an active, leading, role in propelling economic development. These arguments also fit easily into this formulation of the production function: we can portray them as altering the productivity of money in relation to other factors such that k* may change, or there may be a

change in the structure of the money supply such that the more productive forms of money increase their share in the total supply. Successful banking innovations, for instance, have historically resulted in an increase in the share of bank money in the total money supply. In terms of the identity which I have been using here to portray the structure of the money supply, if this were domestic banking development, it would appear as a fall in g, tending to reduce the imported component of the money supply.

The formulation of the production function used here thus fits in neatly with major lines of argument which have been well developed in existing economic history literature.

This framework can now be used to address the questions indicated above.

2 What are the implications of using a completely imported monetary base, as in the Type II (currency board type) system?

The comparison being assumed here is between the Type II system, in which H = eGo, and a Type III or Type IV system, in which H > eGo. I repeat the identity used in Chapter III, but now with G defined as expressed in the foreign denomination:

(4.10) $F = eGp + [(eGo / W) + eGb] / g$

Since the Type II system has W=1, whereas in the Type III and Type IV W < 1, the difference which a change to a Type II system brings about in the total imported share of the money supply depends on whether changes in g are induced by the change in W. If there is no induced change in g, then the change to a Type II system increases the imported component of the money supply. As indicated in Chapter II, it could be that there would be an increase in confidence in H sufficient to enable low-

powered bank money to displace Gp to such an extent that the total imported share in the money supply could fall. However, I will consider the case in which the change to a Type II system raises eG/F.

I assume that this policy change to a Type II system brings the actual ratio eG/F up to a level at least as great as (eG/F)* (and maintains eG/F at or above this level), so the concept of (eG/F)* will not enter into the discussion of this question.

The cost to the economy of the imported component of the money supply would be reduced if G is held in interest bearing form, as noted in Chapter III. If Go is held largely in interest bearing form, and if the change to the Type II system enabled H to displace non-interest bearing forms of Gp and Gb (such as, for instance, the US$ bills which mingle with the linen in Buenos Aires chests of drawers), a substantial reduction might be achieved in the cost of G.

We can make use of the above framework to identify changes which are implied by the rise in eG/F, and which will have to occur, in some combination, by some means or other.

We have seen, in (4.8a), that eG = bkY, and we are considering the case of an increase in the total imported share of the money supply , eG/F, denoted here as b. Since (4.8a) is an identity, we can use it to identify the possible range of changes implied by an increase in b. Total differentiation of this identity gives the following expressions:

$$(4.11)\quad de(G) + dG(e) = db(kY) + dk(bY) + dY(bk)$$

$$(4.11a)\quad db = [de(G) + dG(e) - dk(bY) - dY(bk)]/kY$$

These expressions show us that a rise in b (caused here by the policy change to a Type II system) implies either a rise in eG or an offsetting fall in kY, or some combination of the two. As for the rise in eG, this may occur through a rise in e or a rise in G or through some combination of the two. Likewise, the fall in kY may be achieved by a fall in k, or by a fall in Y, or by some combination of both.

Furthermore, since Y = PQ, a fall in Y itself includes a range of possibilities: this could occur through a fall in P or a fall in Q, or some combination of the two. A fall in P has further implications which we will examine in a moment.

I will consider changes in the terms k,e, and G sequentially, implicitly holding all the other terms constant except where there is a direct relationship.

The interpretation I have given to the relation F = kY implies that a fall in k would reduce Q, since the marginal product of real money is assumed positive at this point. The assumption of the diminishing marginal product of money implies that as k falls the marginal product of money would be rising. It also implies a fall in the productivity (i.e., a "downward shift" in the marginal product function) of other factor inputs; the reduction in firms' liquidity is reducing the efficiency with which factor inputs are transformed into output. Since an imported money supply is more expensive, and, following Gurley and Shaw [1960], I have assumed firms to equate the value of the marginal product of money to the marginal cost of holding it, it may be that the change to a more expensive money supply might be associated with a fall in k. However, this reduction in liquidity is likely to be concentrated in the non-traded goods sector, as will be seen below.

Let us now hold k constant and consider other possibilities.

With k constant, we are left with the possibility of increasing the imported component of the money stock, eG, sufficiently to maintain the total quantity of money, F, constant, or with a fall in Y, or some combination of the two. Let us first consider the case of a change in e, the exchange rate, revaluing existing stocks of G to such an extent as to achieve the requisite ratio H = eGo, and eG = bkY.

A rise in e would tend to raise the price level P via the term Pt, since Pt = ePt*, and Pt* is fixed. With output Q unchanged this would raise Y, and with bk fixed, eG would have to rise again. However, I want here to analyze characteristics of a new equilibrium position, with the higher level of b associated with the new monetary system, so

Chapter IV

I will assume Y to be unchanged by the revaluation of G. From (4.3) we observe that the tendency for P to rise via the rise in Pt may be offset by a fall in the prices of non-traded goods, Pnt. Since the rise in e raises Pt, a change in relative prices in favour of traded goods (a rise in Pt/Pnt) is indicated; if the rise in e is a large one the increase in Pt/Pnt would likewise be large. There are of course income distribution implications of changes in Pt/Pnt, to which I will return.

I say that a rise in Pt/Pnt is "indicated", when e rises, advisedly: the identity eG = bkY shows us that if Q were to fall sufficiently the new equilibrium position could be achieved without any change in relative prices, with P rising through both Pt and Pnt but Q falling to offset the rise in P and maintain Y constant. Put differently, some combination of a rise in Pt/Pnt and a fall in Q would be required to maintain Y constant and achieve the new ratio eG / Y = bk, as b is raised. If a fall in output Q is to be avoided, with Y held constant, prices of non-traded goods, Pnt, must fall sufficiently to offset the effect on the price index P of the rise in Pt. The implications of a rise in Pt/Pnt will be considered further below.

The revaluation of G would also have the wealth distribution effects discussed in detail in Chapter II: net holders of G gain while net holders of stocks of H or other domestic currency denominated assets (including contracts such as wage contracts, etc.) lose; "diversifiers" gain at the expense of the "single currency strategy" group. If, as is probable, expenditure patterns differ between losers and gainers, these changes in wealth distribution will alter the structure of demand and require a host of adjustments in production structure at the micro level. These changes would bring disagreeable shocks to some and open up new opportunities to others, frictional unemployment very likely rising during an adjustment period. Adjustments within the production structure to changes in the micro structure of demand caused by the change in wealth distribution would be in addition to the more general adjustments necessitated by the rise in Pt/Pnt. However, if we assume

our new equilibrium, under the new monetary system, to be independent of the adjustment path, these adjustment traumas are not pertinent to the present analysis.

Before going into detail concerning the implications of a rise in Pt/Pnt, let us suppose that instead of revaluing existing stocks of G (by raising e), the stocks of G are increased via government purchase. Assume the exchange rate e to be held fixed, and nominal income Y to be held fixed, so that the adjustment to the rise in b is entirely through a rise in G. We must, however, also assume that this increase in G is not a gift from abroad, but purchased, in this case by the government. Can the change in relative prices, with the associated changes in income distribution, be avoided by this means? Unfortunately for fixed factors in the non-traded goods sector, the answer to this is no, except under improbable special circumstances: the fact that G is imported means that increments to the stocks of G compete with other items in the balance of payments for available foreign exchange. Unless these imports of G are entirely at the expense of other traded items, the structure of demand is altered by the addition of the demand for these imports of G to demand for other traded items; when the production possibilities frontier between traded and non-traded goods is not a straight line the change in the structure of demand yields a change in relative prices Pt/Pnt. I repeat (4.4) for clarification of this:

$$(4.4)\quad dG = (X-M - S + K)$$

Costs of increasing the imported share of the money supply and implications for relative prices Pt/Pnt

From (4.4) it may be seen that unless the imports of G are entirely at the expense of reduced domestic expenditure on other traded items, the expenditure on G alters the structure of expenditure in favour of traded goods. Historically, increments to the imported component of

the money stock have been obtained through imports of capital, as I have mentioned in Chapter II; here it can be seen that the required dG could be obtained by an increase in K. However, if the increase in G is achieved through borrowing abroad, there will be a rise in S in subsequent periods. Increasing the stock of G relative to the share of the money supply which is produced by domestic financial intermediaries constitutes a shift in the composition of expenditure on financial services in favour of an imported item; in the course of time the change in the composition of expenditure in favour of traded goods must make itself felt in the relative price structure, pushing Pt/Pnt up.

Furthermore, as income grows year by year, increments to the money stock will continue to generate a larger demand for imports of G than would be the case if a larger share of the money supply were produced domestically, by domestic monetary institutions or financial intermediaries. This can be seen clearly from (4.8a):

(4.12) (dG / dY) = bk / e (assuming db = dk = de = 0).

This change in monetary system in effect constitutes a permanent shift away from domestic suppliers of money services in favour of foreign suppliers. As in the case of any large shift in expenditure in favour of foreign suppliers, the consequence is to push up relative prices Pt/Pnt. The stock of money is a large item; the effect of a shift to a foreign supplier of a significant share of such a large item must have significant impact on relative prices.

As noted above, the cost would be lower if G is held in interest bearing form. In this case, the cost would be reduced to the difference between borrowing and lending rates, i.e. the cost of importing the financial services concerned, as I have noted in Chapter II. [3]

The increase in imported financial services associated with the change to a Type II system could still come to a large sum for a poor economy; if the economy is already feeling overburdened with balance of

payments pressures and external debt these additional pressures could be less than welcome.

These imported financial services are competing for available foreign exchange (or loans) with items such as imported capital equipment for which the contribution to the real productivity of the country's fixed factors may be very much larger. Since these imports of G do tend to come from the same hard currency countries as do the imports of capital goods, this is certainly a possibility that should be considered carefully. Since the change in the structure of the monetary base under consideration here is a policy decision, it cannot be assumed that the allocation of a share of available foreign exchange in this way would be such as to equate the marginal product of available resources in alternative uses, as we might want to assume if the structure of the monetary base were left to market forces.

The possibility that the increased imported financial services may be using foreign exchange which would be more productively employed in the purchase of imported capital equipment from these hard currency areas might seem blindingly obvious, especially in countries where hard currencies are perceived as very scarce. The recent study by Michael Bleaney on "East European Economic Growth and Convertible Currency Imports, 1971-86" [4] may be construed as providing some confirmation of this possibility. I quote Bleaney's abstract: "Constant returns to scale Cobb Douglas production functions were estimated in first difference form for gross industrial production and the net material product of six east European countries and the USSR. The volume of imports from the convertible currency area was entered as a factor of production along with capital and labour. Output was strongly correlated with [these] imports in Poland and Rumania, and weakly correlated in Hungary and Czechoslovakia. The downward trend to total factor productivity growth apparent throughout the area during the 1970's appears to have been halted since 1980, except in Bulgaria and Hungary." Since technological leadership in capital goods has tended since the 19th century to be in the countries whose currencies have

been used as reserve currencies [5], a positive relationship between the volume of imports from these areas and total factor productivity is not surprising.

"Scarcity" of a currency of course means that demand for that currency is tending to push up the relative price of that currency to such an extent as is deemed intolerable, so that some form of rationing is preferred. Referring to the post WWII period of "dollar scarcity", for instance, it has been observed that there would have been no "dollar scarcity" if only the price of the dollar had been allowed to rise sufficiently to clear the market. The notion that a change to a Type II monetary system would be absorbing "scarce" hard currencies which would be more productively used in the purchase of capital goods thus brings us back to the question of the implications of a rise in relative prices, Pt/Pnt, which I had said would require further examination.

Relative prices Pt/Pnt and the allocation of the money stock between sectors

The assumption that the use of money enables factor inputs to be more efficiently transformed into output, i.e., that real money enters into the production function, has implications concerning the effects of changes in Pt/Pnt which I believe to be of considerable importance. This assumption is commonly used in literature on the role of financial development in economic growth, and it is an assumption which I consider to be eminently realistic, usefully illuminating many historical and current real world experiences. As I indicated earlier, it is a formulation which fits neatly with certain very well developed lines of argument in the literature on economic and financial history. The use of this assumption jointly with the distinction between traded and non-traded goods, together with the other (all very ordinary) assumptions I have made here, enables us to achieve a theoretical explanation for certain real world phenomena which I had for a long time found both fascinating and unsatisfactorily elusive at a

theoretical level. I have not seen anyone comment on these particular implications of this assumption before.

One of these puzzling historical experiences has been the persistence of subsistence farming and other forms of non-market activity in which there would seem to be enormous possibilities of gains through specialization and exchange, through the use of monetized markets. (See, for instance, Munro [1976] and Todaro [1985].) Sometimes "irrational behaviour" is offered as an explanation for this, or perhaps I should say "instead of an explanation"; if this line of explanation is ever satisfactory, it certainly does not seem so when the actors whose behaviour is being analyzed show very alert entrepreneurial response in other ways. The theoretical framework provided here offers an explanation in terms of an inadequate supply of monetary services occasioned by a high cost of money in terms of non-traded goods.

The many historical instances of imaginative innovation in the provision of money substitutes gain in significance when they are viewed through this framework of analysis: The view which will emerge here is that innovations in the provision of money substitutes are motivated by the potential gains attainable through specialization and exchange, in circumstances where the existing forms of money were too expensive to support the markets in question. This theoretical framework thus brings useful lessons with important policy implications out of what had been a motley bundle of interesting anecdotes in the history of money.

The assumption that real money enters into the production function with a diminishing marginal product, together with the assumption that firms equate the marginal cost of holding money balances with the value of the marginal product of these balances, implies the following:

A fall in the relative price of non-traded goods reduces the value of the marginal product of money in this sector (vmpnt) relative to that in the traded goods sector (vmpt). If we assume the (mcf) cost of money to be the same for both sectors, this implies a reallocation of

the money stock in favour of the traded goods sector, to the point at which the assumed condition of vmpnt = mcf = vmpt is satisfied; the real marginal product of money must rise enough to offset the fall in the price Pnt (or to match the rise in Pt, if the relative price change occurs by that means). Other mobile factor inputs may be assumed to follow the same route, as in standard micro analysis. The result is, of course, that fixed factors in the non-traded goods sector suffer a loss in earnings and in their (average) productivity through these reductions in complementary inputs. For standard factor inputs this result is familiar from basic micro analysis; in the context of analyzing international adjustments the losses in rents to fixed factors are also very familiar. [6] What I have not previously seen is any discussion of the implications concerning the reduction in the use of money balances in the non-traded goods sector. I believe the examination of these implications to be quite illuminating.

The allocation of the money stock between sectors and sectoral differences in the efficiency of markets

In standard micro analysis, the reallocation of mobile factors away from a sector leaves the fixed factors having to work harder for less, as it were, to satisfy the firms' condition for efficient uses of factor inputs. But what about money? The functioning of markets depends upon money. Moreover, the efficient functioning of markets requires sufficiently large volumes of activity that individual transactions will be "small"; this requires ample liquidity. One way in which people and firms economize on the use of money balances is to withdraw from the use of markets and revert to barter or subsistence production. As this occurs the volume of excess demands for goods and services which is put on the market shrinks; as the volumes traded shrink, the markets become increasingly vulnerable to manipulation and other inefficiencies. Also as the volumes traded shrink, the cost of providing and maintaining infrastructure supporting these markets becomes increasingly difficult to cover; since infrastructure tends to

involve large lumpy expenditure (very far indeed from being infinitely divisible without loss of efficiency!), markets do need to be of a certain size before it becomes possible to cover these costs. And of course when markets are small and inefficient the range of goods and services which can be produced or obtained at a lower opportunity cost outside the markets is increased. In short, the reduction in the relative price of non-traded goods can force reductions in liquidity in this sector which can have very important - and very disagreeable - implications for the functioning of markets in the non-traded goods sector.

Among the immobile factors in the non-traded goods sector, included in the term "R" in the production function for that sector, would be any immobile parts of the infrastructure, such as roads or storage structures which support distribution services in that sector. Sometimes such items serve both sectors, but sometimes the distinction is easily made. In many economies the differences in the quality of transport and distribution infrastructure between traded and non-traded goods sectors is very extreme. In applying the arguments just developed to a real historical situation, what one would expect to see in association with the sort of trend rise in relative prices Pt/Pnt which we have just been analyzing would be a relative deterioration of infrastructure in the non-traded goods sector. This could take the form of a failure to maintain existing infrastructure, or of a slower rate of investment in upgrading the existing infrastructure; flows of goods and information which are necessary to the functioning of markets become increasingly obstructed as the infrastructure deteriorates.

The deterioration of infrastructure in declining regions is a familiar phenomenon. What we have just seen is that through its influence on relative prices Pt/Pnt, the structure of the money supply is a factor influencing the quality of infrastructure which can profitably maintained in the different sectors. The greater is the demand for imported money services, the stronger the upward pressure on Pt/Pnt deriving from this source. The influence of this factor would be

more visible in economies in which the two sectors are more clearly distinguishable, as can occur when exports are concentrated in a few items.

The relatively poor functioning of markets, and weak infrastructure support, of non-traded goods sectors in comparison with traded goods sectors is of course a very familiar phenomenon in much of the world. In particular, it is characteristic of numerous countries which formerly used a Type II (currency board) system. The analytical framework I have been using here offers a rather simple explanation of this pattern which relies on a few very ordinary assumptions and principles of microeconomics. The discussion in the previous paragraphs added the (uncontroversial) idea of lumpy infra-structure costs to previous assumptions. Most of the explanatory work in the analysis derives from the assumption that firms hold money balances because this enables more efficient use of other factor inputs, together with the assumption that the production possibility frontier between traded and non-traded goods is not a straight line. The explanation offered here has not relied on any reference to social or cultural differences. On the other hand, the analysis does show that something can be constructively done to improve matters. This is the pertinence of those historical anecdotes I mentioned above concerning innovative responses to just such liquidity pressures as I have been describing.

It should also be noted that the theoretical explanation of low productivity and poor market structure in non-traded goods sectors which I have just offered has made no use of the idea of differential access to credit. In the analytical framework I have been using, the two sectors are assumed to have access to money at the same (horizontal) marginal cost, mcf. The weaker monetary support of the non-traded goods sectors has occurred in this model through the assumption that firms in both sectors adjust money balances to satisfy the firms' condition for efficient use of resources, such that vmpnt = mcf = vmpt. Money has been assumed to be a perfectly mobile factor,

since I have treated the marginal cost function as horizontal. The model shows that the tendency to lower productivity and returns to fixed factors in the non-traded sector would remain even if credit policy of a banking system were altered to give access to money on equal terms to firms in all regions. The model therefore remains pertinent to analysis of regional differences within economies in which branches of large banks offer credit to customers in all regions on the same terms (as might be nearly true in the UK perhaps).

In reality of course differential access to credit between traded and non-traded goods sectors has been notorious in much of the world. In the context of this framework, we can portray this as differences in the cost of money, say mcfn for the non-traded sector and mcft for the traded sector, where mcfn > mcft. Then we see that even if Pnt = Pt productivity of other factor inputs will be lower in the non-traded sector if firms in both sectors satisfy the efficiency condition vmpnt = mcfn and vmpt = mcft.

Studies of peasant economic behaviour in China in the inter-war period offer an illustrative example of the sort of withdrawal from markets which I have just described. (See, for instance, Huang [1985].) It was found that the middle income groups among the peasants continued the subsistence farming and craft practices more persistently than either the richer peasants or the poorer groups. In the case of grain, middle peasants tended to grow their own, whereas both poor peasants and rich peasants tended to purchase grain on the market. The explanation for this falls very neatly into the above analysis: money was scarce and the grain market thin, weakly supported by transport and storage infrastructure. Grain dealers with storage facilities would buy grain cheap at harvest time, and sell it at monopolistic prices later in the season; poor peasants would be forced into the market by debt to sell grain, at harvest when prices were down, and forced into the market to buy at monopolistic prices by the inadequacy of their land and storage facilities. Rich peasants could buy grain when it was cheap and store it. Middle peasants avoided the monopolistic prices by

providing for their own needs and staying out of the market. The facility which we take so much for granted of being able to buy our bread, ready made, a single loaf at a time, rests on an enormously costly infrastructure; the gains from specialization and exchange which make the cost of such market infrastructure worthwhile rely on the services of money.

The grotesque inefficiencies associated with the collapse of monetary functions in hyperinflations are well known; there are many stories of individual city dwellers trudging out to the country-side with portable items to barter for food during the German hyperinflation of the 1920's, for instance. But can I really be claiming that the structure of the money supply offers an explanation for the sort of situation just described? Do we really not need reference to social factors or to inadequacy of capital, for instance? Let us use the review the analysis offered through this framework with closer consideration of the Chinese case just described.

The peasant region just described used an entirely imported money supply, a Type I system, in fact, rather than a Type II system, since we have no money creation by banks. Thus we have F = Gp. The money supply, Gp, consists mostly of non-interest bearing forms, and comes into the region through "exports" to outside areas.

If we are to explain the inefficiencies of the situation through the structure of the money supply, it must be shown that the situation could be improved through the creation of some local form of money, thereby moving this peasant region from a Type I system to a Type II (or III or IV) system. How might this be done? What has money to do with the situation? It will be realized that this discussion is pertinent to villages and regions in a wide variety of countries, even though the country as a whole may be operating a Type II (or III or IV) monetary system.

Consider first the question of capital in this Chinese peasant region with the Type I monetary system. First of all, there is capital tied up in the very expensive form of money being used. The introduction of

a local banker providing convertible paper notes or some other form of payments service would release some of this capital from its present extravagant use as a medium of exchange. Even a very conservative cash/deposit ratio of say 50% would release a substantial sum which could be put to productive use.

However, it cannot be claimed that inadequacy of capital is the cause of the problem of grain storage facilities, since the grain consumed in the region is in fact being stored locally. But instead of being stored centrally, it is being stored in the more costly form of numerous private storehouses. (How many UK residents would be able to store a full year's supply of grain in their existing accommodation? Consider the vast capital investment that would be required if residents suddenly had to provide such storage individually!) Gurley and Shaw rightly drew attention to the inefficiency in the use of capital which results from investment being dependent upon the investor's own resources, as in this illustration from Chinese history. The inefficiency of the use of capital in this form of grain storage implies scope for improving the functioning of the grain market (and making a profit as well), through the provision of inside money. Let us see how this may be done.

We introduce a bank with the right of note issue. The bank issues transferable notes which entitle the bearer to purchases of grain at any time of year at (or just above) the seasonally low price. It also guarantees convertibility between these notes and the imported money at a fixed rate of exchange; it might offer a special favourable rate of exchange for the payment of taxes or other major obligations to peasants who had reasonable sums on deposit. By these means our bankers persuade peasants to deposit their cash balances at the bank. The investments department of our bank then uses the funds thus concentrated to build its own grain store and to buy grain at the cheap harvest season prices. This grain will then be sold throughout the year to two groups of people, who will pay different prices: those who hold our notes will be entitled to the low harvest season price. This

privilege gives them a return on the cash they have deposited with us without inflicting on us the need to provide a return in the form of imported cash we would have to buy. We sell to other buyers at a price which undercuts the monopoly price charged by the existing grain dealers. We will be able to continue charging a price which is something above the price we pay at the harvest because individual households will be able to make other uses of the resources formerly absorbed by grain storage.

Middle peasants who formerly found the opportunity cost of relying on purchased grain too great will now face a reduced opportunity cost to entering the grain market; we would therefore expect from this group some increased participation in the market, enticed by gains from increased specialization and exchange. The concentration of funds we have achieved through the provision of our notes enables us to reduce the total cost of grain storage in the region (by centralizing it), achieving a more efficient allocation of existing capital resources. These gains can offer both profits for our banker and gains to his clients.

The bank I have described is of the investment sort; a market in capital, in which investors compete through interest rates for available funds, could have been portrayed as achieving similar results. The illustration I have used has been adapted from actual Chinese historical experience, from one of those cases I mentioned earlier of creative financial innovation, in response to the potential gains from specialization and exchange. [7] In the case of German economic development, considerable importance has been attributed to the activities of the Raiffeisen co-operative banks; some of the activities of these banks were very similar to what I have just described: "Such banks became collective purchasers of fertilizer and fodder and managers of wholesale warehouses, the centre of the village's economic existence." So wrote Milward and Saul, concerning the Raiffeisen banks. [8]

The efficiency gains which I have just been discussing come into the

category of the gains achieved through the use of inside money; there has also been a release of capital achieved through the change to a cheaper medium of exchange. The peasant region under discussion has achieved these gains by developing a local banking system and thereby moving from a Type I to a Type II monetary system (on a local basis). The efficiency gains attainable through the use of inside money have been analyzed by Gurley and Shaw, and have subsequently been made familiar through the work of numerous contributors to the literature on monetary and financial history. The analytical framework of this thesis extends the analysis by enabling us to ask whether these gains must necessarily require the development of domestic banks, operating in a domestic form of money, or whether the required services can equally well be provided by the introduction of foreign banks and capital.

As noted above, one argument in favour of the proposed change to a Type II system has been that such a change would facilitate the attraction into an impoverished economy of much needed banking services and capital. Could the efficiency gains of improved banking services be brought to benefit an impoverished non-traded goods sector by this means?

Could the efficiency gains of improved banking services be brought to benefit an impoverished non-traded goods sector by introducing a Type II monetary system?

Here the issue under consideration is not a local village or regional change from a Type I to a Type II system, but a change at the national level from a Type III-Type IV mixed system (or a Type IV system which has been debased into a Type III system) to a Type II system. As noted earlier in this chapter, the assumption is being made here that this change to a Type II system involves an increase in the imported share of the money stock for the national economy as a whole. By contrast, the development of local banking in our Chinese village had reduced the "imported" share in the local village money stock. Here we are looking

at the money stock at a national level, and at the effects of an increase in the imported component caused by a policy change to a Type II system.

The answer which emerges from the analytical framework developed in this thesis is that such a solution is more likely to increase discrepancies between the traded and non-traded goods sectors than to bring assistance to the latter. This conclusion follows from the inclusion of the liquidity term in the production function, together with the assumption that the production possibilities frontier between traded and non-traded goods is not a straight line, combined with standard micro theory of the firm in perfect competition. Let us now retrace the steps of the analysis to see how this conclusion emerges.

We begin by returning to the firm's condition for efficient use of factor inputs. The satisfaction of this condition requires that firms in both sectors equate the value of the marginal product with the marginal cost of each factor input; for money balances this gives us vmpnt = mcf = vmpt, as was seen above. For any given money stock and state of financial technology, there is thus an equilibrium allocation of the available money services between the two sectors which depends on relative prices, Pt/Pnt.

Next we must review the assumed structure of the money supply. Let us be optimistic, and assume that the introduction of a Type II system enables H to entirely replace Gp and Gb, i.e. we achieve Gp = Gb = 0, and that we have achieved the gains attainable by holding G in interest bearing forms. The structure of the money supply is as follows:

$$(4.13)\quad F = kY = (H / g)$$

where H = eGo, and g reflects both the distribution of H between banks and public, and the average bank cash/deposit ratio. This gives us the following relation between the imported money stock and nominal income, Y:

(4.14) eGo = gkY

this being equal to bkY as it was defined in (4.8a), since we have assumed Gp = Gb = 0, so that G = Go.

We can see that if we assume g, k, and e to be fixed, so that de = dg = dk = 0, then we have:

(4.15) (dG/dY) = gk / e

It will be recognized that this is analogous to (4.12), the difference being that in the present case Gb and Gp are assumed zero, so that b=g.

This term is unambiguously positive; it is smaller as g is smaller, and it is smaller as k is smaller. It is also smaller as e is larger, for the obvious reason that each unit of foreign exchange yields a larger contribution to the domestic money supply as the domestic currency price of foreign exchange is higher.

The expression given in (4.15), (dG/dY) = gk / e, shows us in algebraic form what I had already explained in the discussion of the Type II system in Chapter II. If the structure of bank credit is altered to favour the non-traded goods sector, such that growth in real output is concentrated in that sector, the consequence will be that relative prices in that sector will be pushed down. If the traded goods sector is not expanding, and dG = 0, then, as we can see from (4.15), prices in the non-traded goods sector would have to fall sufficiently that dY = dG = 0. The increase in output in the non-traded goods sector generates a demand for increases in the imported item, G, without increasing the supply of traded goods; relative prices of traded goods are thereby pushed up. Since the exchange rate is fixed, Pt can not rise, and Pnt must therefore be pushed down. A bank which persisted in such a policy would soon be in difficulties.

As I mentioned in Chapter II, the much criticized tendency for ex-

patriot banks in the former currency board economies to favour the traded goods sector in their extension of credit emerges in this model as the expected consequence of this structure of the money supply. When base money is entirely imported, excessive extension of credit to finance productive activities which will not increase the supply of foreign exchange would reduce g; a bank which is known to be operating on unusually low cash/deposit ratios would lose the confidence of its depositors. The maintenance of prudent cash/deposit ratios, together with a given allocation of H between banks and public determine g. The profitable allocation of credit between the two sectors is thus restricted by the structure of the monetary base.

We can also see from (4.15) that any measures which would enable banks to function safely with lower cash/deposit ratios, or which would increase the share of H held with banks, would benefit the non-traded goods sector, since such measures would reduce (dG/dY). Upward pressure on relative prices Pt/Pnt is caused by the demand for an increase in the size of the money stock as income rises, unless there is commensurate increase in the supply of traded goods. This upward pressure on relative prices Pt/Pnt is weaker as (dG/dY) is smaller; a given increase in output and income generates a smaller increase in the quantity of G required to satisfy the incremental money demand when the share of G in the total money supply is smaller. The share of G in the total money supply is smaller as g is smaller.

One of the major factors historically which have enabled the average cash/deposit ratio to be reduced, has been the development of the lender of last resort role offered by central banks. However, we have already seen (in Chapter II) that the true lender of last resort function cannot be performed in the Type II monetary system, and that the quasi-lender of last resort role which could be performed was very expensive to the economy. This was because the true lender of last resort function requires the domestic creation of the base money; in the Type II system base money is entirely imported. The quasi-lender of last resort described in Chapter II involved the holding of large

stocks of G by some entity whose role in a liquidity crisis would then be to give assistance to other banks out of its own resources, perhaps covering some of its expenses by imposing a penalty rate of interest on such loans. The Type II system might well be expected to show a tendency to a higher g than is usual in successful Type IV systems, as a consequence of the problematic nature of the lender of last resort function in the Type II system.

Advocates of the introduction of a Type II system into impoverished economies suffering from monetary difficulties have sometimes pointed to Hong Kong as a successful user of a currency board system. The pointing to Hong Kong has been done with the implication that some of Hong Kong's economic success might be attainable by these other economies if they were to emulate its monetary system. The analysis developed here shows that this implication is not well grounded. The relationship between the structure of the money supply and the structure of production in the economy between traded and non-traded goods sectors has not been recognized by these proponents of the Type II system.

Hong Kong is listed as having exports of goods and nonfactor services of 71% GDP in 1965, and of 124% in 1987; for Kenya the figures are 31% and 21%, for Sudan 15% and 8%, for Ghana 17% and 20%, for Nigeria 13% and 31%; for China 4% and 13%; all figures for the same two years. [9] If we treat these figures as an indication of the relative size of traded and non-traded goods sectors, we can see that the non-traded goods sector in Hong Kong is extremely small. For Hong Kong, therefore, the use of a wholly imported monetary base would not result in the sort of disagreeable pressures on the non-traded goods sector which we have been examining above. Since nominal income, Y, is measured in values, the share of traded goods in nominal income can be increased by increasing relative prices Pt/Pnt, as well as by increasing the physical share in production. For an economy with a large land mass, such a large share of traded goods in actual output as is measured for Hong Kong is hardly possible. However, the share of

the traded sector in nominal income could be raised by increasing Pt/Pnt; it could be raised further by pushing some of the non-traded sector activity out of the monetized sector of the economy altogether. As we have already seen, reduction in Pnt would tend to push activities in this sector out of monetized markets. The use of a wholly imported monetary base in economies with large non-traded goods sectors would have adverse effects on the functioning of markets in non-traded goods sector, which do not appear in the Hong Kong case.

Among the historical experiences which I mentioned earlier as having for a long time puzzled me and eluded satisfactory theoretical explanation, has been the persistence of subsistence activity in certain regions which have been celebrated for the vitality of their entrepreneurial response to market opportunities in export sectors. West African regions in which the major export crops were peasant produced fall into this category. Supplies of cash crops for export were increased very rapidly in response to the international market, yet the efficiency gains attainable through a monetized market were left so largely un-exploited in non-traded goods sectors. The analysis of this section has shown that such under-monetization and weak functioning of markets in the non-traded goods sector would be likely to occur in an economy as the consequence of restricting the composition of the monetary base to a Type II system.

Only where the geographical peculiarities of the economy permit the non-traded goods sector to be extremely small, as in the case of Hong Kong, could a Type II system be maintained without putting these pressures on the functioning of markets in the non-traded goods sector. The introduction of a Type II system in an economy covering a very large land mass could easily lead to the "marginalization" of large sectors of the population.

Conclusions

In this section I have been analyzing the implications of using a completely imported monetary base by government decree, as in the Type

II, or currency board, monetary system. This case may be contrasted with the case in which the composition of the monetary base is determined by market forces, and is allowed to change in responses to changes in the factors determining (G/F)* which we analyzed in Chapter II. In the Type II system we have just been considering, the proportion, W, is fixed at W = 1, such that H = Go, and is not permitted to change in response to banking (or any other) developments in the economy.

Under this system the only ways in which the share of the imported money in the total money supply, G/F, can be reduced are by reducing the average banks' cash/deposit ratio, or by increasing the share of H held by banks as opposed to the public. The consequence is that the incremental demand for money associated with income growth yields a relatively large incremental demand for the imported money: (dG/dY) = bk / e.

The inclusion of the liquidity term in the production function, with the marginal product of money assumed to be diminishing, results in an equilibrium allocation of the existing money stock between the traded and non-traded goods sectors. This allocation depends on relative prices, Pt/Pnt; in the model used here this allocation is determined by the satisfaction of the firm's condition for efficient use of factor inputs. Any attempt to expand the extension of credit to the non-traded goods sector beyond this point in order to develop production in that sector, would result in downward pressure on prices in that sector by generating incremental demand for the imported component of the money supply, G.

The implication has been that, unless the non-traded goods sector is extremely small, the non-traded goods sector would suffer from the weak development of monetized markets and poor infrastructure, with under-utilized resources and un-exploited efficiency gains.

Restrictions imposed by law on the composition of the monetary base preclude domestic financial innovation which might otherwise be expected to respond to the potential profits attainable where weak

development of monetized markets imply under-exploited gains from specialization and exchange.

The introduction of a Type II system in place of a Type III or Type IV (or mixed Type III and IV) would therefore be more likely to lead to increased discrepancies between the traded and non-traded goods sectors than to bring assistance to impoverished regions. The implications of introducing a Type II system are particularly disagreeable for economies comprising a large land mass and population, in which the size of the non-traded goods sector can not easily be reduced without "marginalizing" large groups and regions. For the former USSR economies, for instance, the income distribution implications of a Type II system would surely be socially intolerable.

3 What are the implications for an economy of a significant rise in the required foreign share of the monetary base, i.e., a rise in (G/F)?*

In Chapter II we have identified various reasons why a rise in (G/F)* can occur. I will consider the case in which the cause of a trend rise in (G/F)* has been a trend increase in the relative share of currency-type EFI at the expense of DFI. In turn, I will assume that the cause of the increase in EFI/DFI has been a perceived tendency for over-rapid expansion of the domestic component of the monetary base, H, such that the risk of exchange losses on H denominated financial assets is perceived to have increased.

I have chosen these assumptions because they are pertinent to the notion which has been so fashionable in the post-WWII period that economies could make "independent" choices (whether in the long run or the short run) in a "trade-off" between rates of inflation and unemployment. In particular these assumptions seem to me to be pertinent to the UK post WWII experience.

The analysis developed in Chapter II led me to conclude that the ordinary notion of countries having monetary policy independence is

unrealistic, in that it ignores (G/F)*, and dangerous, because persistence in inflationary monetary expansion will tend to push up (G/F)*. These conclusions should not be taken as a re-statement of the hypothesis that countries have some fixed permanent "natural rate" of unemployment. In the analytical framework developed in this thesis, an economy which attempts to reduce unemployment by pursuing a policy of faster monetary expansion and higher inflation than are being pursued elsewhere, will experience a trend rise in (G/F)* which will seriously worsen BOTH unemployment and inflation. The worsening of unemployment which is portrayed here would certainly include a worsening of kinds of phenomena which are normally understood as included in the "natural rate" of unemployment. In other words, a rise in (G/F)* would tend to raise what is normally referred to as the "natural rate" of unemployment, as well as worsening basic inflationary trends.

In Chapter III, exchange risk was included as one of the factors determining the relative shares of EFI and DFI. An economy which persists in excessive monetary expansion is expected to show a trend rise in EFI/DFI, as the share of wealth held by currency "diversifiers" increases at the expense of the group which persists in holding only domestic currency denominated financial assets. Where the pure currency type EFI is not permitted by law, this diversification would involve the export of savings, legal or otherwise. Where the domestic banking system is permitted to operate in both domestic and foreign denominated instruments, we would expect an increase in the currency type EFI share in financial intermediation.

In the UK case, the figures provided by Bryant (which I have included in Chapter II) show a striking increase in EFI/DFI over the period 1963-1983: The ratio of claims on UK residents denominated in foreign currencies to claims on UK residents denominated in sterling, for all banking offices in the UK, rose from 0.03 in 1963 to 0.71 in 1983. This contrasts sharply with the German experience, in which the ratio (given for 1975-1983) has been approximately constant, at 0.002.

Chapter IV

In Chapter II we saw that an increase in the ratio EFI/DFI would tend to cause a rise in (G/F)*. Since the EFI/DFI ratio for the UK has risen substantially, it seems to me that the case I have chosen to analyze here must be pertinent to the UK experience. The disagreeable implications of a rise in (G/F)* which will emerge from the analysis also seem to me to be pertinent to UK post-WWII experience. However, I acknowledge that a fuller consideration of the pertinence to the UK case of the ideas developed here would require the exploration of more empirical material than I can attempt to offer here.

Implications of a rise in (G/F): under-utilized resources and a worsening "balance of payments constraint" on growth*

We can see from (4.8) that a rise in (G/F)* will aggravate what is commonly referred to as a "balance of payments constraint" on output growth:

(4.8) $eG = b^*kY$

where b* has been defined as (G/F)*.

Since I want to consider the case of an economy which has been allowing its currency to depreciate, I will not assume e to be fixed. Instead, we can treat eG, the domestic currency value of the imported money stock, as a single variable, and observe that:

(4.16) $[d(eG)/dY]=b^*k$.

This simple approach is sufficient to bring out the points which I wish to make.

What (4.16) shows very clearly is that a rise in b* increases the incremental demand for the foreign component of the money supply associated with incremental money demand as income grows. A rise in b* constitutes a change in the structure of money demand in favour of

foreign suppliers at the expense of domestic suppliers. This is why it aggravates a "balance of payments constraint" on growth. In (4.15) we see that this incremental demand for the imported money must be met either by a rise in e, or by an increase in G, or by some combination of the two.

In the previous section we analyzed a rise in dG/dY caused by a rise in b imposed by a policy decision. The same analysis is pertinent here. The important difference between the two cases is that in the previous case we did not have the emergence of an inflationary spiral and repeated exchange rate devaluations, since the exchange rate was held fixed. Here such a spiral could emerge, in the following manner:

The rise in b* requires a rise in eG or a fall in kY, or some combination of the two. Assume k constant. We then have the position discussed in the previous section, of the rise in b* requiring some combination of a rise in eG or a fall in Y or both. Since e is being allowed to rise, we could observe a repeated sequence: The increase in demand for the imported money causes excess demand for foreign exchange which is allowed to result in a rise in e. This pushes up the prices of traded items, Pt, increasing the cost of imported inputs and eroding the real value of wages, and generally putting upward pressure on the price level through all the familiar mechanisms. We saw in the previous section that for an economy to reach a new equilibrium, in the sense of a fixed price level and without loss in real output, it was necessary for the relative price of non-traded goods to fall. This fall in the relative price of non-traded goods entails a relative loss in income for fixed factors in the non-traded goods sector. If these losses are resisted by labour in this sector, unemployment and a fall in output would result; if these losses are resisted by the persistent extension of credit, such that rises in Pnt tend to follow rises in e and Pt, and nominal income rises, then the demand for (eG) rises also, and another devaluation would be required.

Each successive devaluation would tend to push b* up further, as the currency "diversifier" group is increased, as described in Chapter II.

Chapter IV

With each rise in b*, the deterioration in the relative incomes of fixed factors in the non-traded goods sectors which would characterize a new equilibrium is worsened. Pressures to continue expanding credit in an effort to alleviate the situation would therefore tend to intensify. A most unpleasant combination of intractable, and worsening, unemployment and inflation can be the result.

In the theoretical framework developed here, the only way out of this unpleasant position is to halt, and reverse, the rise in b*. The means by which this can be done were discussed in Chapter II.

Conclusions

The implications of a rise in (G/F)* are very disagreeable. A new equilibrium position with a stable price level and full employment would require a rise in relative prices Pt/Pnt, and a deterioration in the relative incomes of fixed factors in the non-traded goods sector. A rise in b* alters the equilibrium allocation of the money stock between the two sectors in favour of the traded goods sectors. Liquidity pressures in the non-traded goods sector would reduce the productivity of other factor inputs in that sector. If wages were not allowed to fall, unemployment would rise. Inflationary pressures to extend credit in an attempt to alleviate the situation could be difficult to resist, and could result in a worsening spiral.

The notion that an economy can pursue an "independent" policy in choosing its own preferred "trade-off" between inflation and unemployment appears through the perspectives offered by this analytical framework to be dangerously mistaken. In a short-term crisis, the suspension of convertibility of a currency, on a strictly temporary basis, has an eminently useful role in defending an economy from destructive effects of shocks. In Chapter III, we saw that it is a necessary adjunct to the performance of the lender of last resort function in a crisis, since the extension of domestic credit required in the performance of this function would alter relative supplies of the two components of the money stock. However, the suspension of

convertibility on a strictly temporary basis does not create the incentives for the expansion of the currency "diversifier" strategy which are created by persistence in an inflationary monetary policy.

The recent UK decision to join the European economies in a regime of (approximately) fixed exchange rates, instead of continuing in a higher inflation rate policy, appears through this analysis to be a sound decision, since it may serve to halt the rise in EFI/DFI and hence in (G/F)*. A reduction in (G/F)* should also be actively sought, by the various means identified in this thesis.

4 What are the implications for an economy of a fall in the traded share of national output unaccompanied by a fall in (G/F)?*

The implications for an economy in which the traded share of national output is reduced by such means as are unaccompanied by a fall in (G/F)* are exceedingly disagreeable. In the terminology I have been using here, this would involve holding the actual ratio, (G/F), persistently under the required ratio, (G/F)*, as we shall see. The theoretical framework of this thesis yields the expectation that such an economy would experience increasingly intractable problems of currency softening and inflation, together with increasingly severe unemployment and deterioration of infrastructure. I will first explain how an economy can get into such a position, and then review the analysis which leads to the prediction of such disagreeable consequences. This is the case which I believe to be pertinent to the experience of many countries which have been pursuing import substitution industrialization policies associated with substantial restrictions on trade and capital flows, and to post-WWII Argentine experience in particular.

How can the traded share in output fall without inducing a fall in (G/F)?*

The relative size of the traded goods sector appeared in the analysis

developed in both Chapter II and Chapter III. In Chapter III, following McKinnon [1963], it was argued that domestic currency denominated financial instruments can serve more satisfactorily as a store of value when the non-traded goods sector of the economy is relatively large. An increase in the relative size of the non-traded goods sector was therefore treated as tending to reduce EFI/DFI. In Chapter II we saw that a reduction in EFI/DFI would tend to reduce (G/F)*. The share of imports in income also entered into the determination of (G/F)* in Chapter II separately, as one of the factors determining reserve adequacy more directly. We therefore have two lines of argument which tell us that a reduction in the traded share in output would tend to reduce (G/F)*.

There are, however, other factors influencing (G/F)*. We have just seen, in addressing the previous question, that an increase in the perceived risk of exchange losses would tend to increase (G/F)*. The pursuit of a policy of exchange controls which persistently tends to maintain an artificially low price of foreign exchange would generate such expectations. The tendency for wealth holders in such economies to export their savings, often by secret means, is well known. This leads to a rise in the share of EFI in the geographical sense as well as in the currency sense. In Chapter II we saw that a rise in geographical EFI also contributes to raising (G/F)*.

Trade restrictions also have implications for (G/F)*. The monetary implications of these have not been adequately recognized. Consider how this may occur:

An economy considers itself to be facing a balance of payments constraint on growth, and pursues a policy of selective trade restrictions designed to concentrate available foreign exchange earnings on purchases of the most productive items. Severe restrictions or high tariffs are placed on imports of "luxury" and "unnecessary" consumption goods, so that available foreign exchange may be concentrated on imports of essential raw materials and capital goods. When an economy is suffering from unpleasant problems of under-

utilization of domestic labour for lack of complementary imported inputs, such a carefully devised policy of selective trade restrictions may seem eminently sensible. Historically, moreover, there have been numerous successful cases of fostering domestic industry through such trade restriction: England in the "Mercantilist" era, Germany and the USA in the 19th century, and so on. The inefficiencies of trade restrictions are well known, and do not concern me here. What are the monetary implications?

The monetary implications are that the domestic currency ceases to be as useful, especially to those large wealth holders whose financial portfolios dominate the financial structure of the economy in a quantitative sense. The restricted "luxury and unnecessary" items figure more largely in the expenditure patterns of the wealthy. Prior to the imposition of restrictions, these items were supplied in bulk to the economy by importers, and could then be purchased locally. If they become unavailable locally, individuals have to acquire them through the much more costly means of private shopping trips abroad. If they are available locally, but at an artificially high price, the real value of the local money to consumers of these items is reduced. Any overvaluation of the domestic currency is thereby made more severe for these groups.

Trade restrictions thus aggravate real overvaluation of the currency for the wealthy in particular, and create incentives for these groups to maintain foreign balances and make shopping trips abroad. What good is a currency if you can't buy anything much you want with it? Trade restrictions reduce the range and inflate the prices of the items available in the country in which the currency of the economy in question is legal tender, reducing the real value and usefulness of the currency. The wealthier residents of Buenos Aires are very much in the habit of making shopping trips abroad, as well as holding foreign balances.

It is my opinion, therefore, that trade restrictions have combined with exchange and capital controls in tending to keep (G/F)* from

falling while the traded share in income has been reduced through the pursuit of these import substitution industrialization policies.

Implications of expanding the non-traded output share with (G/F) fixed*

I will now review the steps in the analysis which I said above would yield such exceedingly unpleasant implications for this economy.

We begin by assuming that the economy in question had been, in a previous period, in a position of a stable price level and full employment equilibrium, in which the allocation of the existing money stock between the traded and non-traded goods sectors satisfied the firm's condition for efficient use of factor inputs, such that vmpnt = mcf = vmpt.

We also assume that in this period the actual composition of the money stock, (G/F), was equal to the required ratio, (G/F)*.

In the balance of payments, the current account surplus covers net debt service and net imports of G; net capital imports, K are assumed zero:

(4.17) X-M = dG + S

In this initial period, it is assumed that there are no restrictions on trade and capital flows. We have free trade, a competitive economy, and no restrictions on financial innovation. The exchange rate is fixed at e.

In order to provide a reason for such a drastic policy change as I am analyzing, I assume that the economy now suffers a very major shock from abroad: export values, X, plummet relative to import values, M, such that the trade surplus (X-M) is now too low to cover S, and (still assuming K = 0) the deficit must be covered by exports of gold and foreign exchange, such that dG < 0. For the sake of simplicity, assume that the fall in export values relative to import values is entirely due to price changes (i.e. assume no quantity changes), but that the change is due to a combination of rising import prices and falling

export prices, such that the composite price index for the foreign currency prices of traded goods, Pt*, is not changed. This external shock therefore does not, at the outset, alter domestic relative prices Pt/Pnt, nor the domestic price level P.

If we add to these assumptions, the assumption that the external shock is associated with (and partly caused by) a change in the climate of trade policy abroad, away from free trade and towards a multiplication of trade restrictions, we have what I consider to be a plausible reason for the sort of major policy shift I want to analyze.

Our economy now confronts the familiar dilemma in the face of an adverse external shock: Does it maintain convertibility at a fixed exchange rate, and allow the gold and foreign exchange to be exported, and the money stock to fall? Or does it suspend convertibility and attempt to maintain income by expanding domestic credit as may be required by the crisis? We can use (4.8) to examine these options:

(4.8) eG = b*kY

If we maintain convertibility at the fixed exchange rate, e, and let G fall, we face a liquidity crisis which will bring income and output down. Since Pt* and e have been assumed unchanged, Pt can not change; as seen in previous sections, the only way output could be maintained would be by a fall in Pnt so great as to offset the fall in G and bring Y down to match the fall in G without altering Q. This would alter the allocation of the money stock between the two sectors, and would also alter the structure of production in favour of traded goods T, as follows: The firm's condition for efficient use of factor inputs gives us vmpnt = mcf = vmpt; since Pt/Pnt has risen, the reallocation of mobile factor inputs in favour of the traded goods sector yields an increase in output in that sector and a fall in output in the non-traded goods sector, as in standard micro analysis. Returns to fixed factors in the non-traded goods sector plummet, permitting output to be maintained.

These possibilities exist algebraically, and the algebraic analysis serves to identify clearly the direction of major pressures. In reality, such adjustments are difficult and immensely costly, and a major liquidity crisis such as would be involved if the fall in G were large would involve discontinuous losses. None of these adjustment costs appear in the analytical framework I have been using; hence the algebraic appearance of these unrealistic possibilities. However, in identifying the direction of pressures, the simple formulation used here is sufficient for my purpose.

The implication of major losses in rents to fixed factors in the non-traded goods sector shows us that political pressures towards a different policy would be expected from this sector. This gives us a further explanation for the major policy shift we are examining.

The economy pursues a policy of developing its non-traded goods sector, in an attempt to become more independent from external shocks

The policy approach I wish to analyze is the following: the official exchange rate eo is held fixed, but convertibility and the free export of G are suspended. Available foreign exchange is allocated according to official priorities, and trade restrictions (of the type discussed above) are introduced. Domestic credit is expanded, and directed through various policy devices towards developing production of non-traded items. By these and other policy measures, the size of the non-traded goods sector is increased relative to that of the traded goods sector. We can make use of (4.8) and (4.8a) to analyze the implications:

(4.8) eG = b*kY

(4.8a) eG = bkY

We have already seen (in the section on the introduction of a Type II system) that the expansion of the non-traded share in output would

imply a fall in prices Pnt if e, b, and k are held fixed. Here we are assuming that b* is fixed, but that the actual ratio b is allowed to fall. The official exchange rate eo is held fixed. Domestic credit components of the money supply are expanded to maintain a constant k as income Y grows; over time, the discrepancy between the actual ratio b and the required ratio b* is allowed to increase. We may refer to this as a rise in the ratio b*/b.

The policy of manipulation of relative prices allows the non-traded goods sector to expand while satisfying the firm's condition for efficient use of factor inputs with respect to money: vmpnt = mcf = vmpt. For simplicity I am not portraying any sectoral difference in credit cost, since it is not necessary to the conclusions. I do recognize that in historical cases such policies have often been used.

The position of this economy becomes increasingly untenable as b*/b rises. The structure of production which has been developed on the basis of a policy manipulation of relative prices Pt/Pnt, could not be maintained if relative prices and the allocation of the money stock were allowed to alter to satisfy b* as in (4.8), for the following reason: Let us denominate the relative prices which would satisfy b* in (4.8), as (Pt/Pnt)*. Since b* > b, we know that (Pt/Pnt)* must be greater than the actual relative prices, Pt/Pnt. The larger the ratio (b*/b), the greater the difference between (Pt/Pnt)* and Pt/Pnt. What would happen if we abolished all market distortions and allowed the economy to reach equilibrium relative prices (Pt/Pnt)*? The satisfaction of the firm's condition for efficient use of factor inputs, vmpnt = mcf = vmpt, would involve a reallocation of the money stock. If (b*/b) is very large, such a reallocation would reduce liquidity in the non-traded goods sector so severely as could cripple production in that sector utterly. Since the expansion of that sector over time must have involved investment in considerable fixed capital and infrastructure, as well as involving large sectors of the population, such a policy could scarcely be pursued by any government.

As b*/b rises, the official exchange rate becomes increasingly

divorced from the actual prices people are willing to pay for foreign exchange. Some pressures may be relieved by permitting a black market to operate, but eventually there must come a crash; the greater the rise in b*/b, the worse the crash, in the sense of a larger jump in e. Temporarily, the rise in e will bring the actual ratio, b, nearer to the required ratio, b*, because of revaluation of stocks. However, the reduction in b*/b must be at the expense of a crippling liquidity crisis, since it has involved a reduction in the real money stock. Liquidity pressures, and all of that combination of pressures which has already been described, would require sufficient expansion of domestic credit, reducing b, to prevent liquidity pressures from crippling the production structure. Over time, therefore, b*/b would tend to rise again, leading to a repeated cycle.

Each devaluation would tend to increase the share of "currency diversifiers" in total financial activity; b* would therefore tend to be rising over time, aggravating the situation.

The pursuit of this policy of reducing the share of traded goods in output through such means as do not reduce (G/F)* would therefore tend to involve a step-wise pattern of exchange rate movements, in which periods of fixed exchange rates are followed by sudden sharp rises in the exchange rate. During the periods of fixed exchange rates, (b*/b) would be rising, and Pt/Pnt would tend to be falling, as the exchange rate is becoming increasingly overvalued. During these periods the economy is making fuller use of its productive capacity, since liquidity pressures are being eased.

The only way this economy can make full use of its productive capacity is to raise (b*/b), since, as we have seen, restricting b to match b* would cripple production with liquidity pressures.

Analytically, we can identify the existence of some particular ratio (b*/b)*, which we may define as that ratio (b*/b) which is necessary in order to bring existing productive capacity into approximately full utilization. This is the ratio of (G/F)* to the actual ratio (G/F) which would result if domestic components of the money supply were

expanded sufficiently to achieve approximately full use of productive capacity in both sectors.

I say "approximately", in recognition of the fact that expansion of credit to this extent to the non-traded goods sector, in reducing relative prices Pt/Pnt, is likely to lead to some reduction of utilization of capacity in the traded goods sector in response to the adverse movement in relative prices. "Full utilization of capacity" can have no very precise meaning when relative prices are alternating in the manner just described. At any given moment, one sector or the other may be claiming that relative prices are out of line and causing under-utilization of capacity. The concept (b*/b)* is therefore necessarily a vague one; nevertheless, I consider it useful.

The severity of pressures arising when the structure of productive capacity has become incompatible with (G/F) (i.e. when (b*/b)* has become very high)*

Pressures arising from (G/F)* being incompatible with full use of productive capacity yield intractable inflationary pressures, which can only be kept at bay by allowing intolerable under-utilization of domestic labour and other immobile factors. These pressures are of the same sort as were described in the previous section, when the case of a rise in (G/F)* was analyzed. In this case they can be much more extreme, if manipulation of domestic prices has continued over a long period such that the ratio (b*/b) which enables the productive capacity of the economy to be tolerably well utilized has become very high.

We can use (4.16) to see that the reduction of the traded share in output can cause incremental money demand to put immense pressure on the balance of payments:

(4.16) $[d(eG)/dY] = b^*k$

From (4.16), we can see that the ratio of incremental demand for

imported money to total export earnings is as follows:

(4.17) dG/eX = b*kdY/xY, where x= eX/Y.

The smaller is the ratio eX/Y, the larger the share of export earnings which would have to be used to meet the incremental demand for the imported money stock, as income rises. If eX/Y has been allowed to fall substantially, without reducing b*k, it may be quite impossible to meet demands for such imported inputs as are necessary to keep productive capacity in operation, and simultaneously to meet the requirements of incremental money demand.

Cycles

It may be noticed that immediately following a devaluation would be a very good time to bring funds into this economy: the price ratio Pt/Pnt has risen to something nearer (Pt/Pnt)*, and can be expected to fall as credit is expanded to bring sectors suffering from liquidity difficulties back into fuller production. Prices Pnt will therefore be rising faster than prices Pt; if the funds can be brought out again before the next devaluation, a profitable opportunity might arise. Response to this opportunity would tend to accelerate the reduction of Pt/Pnt, by attracting funds into the sector with the fastest rising prices.

In the case of Argentina, Guido di Tella [1983] has argued that post-WWII experience has been characterized by a cyclical movements of funds of this nature; he shows that this cyclical movement of funds has been associated with a repeated sequence of falling relative prices Pt/Pnt, increasing over-valuation of the currency, which then leads to a crash in which there is a sudden rise in the exchange rate and in these relative prices. We will look more fully at the Argentine case in Chapter V.

Conclusions

Chapter IV

This analysis has provided some new perspectives on some of the post-WWII problems of economies which have been pursuing import-substitution industrialization policies involving substantial restrictions on trade and capital flows. We have seen that such policies can involve an expansion of the non-traded share in output, unaccompanied by a fall in (G/F)*, and that this combination implies some very unpleasant and intractable problems.

I believe that this analysis is pertinent to many economies, and particularly to the Argentine case. It offers an explanation for what has been a striking puzzle about the Argentine case: Argentina experienced a long period of exceptional price level stability, over a 50 year period, prior to WWII. In the post-WWII period, the accelerating deterioration of the currency has been no less than spectacular. The deterioration is often explained in terms of policy errors, but this is hardly satisfactory: What then explains the distribution of policy errors over the last 100 years? The above analysis provides what I believe to be a far more satisfactory line of explanation.

The analysis developed in Chapter III offers a way forward even in such intractable cases: the way forward is to reduce (G/F)* by the means which were analyzed in that section. The intolerable "trade-off" between hyper-inflation and gross under-utilization or impoverishment of domestic resources which has been the experience of these economies should not be treated as a lamentable but unalterable fact of life. The analysis of this thesis has shown that such situations can be more constructively approached by the pursuit of policies which will reduce (G/F)*.

5 Empirical note on relative prices, p_t, p_{nt}

As will have been observed, the theory developed in this section of the thesis yields an approach to explaining cross-country differences in

the relative price ratios Pt/Pnt. This approach to explaining cross country differences in relative prices is quite different from that which was used by Kravis, Heston, and Summers in their study "International comparisons of real product and purchasing power."[10] Both approaches can be used to explain the observed tendency for relative prices Pt/Pnt to be considerably higher in poor (LDC) countries than in the developed countries (DCs). However, in explaining time trends in the movements of these relative prices, the two theories would tend to yield different predictions, so that through the examination of time trends they may be distinguished. In the next chapter time series data on relative prices in Argentina are offered for this purpose.

The implication of the theory developed here is that the relative prices of non-traded goods will be lower in countries for which (G/F)* is high, and particularly where the incremental demand for imported money as income grows, (G/F)*kdY, or, using b* as above, (b*kdY), is large relative to export earnings. In countries where the ratio of export earnings to total income (X/Y) has been falling, but (G/F)* has not been falling, incremental demand for imported money, (b*kdY), will be rising relative to export earnings, with the implication (as we have seen) that the relative prices of non-traded goods would be under downward pressure. Some downward trend in these prices would be expected to appear over time, despite the fluctuations discussed above. This trend does indeed appear in the data given for Argentina.

That these arguments give us a means of explaining the international pattern that prices of nontraded goods tend to be relatively low in LDCs may be seen as follows. In section II certain features of currency area structure were identified which would tend to give rise to a predominance of EFI over DFI; we saw that these features are characteristic of many impoverished LDCs, and also that Goldsmith's study of cross country differences in financial structure identifies a relative weakness in the development of (geographical) DFI savings instruments as characteristic of LDCs. In Chapter II we saw that the

relative predominance of EFI over DFI (currency type), and the development of the domestic financial structure, were major factors in the determination of (G/F)*. This leads to the view that (G/F)* would tend to be relatively high in LDC economies. The arguments developed in Chapter IV bring us to the conclusion that the relatively low prices for non-traded goods in LDCs are caused by the weakness in domestic financial development in general, and of currency type DFI in particular.

The arguments developed in this thesis also show that there are policy measures which can be undertaken to bring down (G/F)*, to improve the monetization and productivity of the non-traded sector, and reduce the burdensome cost to the economy of maintaining its money stock. The policy conclusion of this line of explanation has been that in these economies the central bank of issue must take an active and major role in developing a productive and profitable DFI asset portfolio. To repeat the advice given by Sayers, mentioned above, these central banks must develop their business actively as banks.

A brief version of the explanation for these cross country differences in relative prices which is given in the Kravis, Heston, and Summers study follows. It will be observed that their explanation does not give rise to policy conclusions of the sort derived here. "...The relationships outlined above [i.e. the relatively low prices of non-traded goods in poorer countries] may be explained in terms of the productivity differential model described in chapter 1... Briefly, the argument runs as follows: (1) International competition makes the prices of traded goods equal in all countries. (2) Wages in each country's traded goods industries will depend upon the productivity of its labour in those industries. (3) Wages in each country's traded goods industries will prevail in its non-traded goods industries as well. (4) Productivity differentials are smaller in nontraded goods industries than in traded goods industries. (5) It follows that nontraded goods, of which services are a major component, will be relatively cheap in low income countries. That is, low wages of low-

income countries, established by their low productivity in traded goods production, extend to the nontraded goods industries in which relatively better productivity produces low prices."[11]

The Kravis, Heston, and Summers explanation would be suited to a "stages of growth and development" type of approach to explaining cross-country differences, in which countries are seen as progressing at different times through a similar sequential series of stages of growth and development. I am not an adherent of this approach. In this thesis various characteristics of the currency area structure of the international economy have instead been stressed in explaining observed patterns in cross country differences.

The policy implication of the Kravis, Heston, and Summers explanation, as concerns alleviating the poverty of these countries, would seem to be that technology and capital need to be applied to the traded goods sectors of these economies. As is well known, the popularity of such a view has declined in recent years as the results of policy initiatives in such directions have been extremely disappointing. The analysis developed here has shown that the structure of the money supply will influence the allocation of other resources between the traded and nontraded goods sectors in ways which would tend to cause such influxes of foreign capital to aggravate the relative poverty and low productivity of the nontraded goods sectors. In fact many observers have described just such trends among the disappointing results of the great development drives which had been based on the view that the solutions to poverty lay in the introduction of foreign capital and technology.

According to the analysis developed in this thesis, policy initiatives of the type identified here should give more satisfactory results in addressing these problems of low productivity and impoverishment. Policy initiatives of this type also have the virtue of being much more attainable, since they do not require the introduction of unattainable quantities of capital, but are instead directed towards bringing into productive use underutilized domestic

resources. The arguments developed above have shown that a central bank would not require unavailable capital to undertake such a role as suggested here. As a case in point, we can consider the example of the Argentine Banco de la Nacion, whose role in the development of DFI was mentioned above; the original "capital" of the Banco de la Nacion consisted in nothing more substantial than a paper note issue. This course was taken because the shares in the bank which were offered for sale to the public were not taken up. Neither the exhaustion of foreign sources of capital, nor any lack of domestic capital constitutes any obstacle to the implementation of the policy conclusions derived here.

Notes

1. Gurley and Shaw (1960), op. cit.

2. In any case, the undeniable importance of creative technological innovation in lifting a sector out of a slump could easily be portrayed using this same framework, if desired: We would need simply to assume different production functions for the two sectors, and make some assumption about the way the new technology affects the productivity of the different factor inputs, including money. If the productivity of money is increased by the new technology, the firm's condition for efficient use of factor inputs in alternative uses would imply a reallocation of money in favour of the sector benefitting from the new technology, just as it would imply a reallocation of other factors whose productivity had been raised by the change. To belittle the immense importance of technological innovation is no part of my intention. However,it seems to me very important to isolate and analyze the role of money, since this analysis opens up another range of approaches to coping with policy problems associated with sectoral differences.

3. It should be pointed out that it sometimes has happened historically that restrictions on the permitted form in which foreign exchange reserves may legally be held have involved the economy in question in holding these reserves in forms which pay rates below market rates. This seems to have been the case with the large Indian holdings of sterling foreign exchange reserves prior to 1914. The Indian case is discussed in the book by de Cecco (1974).

4. Bleaney, Michael. "East European Economic Growth and Convertible Currency Imports, 1971-86". 1988. Credit Research Paper No. 88/2.

5. See, for example, Lindert (1969).

6. See, for example, the fixed factor model in chapter 6 of Caves and Jones, "World Trade and Payments", 4th edition, 1985. Boston: Little, Brown and Co.

7. See Andrew Watson, ed., "Mao Zedong and the Political Economy of the Border Region."

1980. Contemporary China Institute Publications. Cambridge: Cambridge University Press. This volume includes a translation of Mao's "Economic and Financial Problems", which was written as a report to a party conference held in 1942-43; most of the contents of this work were later suppressed by Mao because the policies described in the report were incompatible with policy lines taken in later periods. Only the introductory speech, "Summary of Past Work", appears in the standard five-volume edition of Mao's selected works.

The imaginary investment banking activity I have described is similar to the sort of creative financial innovation undertaken by some of the successful cooperatives in the Yenan area, described in this report. "Shares" were issued, which could be used for a variety of monetary purposes, instead of the banknotes which I described. I took the idea of offering a favourable rate of exchange directly from the description of the activities of these ventures. Should anyone doubt the magnitude of the gains attainable in an impoverished region through increasing the efficiency of resource allocation by such innovations, I refer the doubter to the accounts of the share issues and dividends paid by the more successful cooperatives, and to Watson's introductory discussion.

8. Milward, Alan S., and S.B. Saul, "The Development of the Economies of Continental Europe 1850-1914". 1977. Cambridge, Mass.: Harvard University Press. Page 59.

9. Source: World Bank (1989), pages 180-181.

10. Kravis, Irving B., Alan Heston, and Robert Summers, "International comparisons of real product and purchasing power", 1978. World Bank. Baltimore and London: The Johns Hopkins University Press.
11. Kravis, Heston, and Summers, op. cit., pp. 127-8.

Chapter V
Application of the preceding theory

to the case of Argentina

1 Introduction

In this chapter statistical material is presented which has been gathered for the purpose of applying the theory developed in this thesis to the case of Argentina. The theory developed in Chapter III concerning the use of EFI will be addressed first.

Chapter II identified certain structural features of a currency area which would cause residents to tend to use EFI. The three features identified were the following:

(1) Earnings of foreign exchange are concentrated on the export of a single item or of a very few items. These earnings are subject to fluctuations which are beyond the control of exporters.

(2) The major real assets in the wealth portfolios of large wealthholders are in the export sector. This feature derives from the distribution of wealth and income in the economy, and not solely from the share of exports in national income.

(3) The currency area features a tax structure which relies heavily on customs duties.

We saw in Chapter II that these three features jointly could also lead to the practice of what was called in that context the "asymmetric" exchange rate policy.

Argentina is an economy which has made substantial use of EFI, in one form or another, throughout its history. Prior to the introduction of the emergency measures taken in response to the 1929-30 crisis, the financial sector in Argentina was free to develop in accordance with market influences, to a perhaps exceptional degree, indeed, if comparison is made with other countries. (See, for instance, Diaz Alejandro [1970].) The only noteworthy restriction was that the export

of gold was prohibited with the outbreak of WWI, in August 1914, when convertibility of the domestic paper currency was also suspended, not to be restored until 1927. Since the financial structure had been allowed to develop entirely freely during this early period, but has subsequently been subject to a long history of restrictions and distortions, the influence on the currency composition of the financial structure of the non-policy factors I wanted to analyze shows through much more clearly in the early period. Furthermore, as mentioned above, this early period was one of price and exchange rate stability, in sharp contrast with recent times. For these reasons the statistical material on the currency composition of the Argentine financial structure which is offered here covers the period 1900-1931, instead of a more recent period.

The statistical material offered here on the relative shares of EFI and DFI covers the pure currency type of EFI only. Since financial transactions were free during this early period, there was not the strength of motivation to hold secret money balances abroad which has been so important in the post-WWII period. Gold denominated bank accounts could be held reliably and freely in Buenos Aires, so money balances held abroad were presumably not on the same sort of scale as in more recent times.

The data also only covers the banking system, together with the biggest of the mortgage banks (the Banco Hipotecario Nacional), so that the important question of the extent of EFI in non-monetary financial instruments is largely unaddressed. The use among domestic resident savers of geographical EFI for non-monetary forms of financial instruments, such as holding stocks and bonds purchased through the great London financial markets, may or may not have occurred on a substantial scale. One hint in this matter which I have been able to unearth is the fact that the great cattle breeders and fatteners who had such immense wealth at this time were not the savers who held the savings accounts at the Banco de la Nacion, although they did account for the largest single share of Banco de la Nacion lending. The

savings balances at the Banco de la Nacion were instead balances built up primarily by people of very modest means, including labourers and domestic servants.[1] This implies that people of large means were using some other forms of savings instruments. Government debt denominated in gold as well as in paper was issued locally as well as in London, and was traded on the Buenos Aires stock exchange, as were the mortgage bonds issued by the various mortgage banks, the Banco Hipotecario Nacional in particular. The holding of private gold hoards had been standard practice among the wealthy in earlier times, and gold was also traded on the Buenos Aires exchange; however, this practice faded out to a great extent after the Conversion Office began buying gold at a fixed rate of exchange (for domestic paper notes) in 1899. Banks which dealt in sterling bills of exchange, in the course of handling the finance of the wheat harvest and export for instance, apparently met some of the local demand among wealthy savers for foreign denominated non-monetary financial instruments, by selling these sterling bills of exchange on to local buyers. By this means local savings were held in the form of sterling bills of exchange, while the bank was extending loans on the basis of the funds thus raised to finance the harvest.[2] Solving the statistical problem of identifying the currency denomination and form of the financial instruments in which the great wealth holders of this period held their financial wealth is beyond the scope of this study.

During this period (1900-1930), Argentina had all three of the structural features identified in Chapter II as giving rise to the covariance reasons for making use of EFI. As we shall see, the share of the top three items in export earnings was above 50%, as was the share of customs revenues in total government tax revenues; the ratio of exports to total income was 30% in 1901, remained above 25% in a majority of the years prior to 1930, and did not fall below 22% until 1934. The wealth distribution in the economy was such that the major wealth holders were the great landowners of the export sector, together

with the beef fatteners and the commercial interests serving the foreign trade sector. (See, for instance, Diaz Alejandro [1970].) Feature (2) was thus strongly present during this period, i.e. the great concentrations of wealth were in the hands of those whose major real assets were in the export sector. Moreover, these export sector interests had sufficient political power during this period to influence exchange rate policy in the manner which was described in Chapter III: The exchange rate was fixed in 1899, and again in 1927, during times when the paper peso was appreciating, while shocks which would have occasioned substantial losses of gold had the exchange rate remained fixed (as in 1914 and 1929) were met instead by the suspension of convertibility. The same "asymmetric" form of exchange rate policy (allowing the peso to depreciate, but intervening to halt appreciation) had characterized earlier 19th century practice. The discussions surrounding the 1899 decision and the choice of the exchange rate make the interests of the various groups very clear. The interests of this export sector concerning exchange rate movements have been discussed and analyzed at great length in the literature on Argentine economic history and adjustment to exchange rate changes.[3]

2 Structural Features

Table V.1 gives data on some of these features. None of these features shows any very great change prior to 1930, as may be seen, although the export ratio does fall slightly. On the other hand, from 1932 onwards, significant reductions begin to appear in both the export ratio and the share of government revenue derived from customs revenues. The export concentration figure of 57% (contribution of top three items to total export earnings) for 1965, given on Table III.2, in Chapter III, is directly comparable with the figures given here for 1900-1913, but is not comparable with the figures given for intervening years because the categories are different. The export concentration feature thus shows

little change between 1900-1913 and 1965, although it does fall somewhat.

It will be recalled from Chapter III that the government of an economy in which EFI is important will have a substantial share of its debt held abroad. Data for the ratio of net external debt service to total export earnings is given in Table V.1, in three columns: The column (Sg/X) gives the figure for government external debt service only, (Sp/X) is the figure for the private sector, and (S/X) is the total. The jump in these figures between 1929 and 1930 is of course due to the fall in export values (in export prices) with the onset of the international crisis. It is clear from the magnitude of the government payments that any substantial rise in the price of foreign exchange would put severe pressure on the government budget; in Chapter III a specific example of this was given. The government budget was thus subject to pressures from two directions during times when export earnings were low, if the fall in export earnings brought with it a rise in the exchange rate: a loss in customs revenues (and in other revenues dependent upon current expenditure and income) would be accompanied by a rise in the domestic currency cost of its external debt service.[4] The feature of positive covariance between private export sector incomes and the government's ability to service its debts was thus clearly present during this period. As will be seen below, the asymmetric exchange rate policy did serve to mitigate this factor, but certainly without erasing this covariance feature.

The "asymmetric" exchange rate policy

The asymmetric exchange rate policy served to defend the development of the domestic financial structure rather in the manner which was discussed in Chapter II in the section on the Type III monetary system, in which it is pointed out that the exercise of the lender of last resort function necessarily depends on the suspension of convertibility. On each occasion when convertibility was suspended, the alternative would have been to let the great banks fail, with all

the well-known destructive consequences. In the case of the Baring crisis, convertibility was not suspended early enough to prevent the failure of the banks, and the needs of Barings were allowed to supersede those of the local banks in the allocation of the fiat issue which had been intended as a sort of lender of last resort measure in the manner described in Chapter II. In August 1914, the outbreak of WWI threatened the economy with a gold outflow which could again have brought down all the banks. The suspension of convertibility, and the mere authorization of DFI high-powered inside money creation to support such lender of last resort measures as might be needed, were sufficient to allay fears, end panic, and maintain the banking system. I say "mere" authorization, because in fact the authorization was not used at this time, no DFI note issue occurring until after the arrival of the bigger crisis in 1929/30 (nor was there any fiat issue during this period). The suspension of convertibility at the end of 1929 served the same purpose of defending the banking system from collapse.

There was another source of benefit to the economy as a whole from the maintenance of this asymmetric exchange rate policy, which worked as follows: The government made use of the exchange gains achieved on the stock of gold which was accumulated in the Conversion Office in the course of maintaining a fixed exchange rate during times when the domestic currency would otherwise have been appreciating. These exchange gains, which were taken later by gaining access to the gold at par for the purpose of servicing the government's external (gold denominated) debt, alleviated pressure on the government budget which the rise in the cost of such debt service would otherwise have imposed, and hence also benefitted taxpayers. This benefit of the asymmetric exchange rate policy was of substantial assistance in coping with the difficulties of the 1930s depression years, and was a major factor in enabling the Argentine government to continue external debt service during these years when many other debtors were pressed into default. Nevertheless, as noted in Chapter III, budgetary pressures on the government caused by the crisis were severe.

The asymmetric exchange rate policy also contributed to the stability of the domestic price level which characterized this period. The Argentine domestic price level during the period 1900-1940 was more stable than were gold denominated prices, i.e., than sterling or US$ prices, as has been pointed out by Diaz Alejandro.[5] The stability of the price level during this period may be seen in Table V.12, which gives an index for the domestic price level (1960=100) in the fourth column. The highest price levels during this period were in the 1918-1921 post-WWI boom; including this boom the ratio of the highest (1920) to the lowest (1914) price index was 1.88, while without these four boom years it was 1.41. The slightness of the fall in the index during the 1930s depression, during a period when price declines in other countries (e.g. the USA) were wrecking havoc, should be particularly noticed. The rise in the exchange rate which stemmed the fall of the domestic price level helped to save the economy from the spreading banking failures which falling prices were causing during this period in the USA for example. (See Kindleberger [1973] concerning the USA case.)

There were thus very sound reasons behind the practice of this asymmetrical exchange rate policy, and it appears to have brought important benefits in a number of ways to the economy as a whole. It should therefore not be seen as merely having been for the benefit of a powerful few, even though it may well have been the influence of this group which was the critical factor in particular policy decisions.

The three structural characteristics identified in Chapter III were thus present throughout the period 1900-1930, with no significant changes in any of them occurring over the period.

3 Currency denomination structure of the banking system

Tables V.2, V.3, and V.4 give data on the currency denomination

structure of the banking system for this period, including the mortgage bank, the Hipotecario Nacional. The information given in Table V.3 is illustrated on Graph V.1. The two striking points which I shall use this data to bring out are (1) the sharp decline in the EFI share over the period, and (2) the importance of the role played by the two great official banks, the Banco de la Nacion and the Banco Hipotecario Nacional, in the development of DFI. The powerful potential role of government bank initiatives in reducing the relative predominance of EFI, in economies where structural characteristics would tend to lead the private sector to develop EFI at the expense of DFI, thus is very clearly exemplified in the case of Argentina during this period.

At the outset it should be pointed out that the prohibition of gold export in 1914 did remove some of the practical purpose in holding gold deposit accounts in domestic banks; banks began holding larger working balances abroad in order to handle foreign payments, whereas prior to this prohibition shipments of gold were standard practice whenever the price of foreign exchange reached the gold export point. The sharp reduction, to almost nothing, in the EFI share of loans which shows up for "gold capital banks" between 1911 and 1918 is thus to be attributed in some measure to the gold export prohibition, as well as to the influence of the official banks in strengthening DFI.

Table V.2 shows the EFI share in total deposits and loans for the Banco de la Nacion separately and for all banks (including the Banco de la Nacion).[6] These figures are given in the first four columns. By the "EFI share" I refer to the percentage of the total (deposits or loans) which was denominated in gold ("% gold") as opposed to being denominated in the domestic currency, paper pesos (referred to also as "m/n", which stands for "moneda nacional", i.e. "national money"). The share of the Banco de la Nacion (B de la N) in total deposits and in total loans for all banks is given in columns five and six. The B de la N held government deposits, in both gold and m/n, and the sudden jump in the EFI share of B de la N deposits in 1902, which was caused by a sharp fall in paper denominated deposits, was largely due to a

sharp fall in the government's paper denominated account.

The trend fall in the EFI share of both deposits and loans, and the lower EFI share for the B de la N, particularly in its loan portfolio, both show clearly in the table.

Table V.3 gives figures on the EFI share of loans by type of bank. The Banco de la Nacion is not included in the column "Banks with paper denominated capitals", although its capital was paper denominated. As noted above, its original "capital" consisted merely in a paper note issue. "Banks with gold denominated capitals" largely correspond to what are in other contexts referred to as "foreign banks", though not necessarily precisely. All except for the Banco de la Nacion are private sector banks.

The tendency for banks with gold denominated capital to operate more largely in EFI loans is very marked. Moreover, this group of banks consistently showed an EFI share of loans which was greater than the EFI share of their deposits (data not shown here), whereas, as may be seen from Table V.2, the reverse was the case for the B de la N. In size of total operations, the group of banks with paper denominated capital had total paper deposits approximately the same size as the gold capital group in 1900, but total gold deposits of just over a quarter the size of the gold capital group. By 1930 the growth of the paper denominated capital group had so far outstripped that of the gold capital group that the size of total deposits for the former group was nearly six times the size of total deposits for the gold capital group.

The role of the Banco de la Nacion in developing DFI banking shows through clearly in Table V.3, as in Graph V.1, particularly in the currency denomination of its loans. The share of this bank in the total deposits and loans for all banks was very large, while the EFI share of its activity was extremely small. The contrast between the size of the EFI share in its loans with that of the other banks is very marked. Its contribution in developing DFI was therefore very substantial.

In view of its importance in making DFI loans available to borrowers,

it seems of interest to know which sectors of the economy were the greatest beneficiaries of this domestic currency denominated credit. Tables V.5, V.6, and V.7 address this question.

Table V.5 gives the sectoral distribution of B de la N loans. The figures given in the first column, "banks" refer to the percentage of the total B de la N loan portfolio which was comprised of loans to other banks. The figures given in the remaining three columns sum to 100%, i.e. the total loans for which the sectoral percentage figures are given exclude loans to other banks. Column two, "agriculture", gives the combined share of B de la N loans which went to the two sub-groups "grain" and "livestock". It will be remembered that grain and livestock are the major Argentine exports; these domestic currency denominated loans were thus going to export sector borrowers, whose earnings were in gold. The sector "industry", on the other hand, whose loan share is given in column 3, would have been deriving its earnings largely from serving the domestic market, and hence receiving its income in paper pesos. This "industry" sector would thus have faced exchange risk if borrowing in gold denominated loans, in contrast with the "agriculture" group.

Table V.6 gives the sectoral distribution of investment (fixed capital formation), and the data from Table V.6 are related to the B de la N distribution of loans in Table V.7. The figures given are the ratios of the percentage of B de la N loans to the sector indicated, to the percentage of total investment for that sector. If the sectoral distribution of B de la N loans exactly matched the sectoral distribution of fixed capital formation, these ratios would therefore all be 1. The percentage of total B de la N loans going to "grains" is here distinguished from that going to "livestock", but no such distinction is given in the figures available on the sectoral distribution of investment. Therefore it is impossible to say whether or not the larger share for livestock reflects a larger investment for that sector as compared with "grains".

We can see from Table V.7 that the livestock sector (except during

1916-19) received a very much larger percentage of the credit extended by the B de la N than the percentage which that sector contributed to fixed capital formation, and that the combined agriculture sector received a very much larger share of credit relative to its share in fixed capital formation than did the "industry" sector. Until 1933, indeed, the share of B de la N credit which went to industry was very much lower than the contribution of industry to fixed capital formation. The political and economic power, already noted, of the great landowners and cattle fatteners was presumably an important influence in the determination of this sectoral pattern of credit distribution.

Lest the Banco de la Nacion be criticized for not doing more to develop domestic industry, two factors should be borne firmly in mind: The most important of these two factors is that during this period Argentine educated opinion was very thoroughly committed to a belief in free trade, and to a belief in the international pattern of national specialization which free trade implies. The notion that every country should develop domestic industry, which conflicts with the international pattern of specialization brought about through free trade, was opposed vigorously by nearly all (there were a few notable exceptions) educated Argentine opinion of the period. The great wealth of the economy was seen to be in the land, and in developing the specialization in agriculture and livestock which was the result of a free trade policy. The distribution of Banco de la Nacion credit thus received the support of the liberal aspirations and idealism of the period.

The second factor to bear in mind is simply that the Banco de la Nacion was not the only bank, and information on the sectoral distribution of the loan portfolios of other banks is not available. It may be that if we did have information on the sectoral distribution of the loan portfolios of other banks we would see that the sectoral distribution of the Banco de la Nacion loans was simply filling particular needs which were not being met by other banks. The fact

that information is costly does lead banks to tend to specialize in certain types of loans and loans to certain sectors.

For the reasons just explained, therefore, no judgements are warranted on the basis of this data concerning any government "favouring" of the livestock sector at the expense of industry through the mechanism of the distribution of B de la N credit allocation.[7]

Table V.5 also shows us another aspect of the role of the Banco de la Nacion in developing DFI, that of supporting the rest of the banking system in a quasi lender of last resort role. I refer to it as a "quasi" lender of last resort role because, except under the special authorization (which was not used) during WWI, this bank had no power to increase the note issue except through the use of its own gold reserves. It did hold a very large stock of gold reserves, and did exercise some countercyclical (i.e. stabilizing) influence on the money supply by the use of these resources.[8] The volume of lending to other banks which was done by the Banco de la Nacion is shown in Table V.5 (first column) as a percentage of total B de la N loans. The role of the B de la N in overcoming a potentially dangerous crisis in 1914 by exercising this quasi lender of last resort function may be seen in this table. As noted above, the B de la N had been authorized to sell some of this bank debt on to the Conversion Office in exchange for increases in the note issue, had the resources of the bank been insufficient to meet other banks needs for rediscounting; in the event its own resources proved sufficient to meet these needs, undoubtedly because the granting of the authorization dispelled fears of a banking collapse.

The large share of B de la N loans which went to other banks from 1925-35 (following the introduction in 1925 of a new law enabling the bank to extend these loans) show that the bank was serving the function of a bankers' bank to an important extent. This aspect of the bank's role has also been discussed in the economic history literature, and is one of the reasons the bank has been described as a sort of quasi central bank. The sharp rise in these loans to other banks after 1930

of course reflects the influence of the international crisis on the domestic economy, and the role of the Banco de la Nacion in providing support to the rest of the banking system in this crisis. The loans to other banks drop sharply between 1935 and 1936 because in 1935 the Central Bank was founded, and the Central Bank took over from the Banco de la Nacion in the matter of rediscounting for other banks.

Both in developing its own DFI portfolio and in its support of the rest of the banking system, therefore, the Banco de la Nacion played a very major role in developing domestic financial intermediation, both in the geographical DFI sense and in the currency denomination sense.

Table V.4 gives data on the currency composition of the loan portfolio of the great mortgage bank, the Banco Hipotecario Nacional. It was this bank which received the support of a paper note issue in the "Baring" crisis, as mentioned in Chapter III in the discussion of the lender of last resort function under the Type III monetary system. The Banco Hipotecario Nacional (BHN), like the Banco de la Nacion, was a bank with official status. Goldsmith gives the 1913 share of mortgage banks' assets in the assets of all financial institutions in Argentina as 19%.[9] The 1925 banking census conducted in Argentina gives the share of BHN in loans of all banking establishments (i.e. including deposit banks) as 24.61%. The figure given in that source for the total value of BHN loans is 1,226,685,000m/n, which is not so very much less than the figure given in the same source for total B de la N loans, which is 1,385,654,000m/n. The Banco Hipotecario Nacional, like the Banco de la Nacion, was thus very large relative to the total financial sector.

Table V.4 shows that the operations of the BHN were conducted almost entirely in domestic currency after 1900. There had only ever been a single issue of gold denominated mortgage bonds, in fact, issued prior to the Baring crisis, and this issue plagued the bank with losses for years. Gradually the outstanding bonds were converted into paper

denominated issues. The contribution of this official bank to the development of domestic paper currency denominated financial intermediation is shown by Table V.4 to have been very strong.

The contribution of the BHN in developing DFI was of particular importance because it was financing investment in the domestic infrastructure of buildings, etc. as opposed to financing investment in the traded goods sector. The practical identification of traded and non-traded goods is problematic, but private housing must certainly rank among the least tradable of items; investment in private housing must thus be considered investment in the non-traded goods sector. Recent criticism of countries which spent the proceeds of foreign loans on investment in the domestic infrastructure of buildings, etc., highlight the importance of DFI in financing such forms of investment. Similarly, much criticism has been levied in the economic history literature at Germany for spending (during the 1920s) the proceeds of foreign loans on such projects instead of on building up the export sector. (See for instance Kindleberger [1973].) The development of a decent quality of domestic infrastructure of buildings, homes in particular, depends perhaps more heavily than any other form of investment, upon the development of DFI.

In Chapter IV it was argued that investment in infrastructure in the non-traded goods sector would particularly suffer from weakness in the development of DFI. In that context this was attributed to low relative prices of nontraded goods and weaker support of monetary services to that sector caused by the pressure of incremental demand for imported money on the balance of payments. In Chapter III attention was drawn to the fact that if banks extended credit for purposes of financing investment in the non-traded goods sector, incremental demand for imported money would be generated by such investment without the investment leading to any increase in its supply. Where the (desired) imported share in the money supply is large, therefore, the creation of domestic credit for the financing of investment in the non-traded goods sector can not be very substantial

(relative to credit extended to the traded goods sector) without running into balance of payments difficulties. Infrastructure which directly serves the export sector can successfully be financed by such means, or by external borrowing (or geographical EFI). However, the financing on a substantial scale of investment in infrastructure in non-traded sectors, including investment in civic buildings and domestic housing particularly, requires DFI if dangerous carrying of exchange risk is to be avoided.

Investment in buildings, both civic and private, was undertaken during this period in Argentina on a vast scale, particularly in Buenos Aires; the many great buildings and homes of high quality and craftsmanship which characterize Buenos Aires largely date from this period (including the 10-20 years before 1900), and absorbed vast quantities of capital. Much of this investment was financed through the Banco Hipotecario Nacional. The mortgage bonds sold by the BHN were purchased by foreign investors in large quantities, so the funds thus raised were by no means only domestic savings, but the denomination of these bonds in domestic currency enabled foreign funds to be used for these purposes, since the foreign buyers bore the exchange risk of their investments.

The contribution of the BHN to the development of DFI was thus on a large scale, and made a particularly important contribution to the financing of investment in the non-traded sector of buildings and private housing.

We have seen that the features identified in Chapter III as giving rise to incentives for using currency type EFI were all present throughout this period. The data presented here on the currency denomination of the banking system have shown us that currency type EFI was being used by the deposit banks during this period, but that the EFI share faded into insignificance during the period. The fading out of the use of EFI was attributed, to an important extent, to the role of the two great official banks, the Banco de la Nacion and the Banco Hipotecario

Nacional, in developing DFI. Following the lines of argument developed in Chapter III, my view is that the development of DFI financial activity was changing the character of the domestic currency, so that financial instruments denominated in paper were gaining broader use and acceptance, and the other banks were therefore able to follow the lead of the two official banks in extending DFI activity. The contribution to the stabilization of the value of the paper peso which was made by the change to the Type II monetary system was a major factor in the success of this development of DFI activity. To this we now turn.

4 Structure of the money supply prior to 1930

The Argentine monetary system during this period was a mixture of the types distinguished in Chapter II. After 1893 it was a Type II system as concerns the issue of paper notes, since new notes were issued (by the Conversion Office) only in exchange for gold after this date until the 1914 rediscount law was finally put into operation in response to the 1929/30 crisis. There was however already in circulation a fiat issue which pre-dated the introduction of the Type II system; the monetary system was therefore a mixture of the Type III and Type II systems. In 1899, as noted above, the appreciation of the paper currency was halted by the means of opening the Conversion Office for the issue of new notes against the purchase of gold at a fixed rated of exchange. Since new notes were only issued against gold, the gold coverage, or "proportion" was rising over the period as the note issue increased. Data on the gold stocks and note issue are given in Table V.8, as also are data on commercial bank deposits and the total money supply; data on the "proportion" is given in the second column of Table V.9, labelled "Go/H". Data on Go and Gb in these tables are net figures, which is the reason the figures are sometimes negative.

In view of the magnitude of the loans to other banks extended by the Banco de la Nacion from 1925, it might be appropriate to identify the

Argentine monetary system from that time as moving in the direction of a Type IV system. That is, the character of the inside money being created by the Banco de la Nacion may have been acquiring something which was at least beginning to approach a high-powered status. However, the burden of problematic debt which the bank had to take on in the early 1930s was such as must have undermined the confidence required to maintain that status. Whether the Banco de la Nacion was developing along the lines which the Bank of England had done earlier, and whether it might have continued to do so had the international crisis not taken things in another direction, is a question perhaps worth considering, in that it might yield some instructive insights which would be useful in coping with some other situation. As it was, the crisis did take things in a different direction.

The direction which concerns us here is the direction in which (G/F)* was developing. Had the DFI financial development continued in the trends we have observed, and had the Banco de la Nacion continued to develop its role as bankers' bank, as well as maintaining a profitable commercial bank portfolio, we would expect (G/F)* to have fallen. Since there were no restrictions on capital movements, nor on the issue of paper notes in exchange for gold, nor on commercial banks' reserve ratios, etc., during this period, and the exchange rate was quite stable, we can sensibly treat the behaviour of the actual ratio (G/F) as giving some indication of the behaviour of (G/F)*.

The stability of the exchange rate during this period, in sharp contrast to the post WWII period, may be seen in table V.12. Minor fluctuations in the exchange rate occurred, particularly during and immediately following WWI. As noted above, the authorities reopened the Conversion Office for the purchase of gold at a fixed rate of exchange (the pre-WWI par) in 1927 to halt the appreciation of the peso which was then taking place.

Table V.9 (first column) shows us that (G/F) was rising from 1900-1915, and falling (with some fluctuations) in the period 1915-1929. In 1915 it was 40.4%, and by 1929 it had fallen to 21.97%. This table

also shows us that the fall in (G/F) was largely due to a fall in the average reserve/deposit ratios of commercial banks (shown in the third column, (Hb+Gb)/D), from 40% in 1916 to 12.34% in 1929. There was also some fall in the public's cash/deposit ratio (Hp/D), shown in column six of the same table. A third factor contributing to the fall in (G/F), at least until 1927, was a decline in the gold share of commercial banks' reserves (Gb) in favour of paper reserves (Hb). The proportion, Go/H, however, was for the most part continuing to rise for the reason explained above.

The rise in (G/F) between 1900 and 1915 may be partly illusory, because figures on private holdings of gold (Gp) are not included. Private holding of gold had been important prior to the fixing of the exchange rate in 1899, and may have been fading out gradually over the next decade or so. This change would appear in the data given here as a rise in (G/F). On the other hand, the fall in (G/F) after 1915 should not be attributed to this factor operating in reverse, because there is no suggestion in the literature that this was occurring. There was, however, another factor, which I mentioned above: the prohibition of gold export imposed in 1914 resulted in an increase in the balances held abroad by the deposit banks. (See Tornquist [1930].) Tables V.8 and V.9 show some fall in banks holding of Gold (Gb), and in their ratios of gold to deposits (Gb/D), which may have been partly offsetting increases in the balances held abroad. In other words, if the balances held abroad were included in the figures for Gb, the fall in the (G/F ratio after 1915 might turn out to be less than it appears to be in Table V.9.

What can we conclude from this about the behaviour of (G/F)*? In constructing the measure for what is referred to as "BOP pressure" in Table 11, I have simply taken the average actual (G/F) ratio for the period 1900-29, and called that (G/F)*. I do not believe that the rise in the actual ratio (G/F) between 1900 and 1915 represented a rise in (G/F)*; I would take the view that some of the actual rise was illusory, and that the maintenance of the Type II system (such that all

new notes were issued against gold) had brought the actual (G/F) above (G/F)* by 1915. On the other hand, I take the view that (G/F)* was tending to fall during this period, at any rate after 1914. One reason for taking this view is that the fall in the actual ratio, (G/F), is attributable largely to a rise in the domestic money multiplier, i.e. to a fall in g, as may be seen in Tables V.8 and V.9. The fall in g (rise in the domestic money multiplier) in turn is largely attributable to a fall in the average reserve/deposit ratio of banks. That these ratios were falling steadily over this period suggests to me that confidence in the banking system was rising; this in turn suggests that the ratio (G/F) was perceived as "adequate" by wealth-holders. i.e. that it was not less than (G/F)*.

This view receives some further support from the tenor of discussion in local literature of the period. During the early 1920s, for instance, although the paper peso was trading at a discount associated with post-WWI declines in the world prices of major Argentine agricultural export items, the local literature makes clear that the peso was expected to return to par. It also gives a clear impression that gold stocks were perceived to be at very satisfactory levels.

The fall in the average reserve/deposit ratio of the banks should certainly be attributed primarily to the adoption of the Type II system (i.e. the restriction of note issue exclusively to the issue of notes against gold and foreign exchange), together with the various contributions made by the two great official banks which have been discussed above. The larger share of paper notes in banks' reserves should also be attributed primarily to the adoption of the Type II system, although the decline in the share of gold denominated deposits is another factor. However, the decline in the gold share of deposits is certainly itself largely to be attributed to the stabilization of the value of the domestic currency with the introduction of the Type II system. The decline in the public's cash/deposit ratio in turn also reflects the stabilization of the value of the currency, as well as the general increase in confidence in the stability of the banking system.

The important role played by the Banco de la Nacion in contributing to the stability and confidence of the banking system has been pointed out above.

These observations do lend some support to the view that economies suffering from severe dollarization and monetary instability would benefit from the introduction of a Type II system, provided the change to a Type II system is accompanied by the kind of official support for DFI development which was provided in the Argentine case by the Banco de la Nacion and the Banco Hipotecario Nacional. The great importance of this qualification is that the way is thereby opened for a gradual transition to a Type IV system, in the manner which seems to have been occurring in Argentina, and which did occur in 19th century Britain. Without the provision for this development, the economy could become stuck in the manner described in Chapter IV, with the legal restrictions on the structure of the monetary base causing the monetization and development of the non-traded goods sectors to be adversely affected. In Argentina, in fact, there did continue to be illegal issues of paper money in the provinces (not included in the data given here), in response to the kinds of efficiency gains through increased monetization which were discussed in Chapter IV. Legal restrictions on the monetary base which may be introduced in the interests of monetary stability become damaging to the productive functioning of the economy when they prevent such financial market response to available efficiency gains. Therefore the provision for a gradual transition to a Type IV system in response to market forces (whether through an official bank or through some sort of free note issue banking system), such as appears to have been occurring through the development of the Banco de la Nacion, is of immense importance.

It should also be noted that in the Argentine case average bank reserve/deposit ratios had been very high indeed, and there were therefore substantial gains attainable in reducing the cost of maintaining the circulating medium by achieving reductions in these

reserve/deposit ratios. In other circumstances, if reserve/deposit ratios (and public's cash/deposit ratios) are not particularly high, the introduction of the Type II system would not have this source of gains to offer.

5 The behaviour of (G/F) and (G/F) after 1930*

In Chapter IV the implications for an economy of a fall in the traded share of national output unaccompanied by a fall in (G/F)* were analyzed. It was argued that the pursuit of import substitution industrialization policies associated with substantial restrictions on international trade and capital flows, such as were pursued by Argentina after 1930, could bring an economy into this position. The purpose of this section is to test the applicability of these arguments to the Argentine case.

It will be shown that the statistical material presented here does offer support for this approach to explaining some of the trends and intractable problems which have characterized post-WWII Argentina.

It was argued in Chapter IV that the introduction of exchange controls and restrictions on trade and capital flows which occurred in response to the 1929/30 crisis would have tended to cause a rise in (G/F)*, by increasing the private demand for hoards of foreign money and other foreign financial assets (while at the same time forcing these demands into secret and illegal channels). It was further argued that these policies led to the development of a production structure which was incompatible with (G/F)*, in that the policy manipulation of relative prices caused a reduction in the traded share of national output, which in turn caused incremental demand for imported money to put impossible pressures on the available supplies of foreign exchange. The utilization of the productive capacity of the economy to any tolerable levels therefore has required the extension of domestic credit which has persistently pushed the actual ratio (G/F) below

(G/F)*, such that recurring balance of payments crises and currency devaluations necessarily occur. These pressures cause the economy to be characterized by severe fluctuations in the relative prices of traded and non-traded goods, as part of these cycles.

No attempt will be made here to examine the cyclical pattern of such crises in the Argentine case; as noted in Chapter IV this has been done in depth by Guido di Tella [1983]. These cyclical patterns and the instability of relative prices in Argentina have also been discussed by many other writers.[10]

The first point to note, from Table V.1, is that the ratio of exports to national income does fall after 1930, and remains at less than half what it had been in the earlier period.

The second point to note, from Table V.9 and Graph V.2, is that the actual ratio (G/F) has indeed been substantially lower than it was in the pre-WWII period. The fall did not occur until after the war, as Argentina built up substantial reserves of gold and foreign exchange during the war (and because of the war). The rise in (G/F) visible at the end of the 1970s was associated with the domestic financial policies which contributed to the development of the debt crisis, and should probably not be seen as a reversal in trend. However, the figures for (G/F) given here are significantly understated for much of the post-WWII period, because they do not include private holdings of dollars (Gp), and these private hoards are known to have risen to substantial proportions. Therefore the true picture, including Gp, would show a much less striking change in the actual levels of (G/F).

Table V.11 (third column, "b*/b") shows the behaviour of the ratio of (G/F)* to the actual ratio (G/F), which was constructed by taking the average actual (G/F) for the period 1900-1929 and treating this figure as (G/F)*. A substantial rise in this ratio in the post-WWII period is clearly visible in the table. It should be remembered, however, that the figures for b are unrealistically low because of the exclusion of Gp from the data given here. The figures given for the ratio b*/b

therefore appear here as higher than they would be if the true figures for G, including Gp, were available. The negative figures occur because actual net foreign exchange holdings (G) were negative in those years. Fluctuations in this ratio are very striking in the post-WWII period, and contrast sharply with the magnitude of these fluctuations in the earlier period.

The ratio (b*/b) gives the ratio of G*/G, for any actual F, and hence shows the magnitude of the rise in the exchange rate which would be required to bring actual stocks of G up to equal desired stocks by this means. The actual behaviour of the exchange rate is shown in Table V.12, where the second column gives the free (or black) market exchange rate. Two versions of the (various) official exchange rates are also given. No claim is being made for precision in predicting actual exchange rate changes with the ratio b*/b; however, the order of magnitude of these changes should at least be in the same ball park, so to speak, or we would have to doubt the pertinence to the economy of the values given for (b*/b). A ratio for b*/b of 4, for instance, implies that a fourfold increase in the exchange rate is required to equate desired stocks to actual stocks. If the exchange rate actually only depreciated a few percentage points over an extended period, we would have to conclude that we had given too high a value to b*. It happens that for 1958 the figure given is 4.77, and the rise in the official exchange rate between 1958 and 1959 (shown in column one of Table V.12), from 18 to 80, was of 340%. On the other hand we see a figure of 46.77 for 1963, and the exchange rate doesn't even double for the next 3-4 years. In the larger picture, however, the spectacular rises in the Argentine exchange rate which have occurred over this period suggest that the concept of b*/b as represented in the figures given does have pertinence to the Argentine case. However, the hypothetical figure used for (G/F)* may be rather high. The average annual rise in the exchange rate, over the whole period 1930-1979, is only 22%; this would imply an average ratio over the period for b*/b of only 1.22, which is substantially below the hypothetical figures

given in Table V.11. However, the fault may lie not so much with the hypothetical figure used for b*, as with the understatement of b; it could be that the inclusion of accurate figures for Gp in the figures for G would raise b so much that the average ratio of b*/b would be nearer the figure indicated by the average exchange rate change even with the figure for b* which has been used here. If we had accurate figures for Gp, indeed, we could use the average actual ratio, b, and the average exchange rate change, to infer b*.

A measure called "BOP pressure" is offered in the second column of Table V.11; which gives the hypothetical incremental demand for imported money, using the same estimate for b*, as a percentage of actual export earnings for the year. As was shown in Chapter II, incremental demand for imported money is b*kdY, where dY is the change in nominal income, and k is defined (as in Chapter II) as F/Y. Actual changes in nominal income were used in constructing these figures. The figures given in Table V.11 for b*k*dY actually also use the value (shown as k* in the notes for that table) of k which was the average actual value for the 1900-1929 period. This was done because the figures for k as given in the table have excluded Gp, since figures on Gp are unavailable, yet the concept k as defined here requires the inclusion of Gp. The fall in k which appears in the table after 1956 may be due to a rise in Gp at the expense of domestic forms of money (H and D), as much as to any fall in the actual k. The ratio (b*k*) dY / X provides a measure of the pressure of incremental demand for imported money on the balance of payments.

The ratio of hypothetical incremental demand for imported money to actual export earnings, given in the second column of Table V.11 ("BOP pressure"), is shown on Graph V.5 together with the measure b*/b. The figures (and graph) show that the rise in the "BOP pressure" measure precedes the rise in the ratio b*/b, as would be expected from the arguments developed in Chapter IV. The closing of the economy was causing the incremental demand for imported money at this fixed, hypothetical, figure for (G/F)*, to require an increasing share of

actual export earnings. Restrictions on the exchange rate and on trade and capital flows were maintained for the purpose of allocating available supplies of foreign exchange in other directions in accordance with national policy priorities. By means of imposing these restrictions, the development of the economy was continued on the basis of increasing the domestic paper components of the money supply such that the actual ratio (G/F) was persistently kept under the required ratio, (G/F)*. The untenable character of this position was explained in Chapter IV.

If the structure of money demand in Argentina is in the range suggested by the figure used here for b*, i.e. for (G/F)*, then the closing of the economy has indeed caused incremental demand for imported money to put pressure on the balance of payments which is of quite intolerable levels. The sharp contrast between the pre-WWII period and the post-WWII period shows vividly in the figures and on the graph.

I would argue that the figures given here do support the claim that the arguments developed in Chapter IV are pertinent to post-WWII Argentina. Persistence in the development of a production structure which is incompatible with (G/F)* has resulted in increasingly intractable problems of exchange rate crises and underutilization of productive resources.

The arguments developed in Chapter IV indicated that there should be the appearance of some trend decline in the relative prices of non-traded goods, and particularly in the return to fixed factor inputs (rents, in the technical sense of the term) in the non-traded goods sector. Table V.10 provides data on relative prices for seven categories of goods for the purpose of identifying such a trend. Some of this data is illustrated on Graphs V.6 and V.7.

The figures given in Table V.10 are the ratio of the price index for each category to the price index for the general price level, with 1960=100 in all cases, so that the ratios in Table V.10 are 1 in 1960

for all categories. The index used for the category "houses" was constructed from figures taken from the annual reports of the Banco Hipotecario Nacional on the average values (per property) of properties sold by the bank either at auction or by private sale. Large numbers of properties were involved (i.e. 1000-2000 or more), so that a reasonable approximation of movements in property values is represented in these figures.

We see from these figures that the index for "rents" falls from 15.75 in 1934 when the available data begins, to 1 in 1960, and that it fluctuates considerably after that. This is rents in the literal sense, which, as the price of housing services, so to speak, certainly come into the non-traded category. Both "electricity" and "houses" also show this marked trend fall in relative price, and these two items must also come into the non-traded category, particularly in comparison with the other categories distinguished here. The relative price of houses continues to fall after 1960, as does electricity.

The trend fall in relative prices of non-traded goods which the arguments developed in Chapter IV had indicated thus do clearly appear in these figures.

However, it seems clear that not all returns to fixed factors in non-traded sectors experienced equally severe deterioration; the ability of particular groups to exert political pressure in favour of policies which influenced relative prices in their favour, thereby defending their returns (rents, to the extent these were fixed factors), certainly influenced the incidence of such deteriorations. Some evidence of the force of these tensions may be seen in the instability of the real exchange rates during the post-WWII period.

Tables V.12 and V.13 give data on two versions of the real exchange rate, one using the official exchange rate and the other using the black market rate. Substantial divergences in these rates are observable from 1948 onwards. The real exchange rate constructed by using the official exchange rate (Table V.12) does not reflect the set of relative prices faced by ordinary consumers; for this the black

market version of the real exchange rate is more accurate. This shows considerable fluctuation, during the whole post 1930 period, contrasting sharply with the relative stability of the earlier period. The official rate is held fairly consistently under the black market rate, with wide variations in the extent of the divergence. Since the main exports are basic foodstuffs, which dominate the price index used here because of their importance in the consumption basket used in its construction, this policy of maintaining an overvalued official exchange rate was also influencing the behaviour of the black market version of the real exchange rate, via its depressing influence on the price level. The fact that the main exports are food staples which figure so largely in the consumption baskets of workers contributes strong incentives for industrial interests to exert political pressure towards maintaining an artificially low exchange rate, combining with the political interests stemming from the rents of owners of fixed capital in the non-traded goods sector. The divergence of the official exchange rate from the price people are actually willing to pay for foreign exchange, on the other hand, tends to foster expectation of currency depreciation, and thereby erodes willingness to hold the currency, or to accept domestic currency denominated financial instruments, undermining (currency type, at least) DFI.

The fluctuations in relative prices which are evident in these tables reflect the influence of the non-traded goods sector and labour interests just discussed, and their conflict with the opposing pressures deriving from the export sector interests and a variety of factors giving rise to balance of payments pressures, including the monetary factors we have been analyzing in this thesis.

The timing of the declines in these relative prices can be compared with the rise in the hypothetical figures given in Table V.11 for "BOP pressure". Table V.11 shows us that the figures for "BOP pressure" begin to rise appreciably from 1944/45, whereas Table V.10 shows that the relative prices of two of the three particularly non-traded items

have been falling continuously since 1934. The fall in the price of houses does not come until after 1950 however. The early beginning of the trend fall in rents and electricity supports the idea that the introduction of restrictions on international trade and capital flows may have pushed (G/F)* up from 1930. However, since relative price data is not available for an earlier period on these groups we can not rule out the possibility that the observed trend decline may have actually been present prior to the policy changes which occurred in 1930.

Table V.11 gives data on two variables which are sometimes used in alternative approaches to explaining the post-WWII deterioration of the Argentine currency. One of these is the government budget deficit, and the other is the behaviour of the trade balance. Neither of these two variables deteriorate in a time pattern which would make them plausible explanations of the observed change from the pre-WWII monetary and exchange rate stability, to the post-WWII spectacular deterioration of the currency.

The sixth column of Table V.11 gives the government budget deficit as a percentage of total government expenditure. The figures show that this percentage does not rise until well after the deterioration in the currency has begun. It may be that the absolute size of the deficit would show a different pattern; however, to attempt to explain the historical change from monetary stability to deterioration of the currency, by an increase in the government budget deficit does not look like a promising prospect.

Table V.14 presents data on the government budget deficit as a share of total aggregate demand, which confirms the conclusion just drawn. The average size of the government budget deficit as a share of aggregate demand did not rise until after the deterioration in the external value of the currency was already well advanced. Table V.14 shows that this figure jumps to a higher level (2.03%, as compared with the average for 1900-1940 of 0.92%) in 1957, and thereafter shows

figures which are on average higher than during the pre-WWII period. However, by 1957, the (black market) exchange rate has already risen to 39.62 pesos per US$, as compared to less than 3 pesos per US$ for the whole period 1900-1930. Therefore it is not plausible to argue that the deterioration of the currency was caused by the behaviour of the government budget deficit. It seems likely, on the other hand, that the deterioration in the government budget was partly caused by the deterioration of the currency, due to the burden of foreign currency liabilities and the failure of government revenues to keep pace with the exchange rate.

Two versions of the figures for the trade balance are given because they turned out to differ so strikingly when taken from different sources; this serves as a reminder of the vagueness of balance of payments figures. The person who would venture to try to explain the deterioration of the currency with reference to the trade balance figures shown here (in either column) is more imaginative than the present writer.

Neither the behaviour of the government budget deficit nor the behaviour of the trade balance seems to offer a plausible source of explanation for the striking historical change in the trend of monetary and exchange rate stability in the Argentine case.

6 Conclusions

The statistical material presented in this chapter offers support for the view that the theoretical analysis developed in this thesis is pertinent to the Argentine case. The theoretical analysis developed in this thesis offers a fresh approach to explaining the historical emergence of some of the intractable problems which have plagued the Argentine economy in recent years. An attractive feature of this explanatory approach is that it accounts for the dramatic change from

monetary stability to increasing monetary instability which has been such a striking feature of the Argentine case.

We saw that the economy was characterized in the pre-1930 period by the structural features which were shown in Chapter III to cause a tendency for EFI to predominate over DFI, and that the initiatives of the two great official banks made a major contribution towards overcoming that tendency. We also saw that the structure of the money supply was changing during this period, such that the imported share in the money supply was falling. This was attributed to the stabilization of the value of the domestic currency by the adoption of the Type II system, together with the important role of the Banco de la Nacion in the stabilization and development of the banking system.

The role for government which was identified in Chapters III and IV in economies of this type was very successfully performed by the two official banks, the Banco de la Nacion and the Banco Hipotecario Nacional. The role performed by these official banks made a major contribution to the successful financial and economic development which characterized this pre-1930 period.

The data presented here support the application of the arguments developed in Chapter IV in explanation of the emergence in the Post-WWII period of the intractable problems of inflation and underutilization of productive resources. The emergence of these problems is attributed to the pursuit of development policies which led to a closing of the economy without simultaneously reducing the imported share in the desired structure of the money supply.

A particularly appealing feature of this explanatory approach is that it yields policy conclusions which widen the available range of policy initiatives in confronting these problems: In the analytical framework developed in this thesis a government is not stuck in a trap between the hazards of inflationary money creation on the one hand and intolerable underutilization of domestic resources on the other. Instead it can tackle both problems simultaneously, by developing

through its official banks a profitable DFI portfolio of productive earning assets, in the manner that the Banco de la Nacion and Banco Hipotecario Nacional were doing in the pre-1930 period. By these means the structure of incremental money demand can be gradually altered, so that the full utilization of the productive capacity of the economy will no longer lead inexorably to exchange rate and balance of payments crises.

Notes

1. Information on the identity, by occupation group, of the various forms of deposits, as well as of loans, is given for this period in the volume "Banco de la Nacion en su Cinquentenario", Banco de la Nacion Argentina (1941), which has been cited as a data source on the various tables.

2. This practice was described in a note by Laura Randall (1978), in which Ms. Randall was quoting an unidentified speaker who had witnessed the practice.

3. See for instance the books by J.H. Williams (1920), A.G. Ford (1962), and C. Diaz Alejandro (1965).

4. Williams, Ford, Diaz Alejandro, and others, have all drawn attention to the fact that in the Argentine case exchange rate depreciation has a deflationary effect on aggregate expenditure, which would cause other expenditure related government revenues to fall, as well as customs revenues. The deflationary effect of exchange rate depreciation is caused by the income distribution effect, which is particularly severe against wage earners and lower income groups in Argentina because the major exports are also basic foodstuffs, which figure largely in the expenditure bundles of these groups.

5. Diaz Alejandro, "Essays on the Economic History of the Argentine Republic", 1970.

6. The missing figures in these tables occur because no source for the information could be found. Upon arrival at the Central Bank library in Buenos Aires, I was informed by the director of the library that he was doubtful whether data on the currency denomination of banking operations could be found, although the fact that operations had been regularly conducted in two denominations was well known. The director was extremely helpful and well-informed in guiding my search for this data, which was eventually found. However, no consistent source for this information could be located, in six weeks of joint search of the Central Bank library resources. The main source, the annual volumes of the Memoria de Hacienda, was somewhat variable in its coverage during this period.

7. Such, in my view unwarranted, conclusions have been drawn from relating the sectoral pattern of B de la N credit extension to the share of the sector in total national income, by Laura Randall (1978). Relating the sectoral pattern of credit to that of investment instead of to that of income has made no great difference to the main conclusions however. Reading through the annual reports of the Banco de la Nacion gave me the distinct impression of a bank being (very successfully) run by its directors according to the educated views of the time; the quality of the writing in these reports is very high, and testifies clearly to educated thought. The portrayal of the bank as an instrument of government policy put forward by Ms. Randall strikes me as rather overdrawn, in view of the tenor of these reports during this period.

8. This practice has been discussed in the literature on Argentine economic history, for instance by A. G. Ford (1962) and Laura Randall (1978).

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9. Goldsmith, Raymond W. (1969), page 255.
10. See for instance Mallon and Sourrouille, 1975.

Chapter V

Table V.1: Data on Structural Features of the Argentine Economy

year	X/Y	M/Y	Sg/X	Sp/X	S/X	I/Y	ITT	export conc.
1900	32.9%	26.6%				27.1%	60.8%	70.0%
1901	30.3%	25.5%				25.9%	54.1%	62.5%
1902	30.9%	22.4%				26.1%	54.0%	58.5%
1903	27.1%	25.5%				25.0%	59.9%	61.9%
1904	24.5%	36.6%				32.7%	61.0%	66.3%
1905	29.9%	30.6%				44.7%	63.3%	66.7%
1906	28.5%	33.5%				50.8%	65.4%	66.9%
1907	27.9%	31.9%				61.5%	64.8%	65.8%
1908	25.4%	26.9%				47.8%	65.6%	66.3%
1909	24.2%	29.6%				51.3%	64.9%	61.5%
1910	25.0%	31.8%				57.2%	66.5%	56.5%
1911	24.6%	34.0%				55.3%	66.0%	60.5%
1912	22.7%	30.5%				41.7%	64.6%	60.0%
1913	22.5%	33.2%				41.8%	64.8%	59.9%
1914	25.1%	22.9%	12.5%	21.8%	34.3%	28.9%	55.9%	96.2%
1915	25.6%	17.3%	9.2%	16.4%	25.6%	17.3%	47.7%	95.2%
1916	26.4%	21.4%	9.5%	19.2%	28.7%	15.7%	51.7%	94.7%
1917	28.7%	20.3%	8.1%	16.2%	24.3%	12.9%	48.5%	94.6%
1918	24.3%	15.7%	6.5%	12.5%	19.0%	11.0%	53.1%	94.8%
1919	23.4%	18.7%	4.9%	12.4%	17.3%	12.4%	55.2%	95.7%
1920	30.3%	23.4%	3.6%	9.2%	12.8%	21.5%	66.3%	96.0%
1921	29.6%	21.7%	6.5%	12.6%	19.1%	24.3%	56.2%	95.8%
1922	27.4%	20.3%	6.6%	12.6%	19.2%	26.4%	55.8%	95.8%
1923	24.7%	23.9%	6.8%	14.0%	20.8%	32.8%	59.2%	95.6%
1924	22.9%	22.9%	5.8%	12.3%	18.1%	32.7%	59.8%	96.8%
1925	28.4%	16.7%	5.8%	12.4%	18.2%	33.1%	60.7%	95.7%
1926	27.1%	26.6%	6.0%	16.8%	22.8%	31.1%	56.9%	95.8%
1927	25.3%	28.2%	5.3%	13.6%	18.9%	33.4%	56.7%	96.0%
1928	23.9%	26.3%	5.5%	13.8%	19.3%	37.3%	59.5%	96.1%
1929	22.8%	25.6%	6.2%	16.1%	22.3%	40.8%	58.1%	96.7%
1930	22.3%	22.2%	11.2%	21.9%	33.1%	35.9%	55.0%	95.4%
1931	23.9%	15.5%	13.8%	18.9%	32.7%	23.6%	52.1%	95.8%
1932	24.7%	12.5%	14.5%	20.7%	35.2%	17.1%	38.1%	96.5%
1933	23.6%	14.0%	15.6%	22.2%	37.8%	18.3%	40.8%	94.9%
1934	21.9%	13.7%	13.1%	16.7%	29.8%	22.4%	36.1%	94.4%
1935	22.3%	15.1%	11.2%	16.1%	27.3%	20.5%	32.0%	95.0%
1936	20.2%	15.4%	9.9%	15.4%	25.3%	21.2%	30.5%	95.2%
1937	21.7%	19.5%	6.5%	12.1%	18.6%	26.7%	30.6%	95.9%
1938	15.3%	18.5%	8.3%	18.4%	26.7%	28.5%	37.8%	93.0%
1939	18.1%	14.6%	9.0%	18.4%	27.4%	23.4%	32.4%	92.6%
1940	14.5%	12.5%	10.7%	15.4%	26.1%	20.5%	25.0%	90.8%
1941	14.0%	9.1%	9.0%	17.4%	26.4%	18.6%	20.8%	85.8%
1942	12.7%	7.5%	9.1%	19.3%	28.4%	17.2%	17.6%	82.2%
1943	14.1%	5.2%	6.0%	12.2%	18.2%	17.1%	11.5%	75.5%

1944	12.6%	4.8%	5.7%	15.3%	21.0%	17.6%	8.5%	82.3%
1945	13.0%	5.0%	3.9%	11.5%	15.4%	18.3%	9.1%	82.2%
1946	13.8%	8.5%	2.0%	9.5%	11.5%	21.8%	14.7%	85.9%

year	X/Y	M/Y	Sg/X	Sp/X	S/X	I/Y	ITT conc.	export
1947	11.7%	15.2%	0.7%	4.4%	5.1%	29.6%	17.8%	93.5%
1948	9.3%	14.6%		6.6%	6.6%	29.0%	13.1%	95.7%
1949	7.0%	10.5%		1.1%	1.1%	25.2%	5.9%	95.5%
1950	9.6%	8.9%		0.2%	0.2%	24.3%	4.6%	92.6%
1950	13.2%	13.6%		0.2%	0.2%	16.4%	3.1%	92.6%
1951	10.0%	14.7%	0.4%		2.8%	19.5%	4.0%	94.1%
1952	7.8%	11.4%	0.5%		1.5%	18.3%	2.5%	92.0%
1953	11.3%	8.8%	0.3%		1.0%	17.1%	1.3%	94.2%
1954	11.6%	11.2%			1.4%	15.8%	1.8%	95.4%
1955	9.8%	12.6%			2.3%	17.1%	2.2%	94.0%
1956	10.9%	10.9%			1.8%	17.7%	17.2%	94.2%
1957	10.9%	11.6%			1.3%	18.5%	8.9%	92.6%
1958	10.6%	11.4%			3.1%	19.0%	9.0%	95.0%
1959	11.9%	10.8%			4.0%	16.0%	24.8%	95.6%
1960	11.1%	12.3%			5.3%	22.5%	21.0%	75.4%
1961	9.6%	13.7%			10.6%	24.5%	20.8%	93.7%
1962	13.1%	13.4%			5.9%	22.6%		94.4%
1963	13.7%	10.7%			5.0%	19.7%		87.2%
1964	11.6%	11.2%			7.3%	19.7%		91.1%
1965	11.7%	10.2%			6.0%	18.9%		92.7%
1966	12.8%	9.7%			9.5%	19.4%		61.4%
1967	12.3%	9.3%			8.2%	19.8%		55.8%
1968	11.6%	9.7%			10.3%	21.4%		50.2%
1969	12.4%	11.0%			9.9%	23.6%		53.9%
1970	12.7%	10.4%			8.0%	23.6%		53.4%
1971	10.7%	10.8%			14.7%	24.7%		55.9%
1972	9.7%	9.9%			17.2%	25.1%		55.1%
1973	9.7%	9.1%			12.1%	23.8%		52.0%
1974	9.2%	8.9%			8.5%	24.4%		48.2%
1975	7.7%	9.5%			14.6%	24.0%		51.5%
1976	11.0%	7.4%			12.6%	25.8%		49.6%
1977	15.7%	8.8%			10.2%	28.8%		47.7%
1978	17.2%	7.9%			11.1%	26.8%		46.9%
1979	16.5%	9.9%			11.5%	28.0%		50.4%
1980	14.8%	13.1%			14.2%	27.9%		48.9%

Sources: ITT: 1900-1950 Diaz Alejandro (1970) p.490; 1950-1961 Diaz Alejandro (1970) p.491. All other data are from Economia 720 as follows: Sg/X, Sp/X, S/X, pp. 274-275; X/Y, 1900-34, constructed from Y on p. 242 and X on p. 249 (figures for Y are 5-year averages to 1934); X/Y, 1935-80, p.249; M/Y, 1900-1980, p.227; I/Y, 1900-80, p.242; Export conc., pp. 246-248.

Notes: 1950 appears twice because of change in price index used in the underlying calculations, as follows: figures 1935-1950 are based on 1950 prices; figures 1950-1980 are based on 1960 prices.

ITT: customs revenue as a % of government revenue;
ITT: figures 1900-50 are as a % of tax revenues;
ITT: figures 1950-61 are as a % of total current revenue;
X/Y: exports as a % of GDP; M/Y: imports as % of GDP;
I/Y: Fixed capital investment as % of GDP.
S/X: total external debt service as % of exports;
Sg/X: government external debt service as a % of exports;
Sp/X: private sector external debt service as % of exports;
Export conc.: 1900-1913: top three items as % of total exports; 1914-1980: agricultural exports as % of total (excluding hunting, fishing and forestry).

Table V.2: Percentage of total deposits and loans denominated in gold

	Banco de la Nacion		All banks			
	Banco de la Nacion deposits	loans				
year	% gold	% gold	% gold	% gold	% all banks deposits	% all banks loans
1892	1.50%	0.00%				
1893	5.97%	0.00%				
1894	1.30%	0.00%				
1895	2.20%	0.00%				
1896	0.00%					
1897	0.00%					
1898	3.44%	0.00%				
1899	4.05%	0.02%				
1900	2.20%		17.07%	20.24%	24.62%	26.88%
1901	1.29%		18.43%	20.04%	28.62%	28.94%
1902	19.79%	0.02%	16.34%	19.15%	23.77%	27.76%
1903	3.52%	0.62%	11.09%	16.42%	26.17%	23.46%
1904	3.37%	0.93%	9.53%	14.78%	25.51%	22.46%
1905	2.02%	1.69%	9.60%	13.95%	25.57%	27.97%
1906	4.04%	1.78%	7.72%	13.75%	21.54%	25.66%
1907	2.47%	2.13%		0.78%		
1908	5.93%		7.40%	8.31%	28.11%	30.15%
1909			6.94%	7.05%	29.96%	28.92%
1910	2.69%	1.29%	5.82%	5.87%	29.34%	28.25%
1911	2.78%	1.05%	5.37%	4.81%	29.99%	27.78%
1912	1.70%	1.00%	4.45%	4.31%	32.30%	28.24%
1913	2.91%	0.90%	5.60%	4.23%	33.42%	32.17%
1914	1.31%	0.42%	5.11%	2.66%	44.50%	45.22%
1915	2.23%	0.54%	2.53%	1.75%	43.68%	40.57%

1916	0.31%		2.01%	1.64%	41.92%	38.18%
1917	0.70%	0.04%	1.78%	0.93%	37.16%	42.13%
1918	0.34%	0.00%	0.90%	0.48%	35.76%	51.84%
1919	0.15%	0.00%	1.07%	0.75%	35.69%	50.33%
1920	0.39%	0.00%	0.69%	0.75%	33.33%	46.38%
1921	0.25%	0.00%	0.68%	0.60%	32.95%	42.23%
1922	0.32%	0.00%	0.63%	0.51%	34.93%	45.73%
1923	0.35%	0.00%	0.35%	0.48%	41.10%	50.45%
1924	0.36%	0.00%	0.27%	0.55%	40.86%	48.20%
1925	0.20%	0.00%	0.22%	0.33%	40.48%	45.33%
1926	0.22%	0.00%	0.21%	0.30%	40.01%	46.41%
1927	0.11%	0.00%	0.15%	0.06%	40.45%	46.68%
1928	0.06%	0.00%				
1929	0.06%	0.00%				
1930	0.06%		0.04%	0.01%	37.75%	45.33%
1931	0.02%	0.00%	0.03%	0.00%		

Sources: (i) Banco de la Nacion loans and deposits: Memoria de Hacienda, various years; series compiled from annual balance sheets of Banco de la Nacion.
(ii) All banks total loans and deposits:
1900-1906: Memoria de Hacienda 1906 pp. CLII-CLXV
1908-1919: econ 690 pp. 220-221
1920-1927: Memoria de Hacienda 1927 pp. 138-139
1930-1931: Memoria de Hacienda 1930-31

Notes: Banco de la Nacion % total all banks: Banco de la Nacion deposits and loans as a percentage of total deposits and loans for all banks.

Table V.3: Gold denominated loans as percentage of total
(Selected Years)

Banco de la Nacion Argentina year	Banks with gold denominated capitals	Banks with paper denominated capitals	
1900	31.60%	7.72%	2.20%
1901	32.16%	12.08%	1.29%
1902	33.27%	6.81%	0.02%
1903	26.12%	5.15%	0.62%
1904	21.61%	6.62%	0.93%
1905	20.62%	6.74%	1.69%
1906	21.92%	6.97%	1.78%
...			
1909	14.69%	2.08%	1.25%
1910	13.04%	1.74%	1.29%
1911	12.71%	2.54%	1.05%
...			
1918	1.74%	0.23%	0.00%
1919	0.97%	0.66%	0.00%
...			
1927	0.05%	0.16%	0.00%
...			
1930	0.05%	0.01%	0.00%
1931	0.00%	0.00%	0.00%

Sources:
1900-1906 Memoria de Hacienda 1906
1909-11 Memoria de Hacienda 1909,1910,1911
1918 Bancos 523 pp. 84-85
1919 Econ 690 pp. 220-221
1927 Bancos 525 (table 1)
1930-1931 Memoria de Hacienda 1930-31

Table V.4: Gold denominated loans as percentage of total BHN loans
BHN is the National Mortgage Bank, Banco Hipotecario Nacional

year	Gold loans as % of total
1888	7.81%
1889	17.57%
1890	19.47%
1891	19.36%
1892	8.72%
1893	7.87%
1894	6.61%
...	
1905	4.96%
1906	3.39%
1907	1.36%
...	
1910	0.33%
1911	0.22%
1912	0.10%
1913	0.09%
1914	0.06%
1915	0.06%
1916	0.06%
1917	0.06%
1918	0.05%
1919	0.05%
1920	0.05%
1921	0.04%
1922	0.03%
1923	0.03%
1924	0.02%
1925	0.01%
...	
1928	0.00%
1929	0.00%
1930	0.00%

Source: series compiled from BHN annual balance sheets in Memoria de Hacienda and in BHN Annual Reports

Table V.5: Percentage of total loans extended to each sector

year	banks	agriculture		industry	othe
1905	0.00%	33.96%	7.03%	59.01%	
1906	0.00%	36.24%	7.23%	56.53%	
1907	0.00%	35.80%	6.58%	57.63%	
1908	0.00%	34.19%	6.99%	58.83%	
1909	0.00%	33.32%	7.41%	59.27%	
1910	0.00%	32.23%	6.66%	61.11%	
1911	0.00%	31.33%	6.24%	62.43%	
1912	0.00%	32.79%	6.38%	60.84%	
1913	0.00%	31.18%	6.39%	62.43%	
1914	11.84%	35.76%	9.08%	55.15%	
1915	9.77%	41.45%	7.04%	51.51%	
1916	7.15%	35.22%	5.69%	59.09%	
1917	3.87%	32.50%	4.32%	63.17%	
1918	0.74%	31.40%	4.10%	64.50%	
1919	0.00%	32.99%	3.34%	63.68%	
1920	0.00%	35.30%	3.63%	61.06%	
1921	0.00%	36.91%	4.43%	58.66%	
1922	0.00%	33.01%	4.11%	62.88%	
1923	0.00%	29.42%	4.93%	65.65%	
1924	0.00%	25.88%	4.63%	69.49%	
1925	31.60%	27.36%	10.68%	61.95%	
1926	31.20%	26.85%	10.30%	62.85%	
1927	29.23%	30.27%	10.85%	58.88%	
1928	35.86%	31.19%	12.32%	56.49%	
1929	34.69%	29.34%	12.15%	58.51%	
1930	39.00%	36.02%	12.31%	51.67%	
1931	45.10%	32.99%	11.97%	55.03%	
1932	60.82%	32.91%	13.03%	54.07%	
1933	69.60%	30.95%	17.90%	51.15%	
1934	63.95%	47.53%	13.95%	38.51%	
1935	55.98%	24.96%	13.36%	61.68%	
1936	3.66%	18.84%	16.65%	64.51%	
1937	2.19%	19.72%	19.30%	60.98%	
1938	1.19%	27.01%	16.44%	56.55%	
1939	0.53%	48.19%	11.40%	40.42%	
1940	1.06%	35.60%	14.05%	50.35%	

Source:
Banco de la Nacion Argentina (1941) pp. 257-258

Note:
Figure for banks is percentage of total loans given. Other figures use total loans excluding loans to other banks. Columns 2,3,4 therefore sum to 100%.

Table V.6: Sectoral Share as % of Total Gross Fixed Capital Investment

year	agriculture	industry	other
1900	7.00%	19.80%	73.20%
1901	8.40%	16.40%	75.20%
1902	15.30%	16.70%	68.00%
1903	15.10%	17.80%	67.10%
1904	13.20%	20.50%	66.30%
1905	9.90%	13.40%	76.70%
1906	12.00%	13.20%	74.80%
1907	9.80%	12.20%	78.00%
1908	10.60%	13.30%	76.10%
1909	7.90%	12.20%	79.90%
1910	9.20%	12.20%	78.60%
1911	7.30%	13.60%	79.10%
1912	8.40%	19.70%	71.90%
1913	10.40%	17.10%	72.50%
1914	21.60%	15.00%	63.40%
1915	27.00%	15.00%	58.00%
1916	30.60%	12.90%	56.50%
1917	31.60%	15.20%	53.20%
1918	35.00%	13.90%	51.10%
1919	29.60%	17.30%	53.10%
1920	22.20%	17.30%	60.50%
1921	18.10%	17.00%	64.90%

1922	15.50%	14.10%	70.40%
1923	14.50%	14.70%	70.80%
1924	16.60%	15.00%	68.40%
1925	18.60%	16.50%	64.90%
1926	17.90%	17.20%	64.90%
1927	15.90%	15.30%	68.80%
1928	15.00%	16.10%	68.90%
1929	15.40%	15.50%	69.10%
1930	13.00%	15.50%	71.50%
1931	12.50%	16.60%	70.90%
1932	15.50%	15.20%	69.30%
1933	13.70%	15.70%	70.60%
1934	12.30%	14.00%	73.70%
1935	15.10%	17.60%	67.30%

Source: Econ 720 p.235

Table V.7: Ratios of Banco de la Nacion's (B de la N) loan portfolio share to sectoral share in total investment

year	B de la N grain / agri. invest.	B de la N livestock / agri. invest.	B de la N industry / agri. invest.	B de la N other / agri. invest.
1905	0.88	2.55	0.52	0.77
1906	0.77	2.25	0.55	0.76
1907	0.97	2.68	0.54	0.74
1908	0.89	2.33	0.53	0.77
1909	1.11	3.11	0.61	0.74
1910	1.00	2.50	0.55	0.78
1911	1.05	3.24	0.46	0.79
1912	1.10	2.81	0.32	0.85
1913	0.74	2.26	0.37	0.86
1914	0.41	1.25	0.61	0.87
1915	0.31	1.22	0.47	0.89
1916	0.23	0.92	0.44	1.05
1917	0.22	0.81	0.28	1.19
1918	0.23	0.67	0.29	1.26
1919	0.24	0.88	0.19	1.20
1920	0.16	1.43	0.21	1.01
1921	0.22	1.82	0.26	0.90
1922	0.25	1.88	0.29	0.89
1923	0.29	1.74	0.34	0.93
1924	0.27	1.29	0.31	1.02
1925	0.29	1.18	0.65	0.95
1926	0.43	1.07	0.60	0.97
1927	0.57	1.34	0.71	0.86
1928	0.53	1.55	0.77	0.82
1929	0.58	1.33	0.78	0.85
1930	0.95	1.82	0.79	0.72
1931	0.72	1.92	0.72	0.78
1932	0.51	1.61	0.86	0.78
1933	0.86	1.40	1.14	0.72
1934	2.39	1.47	1.00	0.52
1935	0.43	1.23	0.76	0.92

Source: All series constructed from data in Tables V.5, V.6 and Banco de la Nacion Argentina (1941) p.257-8.

Notes:

Column 1: Ratio of the % of total Banco de la Nacion (B de la N) loans to grain sector, to the share of agriculture in total investment.

Column 2: Ratio of the % of total B de la N loans to livestock sector, to the share of agriculture in total investment. Agriculture is here divided into grain and livestock. Figures in Table V.5 are for grain and livestock jointly. Separate figures for grain and livestock share in investment are not available.

Column 3: Ratio of the % of total B de la N loans to industry, to the share of industry in total investment.
Column 4: Ratio of the % of total B de la N loans to other sectors, to the share of other sectors in total investment.

Table V.8: Argentine Monetary Data

All figures in millions m/n;
Figures in (parentheses) denote negative numbers

	Gold and Foreign Exchange			
year	Go (Official)	Gb (Private)	Hb (bank)	Hp (public)
1900	n.a.	79.5	126	168
1901	n.a.	77.2	132	163
1902	0.0	97.6	131	165
1903	8.7	84.0	176	204
1904	114.3	102.2	151	255
1905	204.6	88.5	182	315
1906	233.2	72.6	202	324
1907	238.6	90.9	220	311
1908	287.7	108.0	230	351
1909	391.6	152.4	319	365
1910	422.2	153.2	333	382
1911	429.1	134.6	351	371
1912	505.9	156.1	378	421
1913	529.4	122.4	400	422
1914	509.4	103.6	361	441
1915	693.8	54.4	554	433
1916	719.2	69.7	569	443
1917	719.3	121.2	542	470
1918	860.4	117.2	658	498
1919	883.1	138.7	605	571
1920	1,068.3	97.9	851	511
1921	1,068.5	78.0	892	470
1922	1,068.5	75.5	847	515
1923	1,068.3	50.5	691	670
1924	1,025.5	39.2	626	693
1925	1,025.5	53.3	655	664
1926	1,025.5	53.4	651	668
1927	1,084.1	185.7	663	715
1928	1,111.5	343.2	535	871
1929	952.6	93.6	388	859
1930	966.5	21.8	451	810
1931	592.2	7.2	513	732
1932	583.2	4.7	645	694
1933	560.3	4.7	520	694
1934	560.2	2.6	411	760
1935	1,353.7	0.4	358	820
1936	1,527.7	0.0	388	914
1937	1,422.0	0.0	369	990
1938	1,296.0	0.0	342	984

1939	1,396.0	0.0	391	1,101
1940	1,440.3	20.0	319	1,128
1941	1,812.9	(92.7)	332	1,328

	Gold and Foreign Exchange			
	Go	Gb	Hb	Hp
year	(Official)	(Private)	(bank)	(public)
1942	2,262.9	(86.6)	409	1,511
1943	3,440.9	(39.3)	427	1,770
1944	4,494.2	(53.7)	488	2,198
1945	5,628.1	(59.4)	538	2,640
1946	5,646.2	(147.2)	538	3,582
1947	3,644.9	119.8	627	4,772
1948	2,425.0	59.8	1,008	6,737
1949	1,997.6	296.8	1,199	9,066
1950	2,689.0	492.5	1,410	11,912
1951	1,266.9	1,224.2	2,357	15,363
1952	508.3	362.4	3,025	18,258
1953	2,698.1	333.4	4,442	22,065
1954	2,668.0	209.9	4,854	26,744
1955	330.0	1,950.9	5,650	31,826
1956	1,105.4	3,302.8	6,667	36,143
1957	922.6	3,287.5	8,637	41,813
1958	(4,827.9)	4,151.4	11,074	60,279
1959	7,331.3	5,918.6	15,296	84,415
1960	23,752.0	8,719.1	22,256	105,362
1961	13,729.8	4,623.4	17,855	121,685
1962	10,277.3	2,102.2	17,503	135,379
1963	10,400.0	1,100.0	29,500	167,100
1964	6,800.0	(2,800.0)	44,700	227,800
1965	26,200.0	(10,400.0)	50,800	296,600
1966	32,500.0	(17,500.0)	61,700	396,900
1967	140,900.0	(27,700.0)	113,600	508,700
1968	147,500.0	(36,400.0)	122,100	591,500
1969	89,900.0	(48,300.0)	120,900	658,900
1970	186,900.0	(57,200.0)	152,500	761,700
1971	7,000.0	(52,900.0)	145,500	993,400
1972	236,400.0	(62,800.0)	253,800	1,315,700
1973	859,100.0	(63,000.0)	599,100	2,640,600
1974	823,300.0	13,100.0	980,700	4,312,500
1975	400,000.0	(1,800.0)	3,800,000	12,400,000
1976	11,400,000.0	(9,100.0)	15,200,000	41,000,000
1977	110,100,000.0	(53,500.0)	45,500,000	107,300,000
1978	308,600,000.0	(156,800.0)	99,100,000	333,200,000
1979	989,000,000.0	(629,500.0)		
234,500,000	787,000,000			

Exchange rates are: (i) 1900-34: 1 gold peso = 2.27 m/n; V.L. Phelps (1938) p.263; Gb 1900-06: Bancos 525 p.27; Gb 1907-35: Bancos

831 p.54; Go 1936-39: Bancos 3437 p.201; Go 1940-79: Bancos 720 pp.298-302; Gb 1940-79: Bancos 720 pp.307-312; Hb, Hp, D 1900-1927: Bancos 525 Table 26; Hb, Hp, D 1928-35: Bancos 831 pp.6, 62; Hb, Hp 1936-39: Bancos 3437 p.201; D 1936-39: Bancos 1349 p.164; Hb, Hp, 1940-1979: Bancos 720 pp.303-306; D 1940-70: Bancos 720pp. 313-316.

Notes: Go: Official holdings of gold and foreign exchange. Held by Conversion Office 1900-35; transferred to the new Central Bank in 1935. Figures after 1935 refer to Central Bank.

year	D (Deposits)	F (F = Hp+D)
1900	399	567
1901	398	561
1902	417	582
1903	504	708
1904	585	840
1905	720	1,035
1906	755	1,079
1907	783	1,094
1908	874	1,225
1909	1,157	1,522
1910	1,332	1,714
1911	1,374	1,745
1912	1,480	1,901
1913	1,411	1,833
1914	1,189	1,630
1915	1,419	1,852
1916	1,596	2,039
1917	1,891	2,361
1918	2,665	3,163
1919	2,834	3,405
1920	3,293	3,804
1921	3,177	3,647
1922	3,298	3,813
1923	3,067	3,737
1924	3,319	4,012
1925	3,334	3,998
1926	3,359	4,027
1927	3,545	4,260
1928	3,953	4,824
1929	3,903	4,762
1930	3,956	4,766
1931	3,517	4,249
1932	3,525	4,219
1933	3,267	3,961
1934	3,427	4,187
1935	3,357	4,177
1936	3,713	4,627
1937	4,238	5,228
1938	4,199	5,183
1939	4,222	5,323
1940	4,257	5,384
1941	4,864	6,192
1942	5,634	7,144
1943	6,483	8,253
1944	7,750	9,947
1945	8,392	11,032

1946	11,174	14,755
1947	12,791	17,563
1948	17,204	23,941

year	D (Deposits)	F (F = Hp+D)
1949	20,615	29,682
1950	23,378	35,290
1951	26,210	41,573
1952	28,291	46,549
1953	35,740	57,806
1954	42,610	69,354
1955	49,458	81,284
1956	64,483	100,626
1957	71,893	113,706
1958	102,262	162,540
1959	132,834	217,248
1960	176,649	282,010
1961	199,376	321,060
1962	203,986	339,365
1963	283,100	450,200
1964	415,900	643,700
1965	539,000	835,600
1966	692,400	1,089,300
1967	980,800	1,489,500
1968	1,317,400	1,908,900
1969	1,503,900	2,162,800
1970	1,855,000	2,616,700
1971	2,526,800	3,520,200
1972	3,984,800	5,300,500
1973	7,779,100	10,419,700
1974	12,600,900	16,913,400
1975	33,500,000	45,900,000
1976	153,900,000	194,900,000
1977	538,000,000	645,300,000
1978	1,449,400,000	1,782,600,000
1979	4,320,100,000	5,107,100,000

Notes: Gb is gold and foreign exchange held by private sector banks (commercial banks). Data for Gb for 1936-39 were not available but are believed negligible. Hb is cash (note issue) held by banks. Hp is cash held by public. D is total commercial bank deposits. Prior to 1935 figures for deposits include savings and fixed term deposits. Figures after 1935 are for current account deposits only. F is total money supply, defined as Hp + D.

Table V.9: Argentine Monetary Data, Various Ratios

year	G/F	Go/H	(Hb+Gb)/D		Gb/D	Gb/Hb
1900	14.01%	n.a.	51.49%	19.91%	63.10%	42.11%
1901	13.76%	n.a.	52.56%	19.39%	58.48%	40.95%
1902	16.77%	0.00%	54.82%	23.41%	74.50%	39.57%
1903	13.09%	2.28%	51.59%	16.66%	47.73%	40.48%
1904	25.76%	28.15%	43.27%	17.46%	67.68%	43.59%
1905	28.33%	41.18%	37.57%	12.30%	48.63%	43.75%
1906	28.34%	44.33%	36.38%	9.62%	35.94%	42.91%
1907	30.12%	44.94%	39.70%	11.61%	41.32%	39.72%
1908	32.30%	49.51%	38.67%	12.36%	46.96%	40.16%
1909	35.75%	57.25%	40.75%	13.17%	47.77%	31.55%
1910	33.57%	59.05%	36.50%	11.50%	46.01%	28.68%
1911	32.31%	59.44%	35.34%	9.80%	38.35%	27.00%
1912	34.83%	63.32%	36.09%	10.55%	41.30%	28.45%
1913	35.56%	64.40%	37.03%	8.68%	30.60%	29.91%
1914	37.61%	63.52%	39.08%	8.72%	28.70%	37.09%
1915	40.40%	70.29%	42.87%	3.83%	9.82%	30.51%
1916	38.69%	71.07%	40.02%	4.37%	12.25%	27.76%
1917	35.60%	71.07%	35.07%	6.41%	22.36%	24.85%
1918	30.91%	74.43%	29.09%	4.40%	17.81%	18.69%
1919	30.01%	75.09%	26.24%	4.90%	22.93%	20.15%
1920	30.66%	78.43%	28.82%	2.97%	11.50%	15.52%
1921	31.44%	78.45%	30.53%	2.46%	8.74%	14.79%
1922	30.00%	78.45%	27.97%	2.29%	8.91%	15.62%
1923	29.94%	78.49%	24.18%	1.65%	7.31%	21.85%
1924	26.54%	77.75%	20.04%	1.18%	6.26%	20.88%
1925	26.98%	77.75%	21.24%	1.60%	8.14%	19.92%
1926	26.79%	77.75%	20.97%	1.59%	8.20%	19.89%
1927	29.81%	78.67%	23.94%	5.24%	28.01%	20.17%
1928	30.16%	79.06%	22.22%	8.68%	64.15%	22.03%
1929	21.97%	76.39%	12.34%	2.40%	24.12%	22.01%
1930	20.74%	76.65%	11.95%	0.55%	4.83%	20.48%
1931	14.11%	47.57%	14.79%	0.20%	1.40%	20.81%
1932	13.93%	43.56%	18.43%	0.13%	0.73%	19.69%
1933	14.26%	46.16%	16.06%	0.14%	0.90%	21.24%
1934	13.44%	47.84%	12.07%	0.08%	0.63%	22.18%
1935	32.42%	114.92%	10.68%	0.01%	0.11%	24.43%
1936	33.02%	117.33%	10.45%	0.00%	0.00%	24.62%
1937	27.20%	104.64%	8.71%	0.00%	0.00%	23.36%
1938	25.00%	97.74%	8.14%	0.00%	0.00%	23.43%
1939	26.23%	93.57%	9.26%	0.00%	0.00%	26.08%
1940	27.12%	99.58%	7.96%	0.47%	6.27%	26.49%
1941	27.78%	109.20%	4.93%	-1.91%	-27.92%	27.30%
1942	30.46%	117.86%	5.73%	-1.54%	-21.17%	26.81%
1943	41.22%	156.64%	5.98%	-0.61%	-9.20%	27.30%

1944	44.64%	167.36%	5.60%	-0.69%	-11.00%	28.36%
1945	50.48%	177.10%	5.70%	-0.71%	-11.04%	31.46%
1946	37.27%	137.05%	3.50%	-1.32%	-27.36%	32.05%
1947	21.44%	67.51%	5.84%	0.94%	19.11%	37.31%
1948	10.38%	31.31%	6.21%	0.35%	5.93%	39.16%
1949	7.73%	19.46%	7.26%	1.44%	24.75%	43.98%
1950	9.02%	20.18%	8.14%	2.11%	34.93%	50.95%
1951	5.99%	7.15%	13.66%	4.67%	51.93%	58.62%
1952	1.87%	2.39%	11.97%	1.28%	11.98%	64.54%
1953	5.24%	10.18%	13.36%	0.93%	7.51%	61.74%
1954	4.15%	8.44%	11.88%	0.49%	4.32%	62.77%
1955	2.81%	0.88%	15.37%	3.94%	34.53%	64.35%
1956	4.38%	2.58%	15.46%	5.12%	49.54%	56.05%
1957	3.70%	1.83%	16.59%	4.57%	38.06%	58.16%
1958	-0.42%	-6.77%	14.89%	4.06%	37.49%	58.95%
1959	6.10%	7.35%	15.97%	4.46%	38.69%	63.55%
1960	11.51%	18.61%	17.53%	4.94%	39.18%	59.64%
1961	5.72%	9.84%	11.27%	2.32%	25.89%	61.03%
1962	3.65%	6.72%	9.61%	1.03%	12.01%	66.37%
1963	2.55%	5.29%	10.81%	0.39%	3.73%	59.03%
1964	0.62%	2.50%	10.07%	-0.67%	-6.26%	54.77%
1965	1.89%	7.54%	7.50%	-1.93%	-20.47%	55.03%
1966	1.38%	7.09%	6.38%	-2.53%	-28.36%	57.32%
1967	7.60%	22.64%	8.76%	-2.82%	-24.38%	51.87%
1968	5.82%	20.67%	6.51%	-2.76%	-29.81%	44.90%
1969	1.92%	11.53%	4.83%	-3.21%	-39.95%	43.81%
1970	4.96%	20.44%	5.14%	-3.08%	-37.51%	41.06%
1971	-1.30%	0.61%	3.66%	-2.09%	-36.36%	39.31%
1972	3.28%	15.06%	4.79%	-1.58%	-24.74%	33.02%
1973	7.64%	26.52%	6.89%	-0.81%	-10.52%	33.94%
1974	4.95%	15.55%	7.89%	0.10%	1.34%	34.22%
1975	0.87%	2.47%	11.34%	-0.01%	-0.05%	37.01%
1976	5.84%	20.28%	9.87%	-0.01%	-0.06%	26.64%
1977	17.05%	72.05%	8.45%	-0.01%	-0.12%	19.94%
1978	17.30%	71.39%	6.83%	-0.01%	-0.16%	22.99%
1979	19.35%	96.82%	5.41%	-0.01%	-0.27%	18.22%

All figures are constructed from data in Table V.8
H = Hb + Hp

Note: G/F is here (Go+Gb)/F since Gp figures are unavailable

Table V.10: Relative Prices, 1917-1976

Ratio of the price index for each category to the index for the aggregate price level. (Base 1960)

year	food	clothing	general expenses	house-hold	house-	rent Elec-tricity
1917						5.82
1918						
1919						5.20
1920						4.11
1921						4.98
1922						6.24
1923						6.15
1924						6.69
1925						7.52
1926						9.01
1927						6.21
1928						6.35
1929						7.40
1930						6.79
1931						7.61
1932						8.12
1933						6.62
1934	0.75	0.87	0.85	1.31	15.75	5.92
7.72						
1935	0.79	0.82	0.80	1.31	14.86	5.59
5.88						
1936	0.84	0.76	0.74	1.31	13.70	5.15
4.63						
1937	0.84	0.77	0.72	1.29	13.95	4.34
4.40						
1938	0.80	0.82	0.72	1.29	15.11	3.88
4.76						
1939	0.80	0.84	0.71	1.29	15.26	3.82
5.01						
1940	0.79	0.91	0.70	1.33	14.96	3.73
5.66						
1941	0.80	0.92	0.68	1.29	14.57	3.64
5.58						
1942	0.83	0.90	0.64	1.25	13.79	3.61
6.46						
1943	0.83	0.89	0.74	1.36	12.98	3.84
6.10						
1944	0.86	0.88	0.77	1.43	10.95	4.22
7.07						

1945	0.83	0.85	0.83	1.33	12.75	3.58
6.11						
1946	0.85	0.91	0.85	1.17	10.84	2.88
5.64						
1947	0.86	0.99	0.81	1.17	9.54	2.53
5.74						
1948	0.87	1.05	0.80	1.13	8.44	2.48
5.85						
1949	0.86	1.13	0.86	1.09	6.54	2.27
5.39						
1950	0.88	1.10	0.93	1.06	5.59	1.81
6.42						
1951	0.88	1.18	0.98	0.98	4.09	1.35
4.13						
1952	0.92	1.15	0.95	0.99	2.95	1.25
2.25						
1953	0.91	1.19	0.94	1.00	2.83	1.34
2.96						
1954	0.87	1.28	0.99	0.97	2.73	1.30
3.37						
1955	0.86	1.30	1.02	0.96	2.43	1.19
2.28						
1956	0.86	1.25	1.04	1.21	2.14	1.07
1.75						
1957	0.92	1.13	1.03	1.23	1.72	0.98
1.70						
1958	0.96	1.05	1.03	1.22	1.31	1.02
1.59						
1959	1.05	0.87	0.94	1.50	0.61	1.46
0.64						
1960	1.00	1.00	1.00	1.00	1.00	1.00
1.00						

year	food	clothing	general expenses	household	house-Houses	rent Elec-tricity
1961	0.97	1.08	1.05	0.92	0.91	0.77
1962	0.98	1.05	1.08	0.77	0.94	0.61
1963	0.97	1.04	1.13	0.64	1.02	0.38
1964	1.01	1.02	1.07	0.55	0.83	0.40
1965	1.00	1.02	1.10	0.45	0.94	0.61
1966	0.95	1.03	1.15	1.09	0.99	
1967	0.95	1.03	1.20	0.93	0.96	
1968	0.95	1.02	1.25	0.88	1.06	
1969	0.94	1.04	1.28	0.90	0.98	
1970	0.96	1.00	1.27	0.87	0.87	
1971	1.01	0.88	1.19	1.01	0.81	
1972	1.04	0.86	1.16	0.86	0.55	
1973	1.01	0.85	1.15	1.72	0.48	
1974	0.93	1.05	1.22	1.54	0.42	
1975	0.95	1.08	1.22	1.04	0.18	
1976	0.97	1.04	1.20	0.67	0.21	

Notes: The figures in columns 1-6 were calculated by the author from various issues of the publication "Cost of Living in the Federal Capital [Buenos Aires]", Direccion Nacional de Estadistica y Census. Column 7 ("Houses"): figures constructed from average sale prices for properties sold by the National Mortgage Bank (BHN). Underlying data taken from Annual Reports of the BHN, various years.

Table V.11: "BOP Pressure", Liquidity (k), and Other Data

year	k (k=F/Y)	"BOP pressure" (b*k*)dY/X	b*/b	government (X-M)/X	(X-M)/X deficit %
1900			2.07	19.10%	5.69%
1901			2.11	15.89%	7.60%
1902			1.73	27.57%	23.54%
1903			2.22	5.76%	6.26%
1904			1.13	-49.65%	3.19%
1905			1.03	-2.35%	36.22%
1906			1.03	-17.70%	15.31%
1907			0.97	-14.46%	3.70%
1908			0.90	-5.96%	-0.71%
1909			0.81	-22.38%	29.85%
1910			0.87	-27.04%	2.49% 26.44%
1911			0.90	-38.28%	-18.38% 25.46%
1912			0.83	-34.17%	10.88% 16.77%
1913			0.82	-47.58%	4.41% 13.41%
1914	0.37	48.58%	0.77	8.76%	19.98% 40.40%
1915	0.39	3.67%	0.72	32.53%	47.54% 42.43%
1916	0.41	1.89%	0.75	18.93%	36.10% 37.91%
1917	0.44	2.98%	0.82	29.34%	30.88% 41.41%
1918	0.40	16.59%	0.94	35.33%	37.54% 29.32%
1919	0.44	-1.40%	0.97	20.13%	36.41% 13.91%
1920	0.39	8.21%	0.95	22.85%	10.45% -4.72%
1921	0.41	-4.01%	0.92	26.62%	-11.74% 22.93%
1922	0.47	-4.46%	0.97	25.87%	-2.02% 30.50%
1923	0.42	4.07%	0.97	3.10%	-12.61% 2.17%
1924	0.42	4.77%	1.10	-0.09%	18.09% 0.87%
1925	0.43	-1.40%	1.08	41.28%	-1.01% -1.49%
1926	0.42	0.80%	1.08	1.96%	-3.83% 5.49%
1927	0.42	2.72%	0.98	-11.31%	15.13% 25.90%
1928	0.45	2.53%	0.96	-10.24%	20.65% -0.62%
1929	0.42	2.83%	1.32	-12.25%	9.64% 24.94%
1930	0.44	-1.77%	1.40	0.28%	-20.34% 36.22%
1931	0.49	-12.67%	2.06	35.21%	19.37% 12.81%
1932	0.56	-7.54%	2.09	49.48%	35.09% 3.29%
1933	0.44	7.91%	2.04	40.76%	19.98% 2.50%
1934	0.49	-2.53%	2.16	37.46%	22.81% 0.02%
1935	0.44	5.27%	0.90	32.20%	25.11% -3.12%
1936	0.45	5.10%	0.88	23.93%	32.55% -2.09%
1937	0.46	5.17%	1.07	10.10%	32.58% 4.37%
1938	0.46	-0.23%	1.16	-21.06%	-4.36% 18.00%
1939	0.45	3.48%	1.11	19.20%	14.94% -2.43%
1940	0.43	3.16%	1.07	14.02%	-4.97% 19.82%

1941	0.46	6.38%	1.05	35.00%	12.83%	16.13%
1942	0.50	6.19%	0.95	41.04%	28.79%	11.55%
1943	0.57	0.31%	0.71	63.10%	57.03%	17.89%
1944	0.62	9.59%	0.65	61.82%	57.33%	17.94%

year	k (k=F/Y)	"BOP pressure" (b*k*)dY/X	b*/b	government (X-M)/X	(X-M)/X	deficit %
1945	0.60	12.88%	0.58	61.53%	53.80%	14.70%
1946	0.62	19.37%	0.78	38.51%	41.30%	9.26%
1947	0.59	21.65%	1.36	-30.09%	2.83%	-8.82%
1948	0.67	21.21%	2.80	-56.56%	-11.69%	-2.95%
1949	0.67	33.30%	3.76	-44.04%	-24.82%	-1.12%
1950	0.60	30.53%	3.22	7.27%	11.17%	-1.20%
1950	0.59	23.15%	4.85	-2.91%	11.17%	-0.73%
1951	0.49	35.89%	15.54	-46.29%	-56.29%	-0.46%
1952	0.42	37.73%	5.54	-46.70%	-90.37%	-0.28%
1953	0.47	9.48%	7.00	22.02%	21.17%	-0.14%
1954	0.53	7.80%	10.36	3.55%	4.64%	9.88%
1955	0.51	21.07%	6.63	-29.04%	-26.28%	9.90%
1956	0.55	14.68%	7.85	1.07%	-15.68%	1.89%
1957	0.47	27.37%	-69.84	-5.97%	-34.43%	27.07%
1958	0.48	32.56%	4.77	-7.26%	-24.02%	30.70%
1959	0.32	51.33%	2.52	9.04%	1.70%	13.42%
1960	0.30	29.73%	5.08	-11.04%	-15.76%	21.40%
1961	0.28	22.84%	7.97	-43.39%	-51.47%	38.47%
1962	0.24	18.06%	11.38	-1.99%	-11.55%	39.21%
1963	0.26	16.55%	46.77	22.07%	28.18%	49.55%
1964	0.28	27.02%	15.37	3.80%	23.62%	30.98%
1965	0.26	29.92%	21.11	12.93%	19.69%	31.80%
1966	0.25	23.51%	3.82	24.14%		19.16%
1967	0.26	24.43%	4.99	24.41%		13.18%
1968	0.28	18.30%	15.11	16.66%		4.88%
1969	0.27	14.10%	5.86	11.59%		4.30%
1970	0.27	15.83%	-22.29	17.88%		13.39%
1971	0.26	33.37%	8.87	-1.30%		16.46%
1972	0.24	48.71%	3.80	-1.91%		32.93%
1973	0.27	51.74%	5.88	6.28%		28.61%
1974	0.34	31.27%	33.50	3.17%		45.88%
1975	0.33	102.43%	4.97	-24.04%		44.82%
1976	0.26	90.48%	1.70	32.46%		
1977			1.68	44.07%		
1978			1.50	54.04%		
1979			39.87%			
1980			11.75%			

b*k* = 0.12194542 b* = 0.29066310 k* = 0.41954215

Sources:
Y (=GDP): constructed from data in Econ 720 pp. 212-213
X: constructed from data in Econ 720 p.249
F: taken from Table V.8; b: taken from Table V.9

k: constructed from data for F and Y *(see note below)*
b*, k*: taken to be the average values of b and k respectively for the period 1900-1929
dY: is the change in Y between the given year and the previous year.
Column 4: constructed from data for X/Y and M/Y in Table V.1
Column 5: 1900-1953 Diaz Alejandro (1970) pp. 461, 475-476
1954-1979 Econ 720 p.264
Column 6: government defecit as percentage of total government expenditure taken from Econ 720 p.283

Notes:
k is defined as: k = F/Y; b is defined as: b = G/F
Data for X and Y were given in 1950 prices for 1900-1950, and in 1960 prices for 1950-1979. This also explains the duplication of data for 1950. Current nominal figures constructed using price index data from the same source as Table V.10.

Table V.12: Exchange Rates and the Aggregate Price Index

Exchange rates given in m/n per us$

year	official rate	black market rate	official rate 1960=100	Price level 1960=100	exch. rate 1960=1
1900	2.3451	2.3451	2.83		
1901	2.3451	2.3451	2.83		
1902	2.3472	2.3472	2.83		
1903	2.3493	2.3493	2.84		
1904	2.3472	2.3472	2.83		
1905	2.3493	2.3493	2.84		
1906	2.3432	2.3432	2.83		
1907	2.4049	2.4049	2.90		
1908	2.3472	2.3472	2.83		
1909	2.3472	2.3472	2.83		
1910	2.3533	2.3533	2.84		
1911	2.3576	2.3576	2.85		
1912	2.3514	2.3514	2.84		
1913	2.3842	2.3842	2.88		
1914	2.4388	2.4388	2.95	2.118	1.39
1915	2.3933	2.3933	2.89	2.283	1.27
1916	2.362	2.362	2.85	2.451	1.16
1917	2.2814	2.2814	2.76	2.869	0.96
1918	2.2466	2.2466	2.71	3.62	0.75
1919	2.305	2.305	2.78	3.4	0.82
1920	2.5505	2.5505	3.08	3.983	0.77
1921	3.1411	3.1411	3.79	3.539	1.07
1922	2.7768	2.7768	3.35	2.979	1.13
1923	2.9052	2.9052	3.51	2.924	1.20
1924	2.915	2.915	3.52	2.979	1.18
1925	2.488	2.488	3.00	2.897	1.04
1926	2.4675	2.4675	2.98	2.814	1.06
1927	2.3619	2.3619	2.85	2.785	1.02
1928	2.3583	2.3583	2.85	2.759	1.03
1929	2.3906	2.3906	2.89	2.785	1.04
1930	2.7384	2.7384	3.31	2.814	1.18
1931	3.455	3.455	4.17	2.422	1.72
1932	3.8864	3.8864	4.69	2.173	2.16
1933	3.2332	3.2332	3.90	2.451	1.59
1934	3.9527	3.9527	4.77	2.173	2.20
1935	3.81	3.81	4.60	2.303	2.00
1936	3.6	3.6	4.35	2.498	1.74
1937	3.33	3.33	4.02	2.564	1.57
1938	3.92	3.92	4.73	2.547	1.86
1939	4.33	4.33	5.23	2.587	2.02

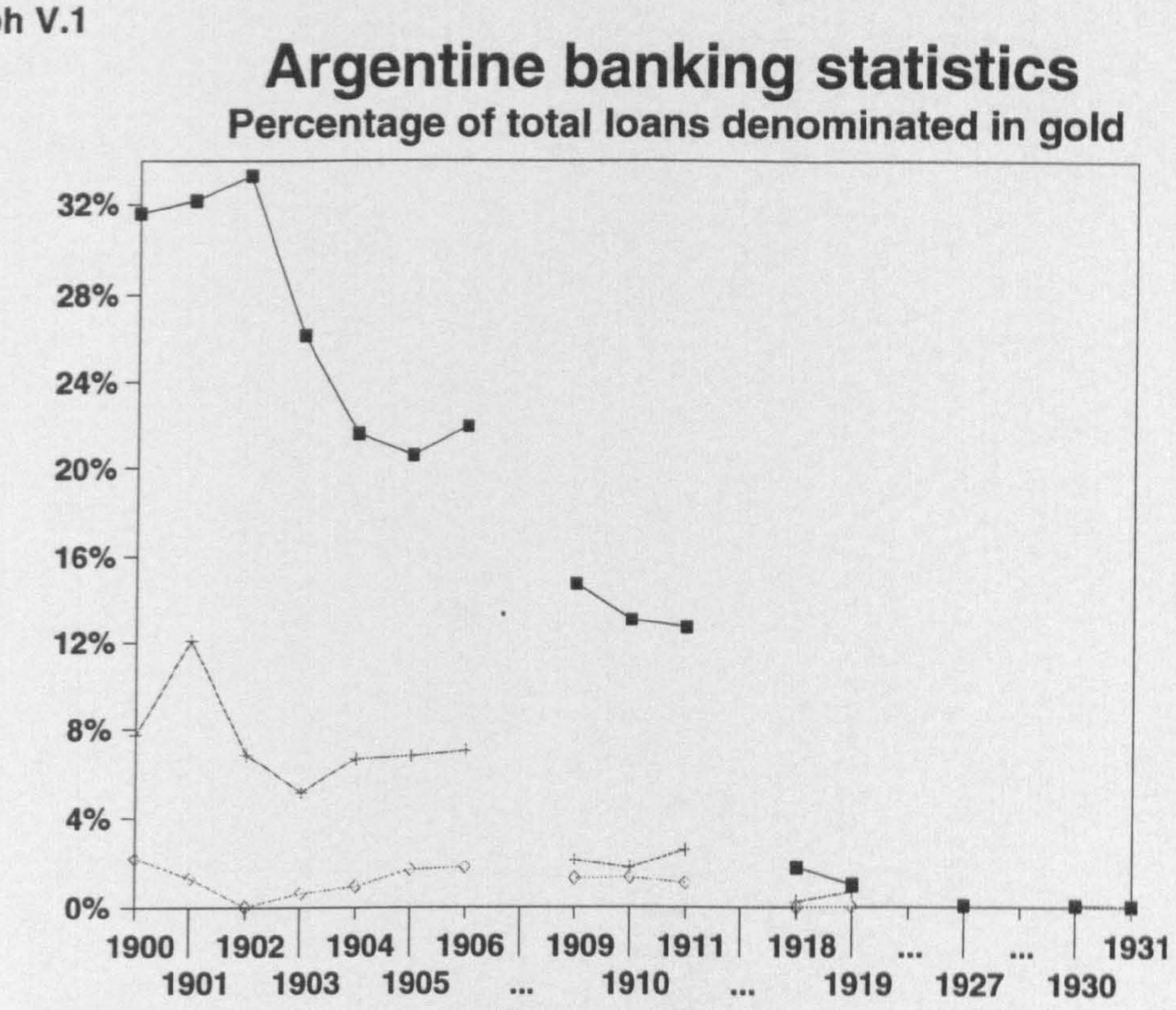
1940	4.37	4.37	5.28	2.645	2.00
1941	4.24	4.24	5.12	2.715	1.89
1942	4.23	4.23	5.11	2.869	1.78
1943	4.08	4.08	4.93	2.901	1.70

year	official rate	black market rate	official rate 1960=100	Price level 1960=100	exch. rate 1960=1
1944	4.02	4.02	4.86	2.892	1.68
1945	4.03	4.03	4.87	3.463	1.41
1946	4.09	4.09	4.94	4.075	1.21
1947	4.53	4.53	5.47	4.627	1.18
1948	4.23	6.98	5.11	5.233	0.98
1949	4.85	11.71	5.86	6.86	0.85
1950	6.56	15.99	7.92	8.612	0.92
1951	7.5	23.74	9.06	11.771	0.77
1952	7.5	22.94	9.06	16.328	0.55
1953	7.5	22.56	9.06	16.978	0.53
1954	7.5	25.3	9.06	17.622	0.51
1955	10.12	30.49	12.22	19.792	0.62
1956	18	35.54	21.74	22.446	0.97
1957	18	39.62	21.74	27.995	0.78
1958	18	50.1	21.74	36.836	0.59
1959	80.63	79.8	97.38	78.717	1.24
1960	82.8	82.8	100.00	100	1.00
1961	83.13	82.88	100.40	113.7	0.88
1962	115.98	115.95	140.07	143.5	0.98
1963	138.61	138.61	167.40	180.7	0.93
1964	141	157.18	170.29	220.7	0.77
1965	171.62	243.8	207.27	283.8	0.73
1966	209.35	241.99	252.84	374.3	0.68
1967	333.5	338.99	402.78	483.7	0.83
1968	350	334.99	422.71	562.1	0.75
1969	350	351.1	422.71	604.7	0.70
1970	379.17	386.04	457.93	686.9	0.67
1971	500	614	603.86	925.3	0.65
1972	500	1152.29	603.86	1466.2	0.41
1973	500	1129	603.86	2350.5	0.26
1974	500	1625	603.86	2919.6	0.21
1975	2136	7216	2579.71	8256.5	0.31
1976	14033	25779	16948.07	44916.6	0.38
1977		42313			
1978		80829			
1979		133392			

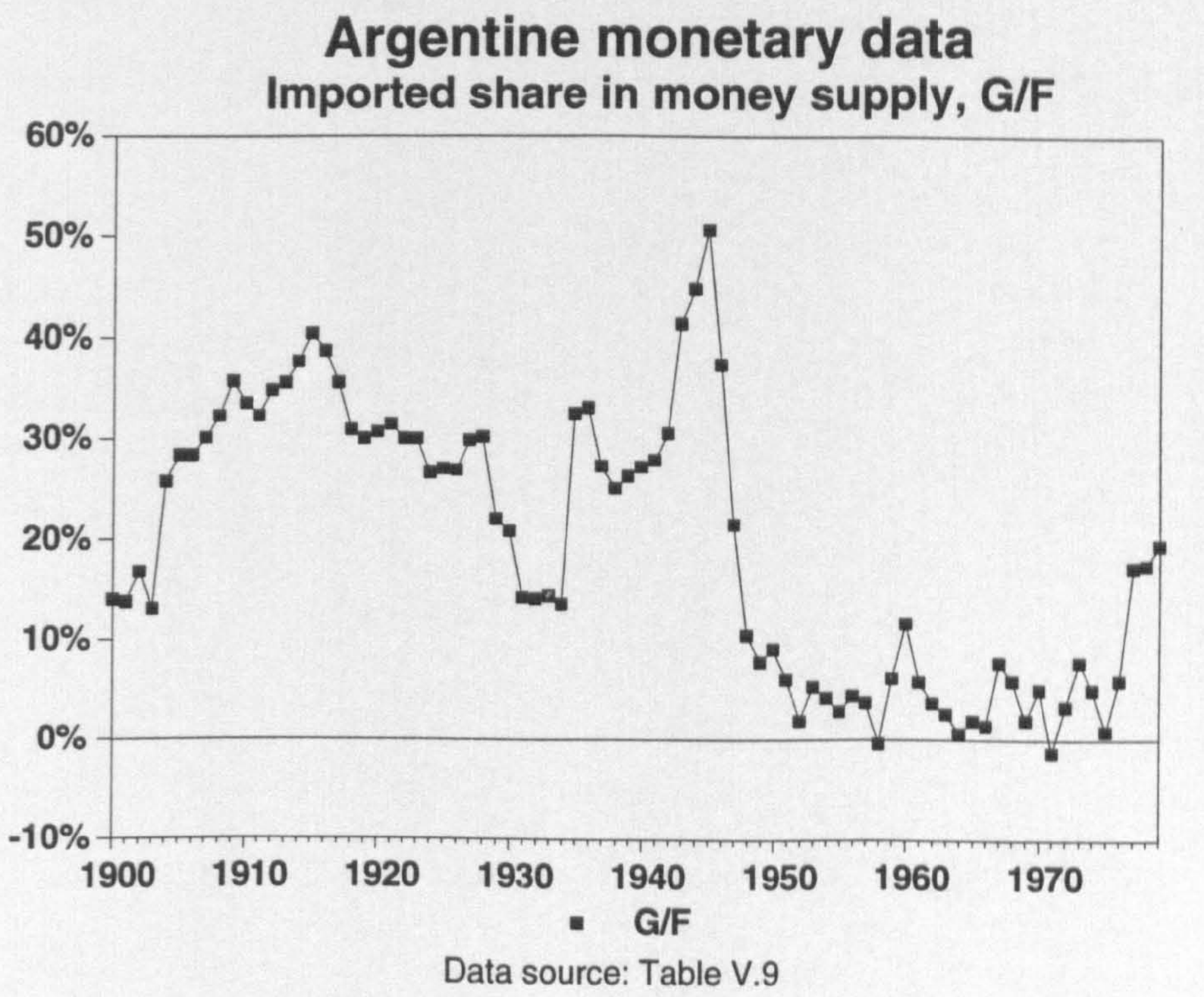
Sources:
Official exchange rate (pesos m/n per us$):
1948-1970: Mallon and Sourrouille (1975) p.23
1971-1976: di Tella (1983) p.222-3 (commercial rate)
Black market exchange rate (pesos m/n per us$):
Econ 720 p.279
Price level: "Cost of Living in the Federal Capital, Direction National de Estadistica y Census, (see notes to Table V.10)

Notes:
Exchange rate figures 1900-47 are black market rate in both columns
Column 5: constructed from columns 3 and 4; real exchange rate index = official exchange rate index divided by index for aggregate price level.

Graph V.1

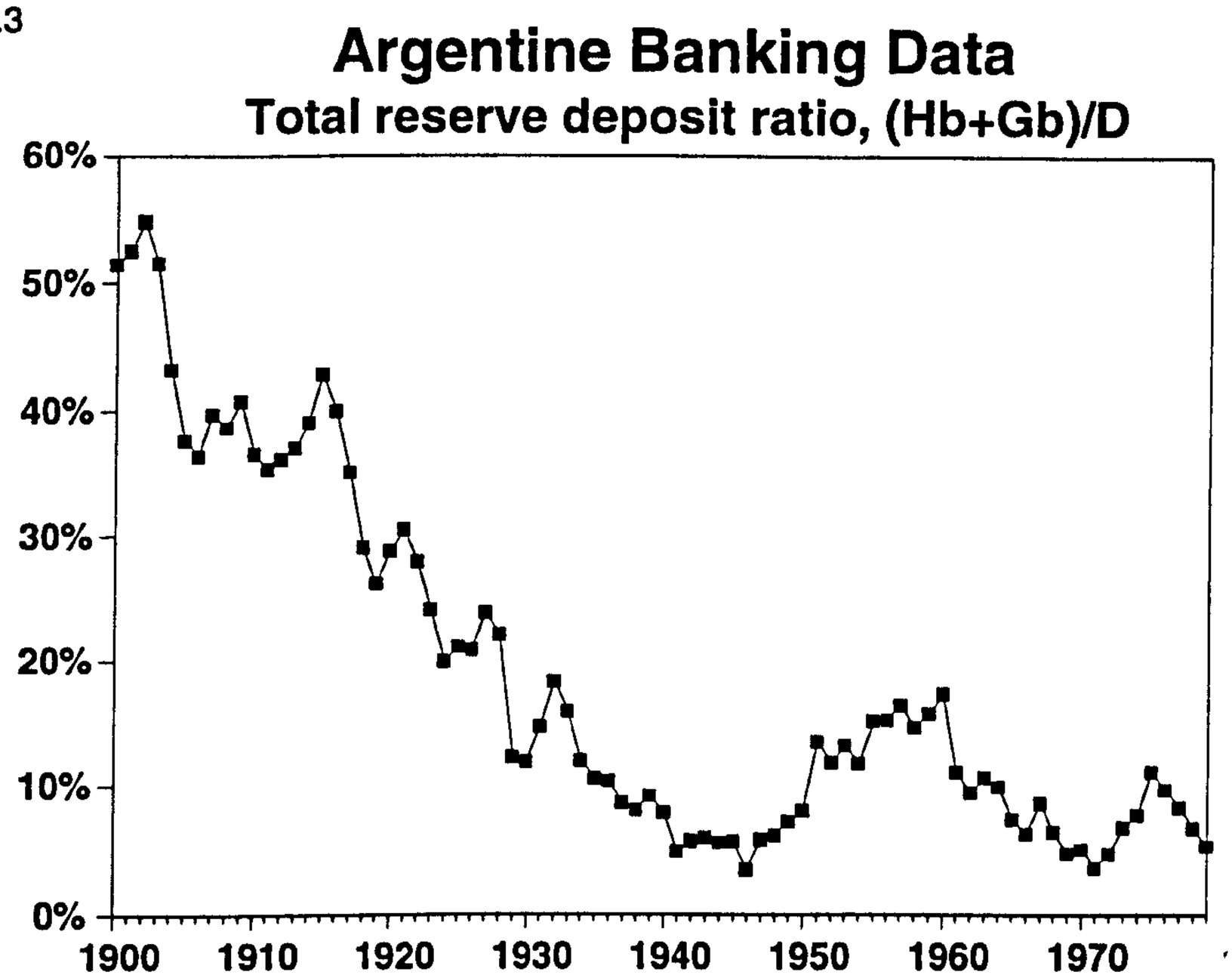


Graph V.2



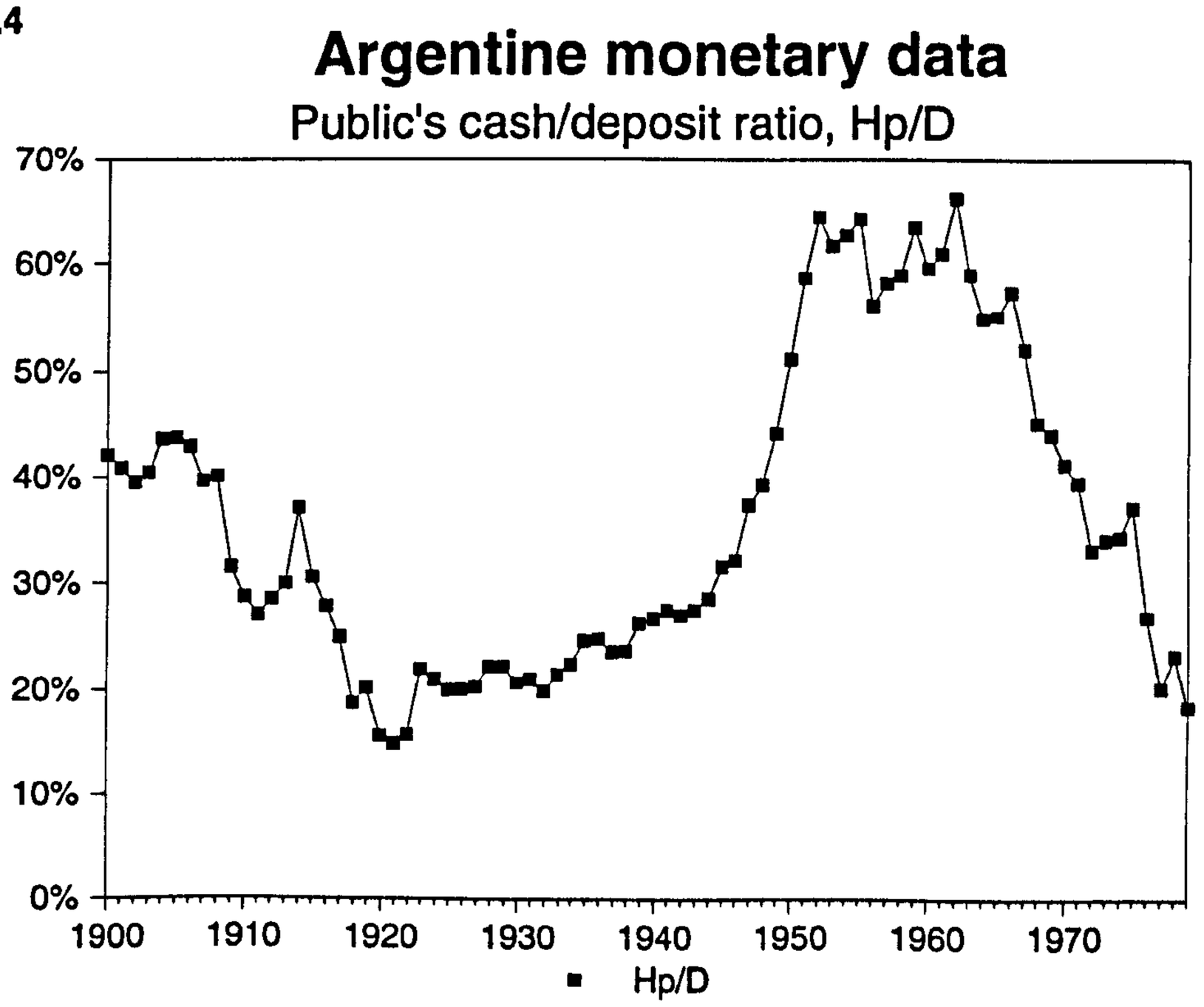
Chapter V

Graph V.3



Data source: Table V.9

graph V.4

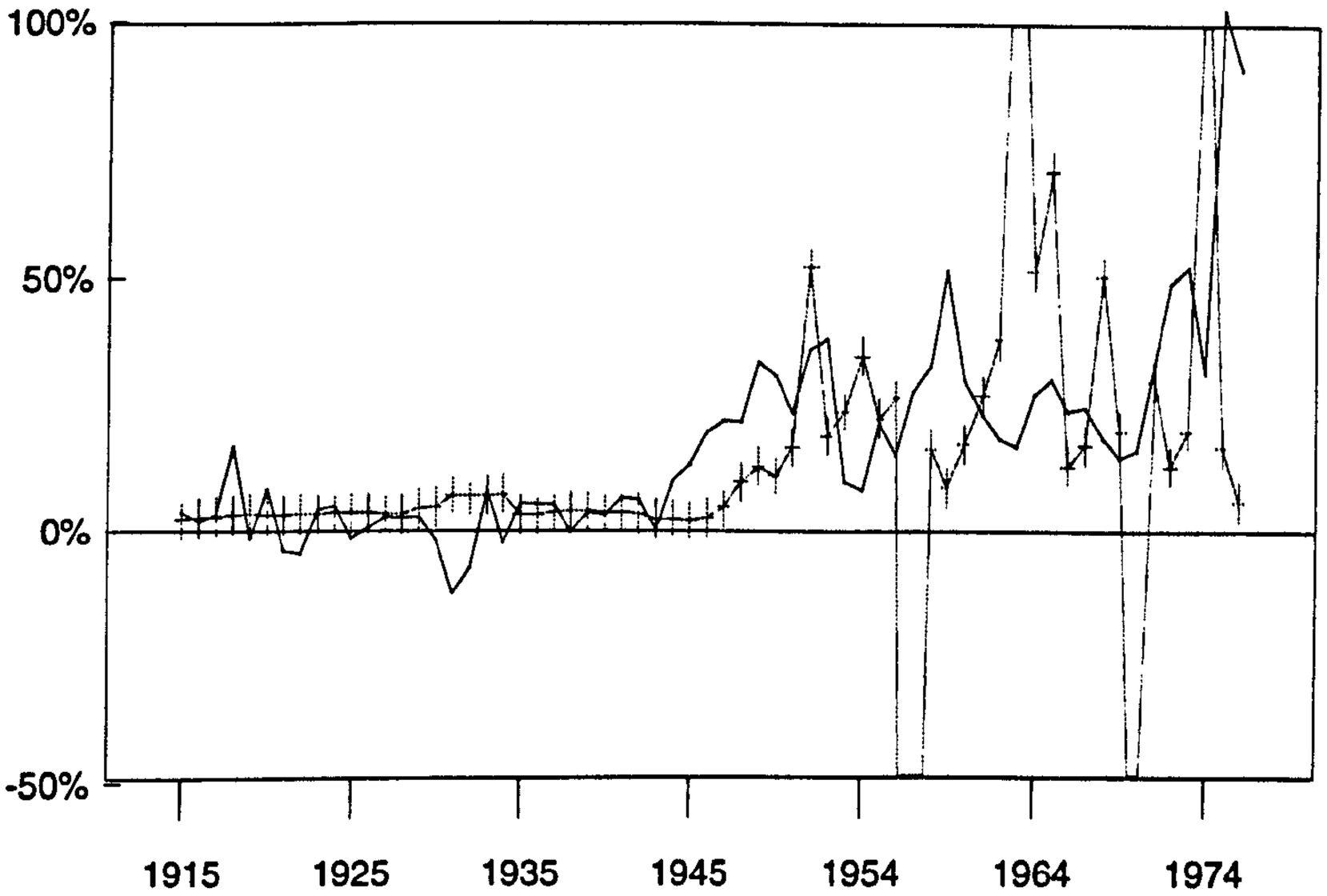


Data source: Table V.9

Chapter V

Graph V.5

Balance of Payments (BOP) pressure



· BOP pressure ┼ b*/b

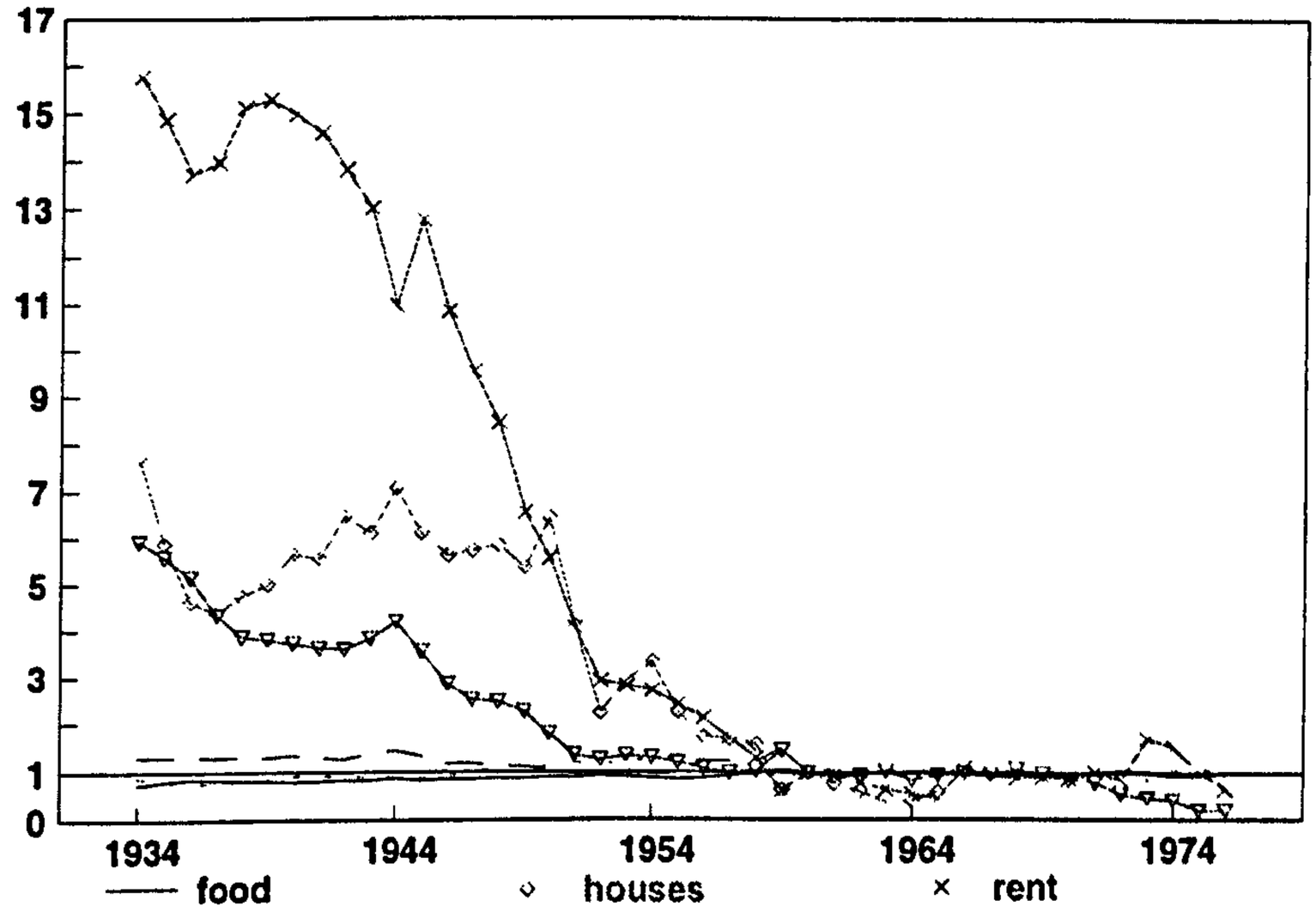
Data source: table V.11.

Figures for b*/b have been divided by a factor of 30.

Chapter V

Graph V.6

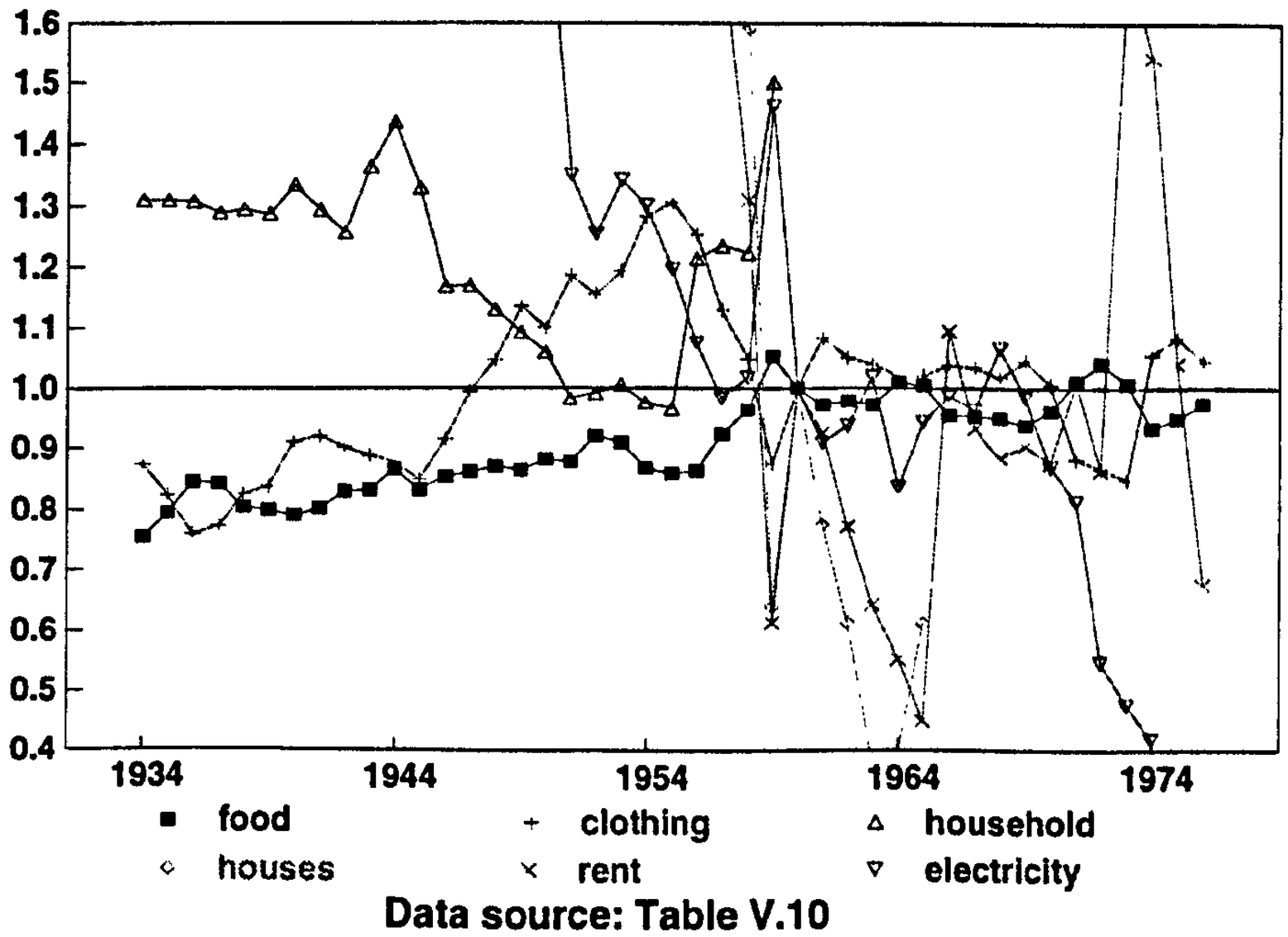
Relative price data, Argentina
1934-1976



Data source: Table V.10

Graph V.7

Relative price data, Argentina
1934-1976



Data source: Table V.10

Chapter V

Chapter VI
Conclusions

Chapter VI

The subject of this thesis has been certain monetary and financial implications of the currency area structure of the international economy. Analysis of these monetary and financial implications of currency area structure has involved the use of certain concepts, such as that of "currency type EFI", which have been formulated and defined for this purpose. An analytical framework has also been developed, for the purpose of analyzing the determination, and implications, of the structure of the money supply of a currency area, as between its domestic and imported components. The analysis developed in the thesis has then been applied in some statistical detail to the specific case of Argentina.

A central tenet of the thesis has been that there are cross-country differences in the relative shares of the imported and domestic components of the money supply which are compatible with monetary and exchange rate stability. The analysis developed in the thesis has led to the conclusion that currency areas in which the use of external financial intermediation (EFI) tends to be of quantitative importance, relative to the use of domestic financial intermediation (DFI), will require a relatively larger imported component of the money supply. The relative shares of EFI and DFI, in turn, are subject to influence, in both directions, by government policy. The influence of this factor on the desired (or "required") structure of the money supply therefore provides a source of government policy influence on the required structure of the money supply. We saw that government influence in strengthening DFI could succeed in reducing the required share of the imported component of the money supply; we also saw that policy measures which had been devised for other purposes could result in a weakening of DFI relative to EFI, causing the required share of the imported component of the money supply to rise.

The structure of the money supply, as between its imported and its domestic components, turned out to have some important implications for

the behaviour of an economy. We saw that the structure of the money supply would influence relative prices between traded and non-traded goods, and that it would influence the extent to which an economy suffered from a "balance of payments constraint" on income growth. We saw also that when the imported share of the money supply was relatively large, the non-traded goods sector could suffer severe problems of under-utilized resources because of liquidity pressures; in extreme cases the development of monetized markets in non-traded goods sectors could be stifled by these pressures, with serious efficiency losses resulting from this under-monetization.

The importance of the influence of the structure of the money supply on the relative prices of traded and non-traded goods, and on the "balance of payments constraint", stems from the fact that incremental money demand, associated with income growth, is large relative to demand for individual categories of goods and services. Incremental demand for the imported component of the money supply can therefore be large relative to total exports and imports, and relative to total supplies of foreign exchange. The share of total export earnings which could be required simply to meet incremental demand for imported money, as income was growing, was given quantitative analysis for the Argentine case; the conclusion was drawn that incremental demand for imported money has been a major factor in the balance of payments pressures experienced by that economy in the post-WWII period.

The analytical framework developed in this thesis offers a new approach to the analysis of a wide range of problems and policy issues. For instance, it offers a means of analyzing the idea that "soft" currency countries, such as impoverished LDCs or the countries of Eastern Europe, should adopt an imported ("hard currency") monetary base. The application of the analysis to this policy issue was given considerable attention in the thesis. The analytical framework also offers a new approach to the explanation of certain historical phenomena, such as the emergence of cross-country differences in the relative prices and productivity in non-traded goods sectors, and in

the intensity of balance of payments pressures. We saw that this analysis offered a means of explaining the emergence of some very intractable problems in Argentina in the post-WWII period. An attractive feature of the analysis applied to the Argentine case was that it offered a means of explaining the striking contrast between the monetary and exchange rate stability in Argentina in the pre-1930 period and the post-war deterioration of Argentine monetary performance. Application of the analytical framework to the Argentine case was given quantitative study.

We began the analysis, in Chapter II, by looking at the influence of certain characteristics of the currency area structure of the international economy on patterns of international financial intermediation. The analysis made use of the terms "external financial intermediation" (EFI) and "domestic financial intermediation" (DFI), within which the distinction was drawn between the "currency type" EFI and DFI, and the "geographical type" EFI and DFI. The concept of the "two money strategy" was also formulated and defined for use in the analysis, and the intended meaning of the phrase "the currency area structure of the international economy" was explained.

Three structural features were then identified which would tend to give rise to the development, within a currency area characterized by these features, of EFI at the expense of DFI. The three structural features in question have been characteristic of many of the world's smaller countries, particularly among the group commonly referred to as "LDCs"; these three structural features were also present in the Argentine economy in the pre-1930 period. Goldsmith's cross-country data on financial structure was used in an attempt to assess the influence of these structural features on cross-country differences in the historical development of financial structure.

The conclusion drawn in Chapter II was that the geographical distribution of these structural features among the world's currency areas has been a factor of importance in determining some of the major

cross-country differences in the pattern of financial development. The "LDC type" of financial structure as identified by Goldsmith was seen to be present in countries which, for the most part, were also characterised by the three structural features analyzed in Chapter II; on the other hand, these structural features were in most cases not present in countries for which the Goldsmith data showed the "DC type" of financial structure.

The influence of policy differences in patterns of financial development was not denied. However, it was pointed out that as concerns the broad patterns of cross-country differences in the international economy as a whole, one would expect the geographical distribution of structural characteristics to dominate the geographical distribution of policy wisdom or error. It was argued that the cross country data presented in the chapter show this to be the case.

An implication of the analysis was that governments of economies characterized by the three structural features in question, would need to take the influence of these features into account when formulating policy measures designed to foster domestic financial development. It has been argued in this thesis that there is an important role for official financial institutions in economies of this type, in fostering the development of DFI, which is not needed in the same way in other types of economies.

In Chapter III the analysis of cross-country differences in the structure of the money supply was developed. The analysis centred around the distinction between imported money and domestic forms of money, and made extensive use of the concept of "inside" money which was developed by Gurley and Shaw.

Four types of monetary system were identified analytically by the various types of money used in each. An algebraic framework was developed, and used for the purpose of analyzing these various types of monetary system. The algebraic framework was then used to identify various factors which might contribute to the determination of cross-

country differences in the share of the imported component of the monetary base which is compatible with monetary and exchange rate stability. This was done by using the algebraic formulation of the structure of the money supply to draw together various concepts of what constitutes "adequacy" of foreign exchange reserves. The analytical framework was then used to develop the argument that a smaller share of imported money can be compatible with monetary and exchange rate stability when DFI is stronger relative to EFI.

The central conclusion of the analysis developed in Chapter III was that the ordinary notion of monetary policy independence is dangerous as well as unrealistic. Attempts to maintain a level of the money stock which reduce the imported component of the monetary base below the level I have referred to as (G/F)* will result in a worsening of both unemployment and inflationary tendencies. Persistence in such a policy was seen to result in a rise in (G/F)*, and a rise in the imported share of incremental money demand associated with income growth. The pressure of a "balance of payments constraint" on income growth would be worsened by the increase in incremental demand for the imported money. Attempts to alleviate unemployment by this sort of expansionary monetary policy were therefore seen as not only self-defeating, but also tending to build up increasingly intractable problems of unemployment and inflationary tendencies.

This conclusion does not mean that governments are inexorably stuck in a trap between the hazards of excessive monetary expansion on the one hand, and intolerable unemployment on the other. On the contrary, it was shown that it is possible for governments to tackle both problems simultaneously, by operating on (G/F)*, to reduce it, by means of improving the quality of the central bank's DFI asset portfolio.

Detailed analysis of the sources of profit in financial intermediation was provided for the purpose of showing the existence of this possibility for government policy initiatives. It was shown that there were reasons why a government bank could find DFI financial intermediation activity profitable when private sector banks would not

find it so. The conclusion was drawn that the productive forms of government expenditure which are essential to the efficient and profitable functioning of private markets can be profitably financed through a state or central bank, so that there is no need to allow essential infrastructure maintenance to deteriorate for lack of finance.

Cross-country data were examined in an attempt to see whether financial structure could be identified as a factor determining the success with which economies were able to maintain low (G/F) ratios without suffering deterioration in the external value of their currency. In general this was seen to be the case. Countries which were identified by the Goldsmith data as having the LDC type of financial structure were less successful in maintaining the external value of their currency with a low (G/F) ratio than were countries with the developed country type of financial structure. The cross-country data gave some support to the idea that the structure of incremental money demand is related to the development of the financial structure. This idea was also supported by the historical data offered on the structure of the money supplies of France and England and Wales.

In Chapter IV the analysis developed in the preceding chapters was used to address three specific questions. These questions served to bring out the answers offered in the thesis to the general question of what are the implications for an economy of using an imported money supply.

The analysis developed in Chapter IV led me to reject the idea that the introduction of a Type II (currency board type) monetary system would be a successful approach to alleviating the problems of impoverished sectors of soft currency countries, by helping to attract foreign banks and capital. It was shown that the maintenance of this type of monetary system could result in serious problems of under-monetization and efficiency losses in the non-traded goods sector. It was argued that the introduction of a Type II system should at least be accompanied by substantial policy initiatives in the development of

DFI, and by provision for a transition to a Type IV system through the development of a strong central bank DFI portfolio.

The lines of argument developed in this chapter provided a new explanation for some of the characteristic features of differences in the development of markets in traded and non-traded goods sectors in economies commonly referred to as "less developed". We saw that the "marginalization" of large sectors of the population and regions, which has been a distressing feature in many of these economies, can be explained partly in terms of the structure of the money supply. It was shown that the tendency for non-traded sector prices to be relatively low in "less developed" countries, as compared with developed countries, can also be explained in terms of the structure of the money supply.

The analysis provided in this thesis can be applied to a wide range of historical problems and current policy issues, as has been shown in the range of issues discussed. The central message of the thesis is that the currency area structure of the international economy has important implications for patterns of international financial intermediation, for cross-country differences in the structure of money demand, and for the international distribution of "hard" and "soft" currencies. The analysis developed in the thesis offers a new way of looking at some very familiar and intractable problems, and thereby opens up a wider range of policy options in confronting these problems.

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