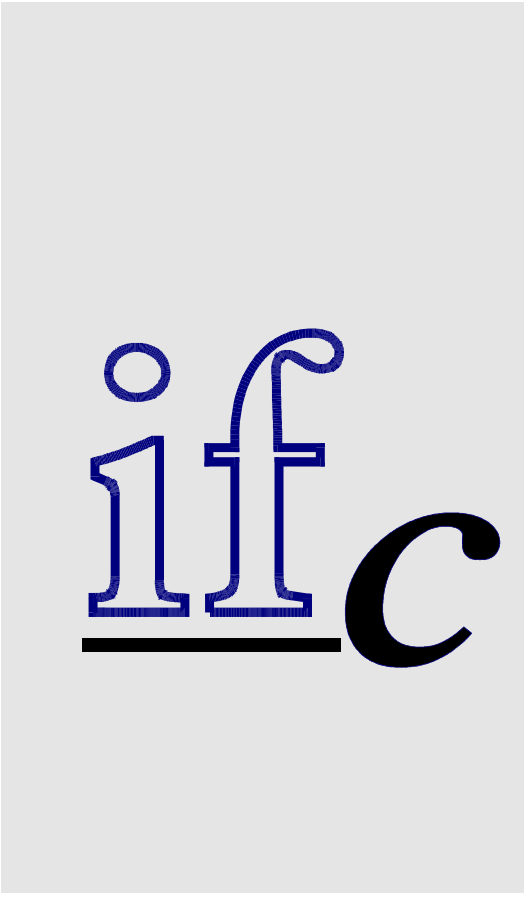
IRVING FISHER COMMITTEE
ON CENTRAL-BANK STATISTICS

ifc Bulletin

No. 8 • March 2001



The Irving Fisher Committee is part of the International Statistical Institute

Contents

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on Central-Bank Statistics

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The IFC-Bulletin is published at irregular intervals. Subscriptions are available free of charge. Send requests to the IFC Office.

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No 8 – March 2001

Contents

What is the IFC?

The Irving Fisher Committee (IFC) is a forum for discussion of statistical issues that are of interest to central banks. The Committee, which derives its name from the great American economist and statistician Irving Fisher, is part of the International Statistical Institute (ISI).

Objectives

By providing a forum for discussion, the IFC aims at:

- participating in the discussion on adapting statistical systems to changing requirements;
- promoting the adoption of international statistical standards and methodologies;
- sharing experience on the development of new statistics and the implementation of new methods of collecting, compiling and disseminating statistical information;
- exchanging views between central bankers and academics on statistical methods and techniques;
- facilitating personal contacts between central-bank statisticians.

Strategy

To achieve its objectives, the IFC organizes conferences at which papers are presented. These conferences take place both inside and outside the framework of the ISI's biennial sessions. The conferences are supported by the publication of the IFC Bulletin, in which conference papers are reproduced.

What kind of topics are discussed?

Any kind of theoretical or practical statistical subject that has a relationship with the activities of central banks can be considered for discussion. The subjects will mostly be in the area of monetary, financial and balance of payments statistics.

Membership and Structure

In principle, the IFC has no personal members. Central banks and other institutions interested in statistical systems and statistical techniques that have a bearing on the collection, compilation and distribution of central-bank statistics can become members by simple application. So far, more than 60 central banks and a number of other institutions have applied for membership. Members are entitled to appoint delegates to participate in the IFC's activities and to contribute to its conferences by presenting papers.

The prime decision-taking body is the assembly of members' delegates at the "administrative meetings" that are organized within the framework of the ISI biennial sessions. Here the IFC's strategy is determined. At these meetings an Executive Body is elected, which is charged with the committee's day-to-day business and with the preparation of the "administrative meetings". Likewise, at the "administrative meetings" topics are proposed for future conferences, and a Programme Committee is elected to choose from these topics and to organize the conferences.

A Short History

The Irving Fisher Committee (IFC) was established on the initiative of a number of central banks statisticians who were attending the ISI Corporate Members Meeting at the 1995 ISI Session in Beijing.

In 1997, during the 51st ISI Session in Istanbul, the IFC held its inaugural meeting. Inside the framework of the Istanbul Conference the IFC organized several sessions, on a variety of subjects. At the administrative meeting an Executive Body was established and it was decided to start publishing the IFC Bulletin devoted to the activities of the IFC.

In Helsinki, at the 52nd ISI Session, the IFC presented a programme comprising an invited papers session and a contributed papers session on "Globalisation of Markets and Cross-Border Holdings of Financial Assets", and a contributed papers session on "The Central Banks' Function in the Field of Statistics". Furthermore, the Committee held, in co-operation with the IAOS, a session on "How to measure deregulation". At the administrative meeting, decisions were taken about the IFC's future strategy. A new Executive Body was elected and a Programme Committee was instituted.

IFC Bulletin

The IFC Bulletin is the official periodical of the Irving Fisher Committee. The Bulletin contains articles and the text of papers presented within the framework of the ISI Conferences. It also sees as its task the recording of interesting events concerning Fisher's life. Institutions and individuals active in the field of central bank statistics can subscribe to the Bulletin free of charge.

Programme of the IFC Conference

Since October 2000, when the previous issue of the IFC Bulletin was published, not much new information on the Seoul Conference has emerged. There are a few changes in and additions to the programme of the IFC sessions, which have been incorporated in the scheme on the next page. Particulars on the Invited Papers Session are shown on page 8.

Just before this number went to press, we got some first information on part of the time schedule of the IFC sessions:

Invited Papers Session No 30 "Financial Stability Statistics"	23 August 2001, 15:45 – 18:00
Administrative Meeting Irving Fisher Committee	24 August 2001, 11:45 – 13.15

We were informed that the time schedule for the Contributed Papers Sessions will only be available in May or June.

We advise you to regularly visit the Web site of the conference *(http://www.nso.go.kr/isi2001)* to acquire the necessary information in time and to register for the conference.

Any important new information will also be published in the section "Latest News" of the IFC Web site *(http://www.ifcommittee.org)*.

Deadlines

We remind those who want to present a paper in any of the IFC sessions that final versions of (invited and contributed) papers must be submitted to both the organiser of the session and the Secretary of the Irving Fisher Committee before ***22 April 2001***.

Publication in IFC Bulletin

For publication in the IFC Bulletin, final versions of papers must be put at the Editor's disposal – preferably by e-mail – immediately after the conference, at the latest. Although papers submitted for presentation at the conference should not exceed 4 pages (invited papers) or 2 pages (contributed papers), no upper limit is set to the length of the versions to be published in the IFC Bulletin. Indeed, authors are encouraged to send more comprehensive versions of their papers to the Editor of this Bulletin.

Provisional Programme of the IFC Conference within the framework of the 53rd ISI Session

Seoul, 22-29 August 2001

Invited Papers Session No 30

"Financial Stability Statistics"

23 August, 15:45 – 18:00

General theme:
Recent developments in statistical requirements for financial stability, and their use

Organiser: Philip Turnbull (Bank of England)
Chair: Philip Turnbull (Bank of England)

Session 1: ***The perspective of international organisations***
Paper: Paul van den Bergh (BIS) and Charles Enoch (IMF)

Session 2: ***The perspective of a central bank of a developed country***
Paper: Sarah Wharmby (Bank of England)

Session 3: ***Monitoring statistics for financial stability of a small opened economy***
Paper: Sunny Yung (Hong Kong Monetary Authority)

Discussants: Jean-Marc Israël (ECB)
Federico Signorini (Banca d'Italia)

Contributed Papers Session No 153

"The Measurement of External Debt and External Reserves"

Organiser: Carol S. Carson (IMF)
Chair: Carol S. Carson (IMF)

Papers: Paul van den Bergh and Carol S. Carson
"Introduction and Update in the Field"

Daniel O. Boamah (Central Bank of Barbados)
"The Measurement of Foreign Reserves: Three Carribean Examples"

Petr Vojtisek (Czech National Bank)
"The Measurement of External Debt and Reserves: The Czech Experience"

Jean-Marc Israël (ECB)
"Compilation of External Debt and External Reserve Statistics"

Elena Pak (Central Bank of Russia)
"The Measurement of External Debt and External Reserves: The Russian Federation Experience"

Contributed Papers Session No 152

"Collection of Financial Data from Companies: Statistics and International Accountancy Standards"

Organiser: Satoru Hagino (IMF)
Chair: Józef Ole½ski (National Bank of Poland)

Papers: Satoru Hagino (IMF)
"New Monetary and Financial Statistics and International Accounting Standards"

Susan Hume McIntosh (Board of Governors of the Federal Reserve)
"Treatment of underfunding of pension funds"

Kiyohito Utsunomiya (Bank of Japan)
"Impacts of recent financial innovations on the measurement of income"

Chris Wright (Bank of England)
"Measurement of commissions of brokers" or
"Fair value method in international accounting standards and related issues"

L.V. Voronova (National Bank of Ukraine)

Ghislain Poullet (National Bank of Belgium)
"The non-resident question and the national statistics".

Contributed Papers Session No 154

"The Relationship between Central Banks and Statistical Institutes"

Organiser: Bart Meganck
Chair: Mediyamere Radipotsane (Bank of Botswana)

Papers: Gregor Bajtay (National Bank of Slovakia)

Assad Monajemi (Bank Markazi Iran)

Eva-Maria Nesvadba and Aurel Schubert (Oesterreichische Nationalbank)

Mediyamere Radipotsane (Bank of Botswana)

ISI INVITED PAPERS SESSION 30

"FINANCIAL STABILITY STATISTICS"

OUTLINE OF SESSION AND TITLES OF PAPERS/PRESENTATIONS

Version as at 22 November 2000

GENERAL THEME:
Recent developments in statistical requirements for financial stability, and in their use

INTRODUCTION: 10 mins

Philip Turnbull, Head of Monetary and Financial Statistics Division
Bank of England
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SESSION 1: **The perspective of international organisations** 2 x 20 mins

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Bank for International Settlements
Tel: 41 61 280 8432
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AND:
Charles Enoch, Statistics Division
International Monetary Fund
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E-mail: cenoch@imf.org

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SESSION 2: **The perspective of a central bank of a developed country** 30 mins

Sarah Wharmby, Monetary and Financial Statistics Division,
Bank of England
Tel: 44 20 7601 5573
E-mail: sarah.wharmby@bankofengland.co.uk

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SESSION 3: **Monitoring statistics for financial stability of a small opened economy** 30 mins

Sunny Yung, Hong Kong Monetary Authority
Tel: 00 852 2878 8196
E-mail: sunny_WS_YUNG@hkma.gov.hk

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DISCUSSANTS: 2 x 5 mins

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OPEN DISCUSSION FROM THE FLOOR 15 mins

Philip Turnbull, Organiser and chair of session
Bank of England.

ABSTRACTS

FINANCIAL STABILITY STATISTICS

The Perspective of International Organisations

Paul van den Bergh (BIS)
Charles Enoch (IMF)

Developments in international financial markets have always been monitored closely by the central banking community meeting at the Bank for International Settlements. Following the emergence of the so-called euro-dollar market in the early sixties, initiatives were taken to collect and publish relevant statistics on these international banking markets. Over time the geographical and analytical coverage of these statistics have been expanded, most recently to include measurements of banks' exposures on a consolidated and ultimate risk basis. As a result of the growing importance of capital, derivatives and foreign exchange markets in the last two decades, statistics have also been collected and published for these areas. The BIS statistics on international financial markets are an invaluable source of information for policy makers and financial market participants alike. However, with the ever increasing pace at which financial markets move and innovate, constant efforts have to be made by the BIS and the Basel-based groups to improve the timeliness and coverage of the international financial statistics

Part 2 of the paper from Charles Enoch will present a brief discussion of the results of a survey of macro-prudential indicators (MPIs). An extensive questionnaire was sent in June 2000 to all IMF member country central banks (for onward transmittal also to other agencies and market participants), as well as some regional organizations, asking for views on the usefulness and availability of a range of MPIs. Replies were received from around 120 countries.

The Perspective of a Central Bank of a Developed Country

Sarah Wharmby (Bank of England)

The 1997/8 Asian financial crisis provided a focus for central bankers' thoughts on global financial stability issues, and an impetus to re-examine the use of statistics in this area. This article will look at the datasets available, their relative advantages and deficiencies, and recent initiatives to use these series to address key issues in financial stability analysis. A range of work in this area will be covered, including the UK contribution to the international work on Macro Prudential Indicators, but the article will focus on the International Banking series, for which we have comprehensive datasets, and how these can be used to address financial stability issues. This will include looking at different approaches to measuring risk and how to view and interpret such measures in the context of London as a major financial centre.

Monitoring statistics for financial stability of a small opened economy

Sunny Yung (Hong Kong Monetary Authority)

The financial crises in 1998 have stimulated renewed interest from the public sector, the academia and the international financial community to review and find ways to improve transparency of financial markets and capital flows. There has been a broad international consensus that the need for more timely and better quality statistics in these aspects is pressing, yet views remain divided on how practically this could be achieved. This paper will examine the recent developments in this aspect from the perspective of a small-opened economy. It will consist of three major parts.

- Experience of the 1998 financial turmoil.
- The concerns of small-open economies.
- Strengthening the domestic monitoring framework and fostering regional co-operation.

EXTERNAL DEBT AND EXTERNAL RESERVES

The Measurement of Foreign Reserves: Three Caribbean Examples

Daniel O. Boamah (Central Bank of Barbados)

Foreign exchange reserves are financial instruments at the disposal of monetary authorities for the primary purpose of financing international payments imbalances.

Foreign assets in most countries are decomposed into two broad components: those of monetary authorities and those of commercial banks. The former usually consist of holdings of monetary gold, claims on non-residents, special drawing right, reserve position in the Fund and the use of Fund Credit. Whether or not a foreign asset should be included in a country's foreign reserves is dictated by two internationally accepted criteria: "effective control" and "availability". The monetary authorities should not only have "effective control" over the asset but it should also be "available" to meet a balance of payments (BOP) need.

The Central Bank of Barbados, Jamaica and Trinidad and Tobago have used slightly different approaches to identify reserve assets over time. For instance, Barbados includes amounts receivable from the Caricom Multilateral Clearing Facility (CMCF), which became bankrupt in 1983, but Trinidad and Tobago does not include that and any other loans to its Caricom neighbours. Jamaica's net foreign position excludes the Central Bank's medium term liabilities, but such borrowings are included in Barbados foreign position. Additionally, Jamaica and Trinidad and Tobago have moved from regimes of fixed exchange rate systems to floating rate systems since 1991 and 1993, respectively.

This paper seeks to document and discuss the alternative approaches to the measurements of foreign reserves in the three countries and assess how they conform to BOP accounting procedures. Following this, the paper discusses how changes in the exchange rate regimes have impacted on the identification and measurement of reserve assets in Jamaica and in Trinidad and Tobago. Finally the paper looks at trends in the net international reserves, and net foreign positions of the three countries to provide a synopsis on the adequacy of foreign reserves in relation to the respective countries' level of imports.

Compilation of External Debt and External Reserve Statistics

Jean-Marc Israël

External debt – The Board of Executive Directors of the International Monetary Fund (IMF) agreed in December 1998 on refinements of the Special Data Dissemination Standard (SDDS). As a result, the IMF's Board introduced (i) the International Investment Position (IIP) as a compulsory category of the SDDS as from end-June 2002 – and subsequently end-September 2002[1] – (for data referring to end-2001); and (ii) a separate SDDS data category for external debt. With regard to (ii) external debt statistics, these should mainly consist of the components of the IIP liabilities. In addition, the introduction of further breakdowns, such as residual maturity, currency breakdown and off-balance-sheet positions was recommended. External debt data are to be disseminated on a quarterly basis with a one-quarter time-lag from 2002 onwards.

Although the SDDS requirements do not impose direct obligations with regard to the compilation of euro area statistics, the Directorate General Statistics of the ECB intends to comply with international standards on euro area statistics to the greatest extent possible. Moreover, the ECB considers that for industrialised countries/regions, such as the euro area, the dissemination of external liabilities (debt) is meaningful only in conjunction with data on external assets, as many of the debt positions, especially the very short-term ones, are offset by corresponding assets. Therefore, the approach of using the liabilities side of the IIP for the compilation of external debt statistics was, in principle, regarded as useful by the ECB.

However, this would only be possible if participating Member States' data were provided to the ECB in a form permitting the external assets and liabilities of the euro area to be compiled separately ("step 2 data"), which is not currently the case. The euro area IIP is, at present, compiled on a net basis relying on aggregated national data (i.e. including the euro area Member States' national net positions vis-à-vis the rest of the world, assuming that intra-euro area positions cancel each other out, which is not certain). Full implementation of step 2 data in all instruments is envisaged for end-September 2002 (for data referring to end-2001). Furthermore, the compilation of a euro area IIP on a quarterly or semi-annual basis was not regarded as a priority by the majority of Member States. Consequently, the ECB could only derive quarterly external debt figures by simply accumulating quarterly b.o.p. flows and the latest real stock data available.

External reserves – Since April 1999, the ECB has required and published monthly data on the stock of international reserves held by the Eurosystem (the ECB and the 11 participating national central banks). The definition of the Eurosystem's reserve assets, which was approved by the Governing Council of the ECB in March 1999, is consistent with the guidelines outlined in the 5th edition of the IMF Balance of Payments Manual (BPM5). The reserve assets of the euro area consist of the Eurosystem's reserve assets, i.e. the ECB's reserve assets and the reserve assets held by the national central banks of the participating Member States. Reserve assets must (i) be under the effective control of the relevant monetary authority, whether the ECB or the national central banks of the participating Member States; and (ii) refer to highly liquid, marketable and creditworthy foreign (non-euro) currency-denominated claims on non-residents of the euro area – or gold, Special Drawing Rights (SDRs) or the reserve positions in the IMF of the participating national central banks. This definition expressly precludes foreign currency claims on residents in the euro area from being regarded as reserve assets either at the national or at the euro area level.

Although governments may hold working balances in foreign currencies, foreign exchange positions of central governments and/or Treasuries are not included in the reserve assets definition for the euro area in accordance with the institutional arrangements in the Treaty establishing the European Community. Reserve assets data are compiled on the basis of the information provided by the accounting or operations departments of the national central banks forming part of the Eurosystem and of the ECB.

In addition, each month the ECB compiles and publishes on its website Eurosystem and ECB data on international reserves and other related assets and liabilities, in line with the template entitled "International reserves and foreign currency liquidity", which was set out in early 2000 in the IMF's SDDS. This information covers not only data on reserve assets, but also data on the reserve-related liabilities of the Eurosystem.

1 *In March 2000, additional requirements were endorsed by the Board of Executive Directors, while it was considered that the timeliness for IIP would be more realistic if it were extended to a nine-month time lag.*

The Measurement of External Debt and External Reserves: The Czech Republic Experience

Petr Vojtisek (Czech National Bank)

The Czech National Bank (CNB) is responsible in the Czech Republic for measuring external debt and external reserves and for compiling the balance of payments and the international investment position. The CNB is allowed to demand data on flows and on assets and liabilities for this purpose.

The information on external debt is available in three variables. The first is the international investment position, which includes all external liabilities. The second, external debt, represents liabilities excluding equity capital and equity securities. All this information is published quarterly. External debt is broken down as follows: by convertible and non-convertible currencies, by short-term and long-term debt according to original maturity, and by debtor and creditor sectors. Data are collected from the central bank, banks, brokers, the government and non-financial institutions. The third variable is debt service. This covers liabilities longer than one year broken down by debtor and creditor sectors and by year. The data are collected from all banks and from selected non-financial institutions.

The data on external reserves are published monthly. Since April 2000 they have been published in accordance with the Special Data Dissemination Standards. The main sources are the balance sheet and dealings of the central bank.

The CNB uses the data on external debt and reserves for analytical purposes, especially in relative terms. The external debt and reserves figures represent most of the "early warning" indicators in the external sector. These indicators are broken down into four parts:

1 Indicators of external imbalance
- ratio of current account deficit to GDP,
- ratio of balance of trade deficit to GDP,
- current account deficit financing by non-debt inflow (foreign direct investment).

2 Debt indicators
- ratio of debt to GDP,
- ratio of debt service to exports of goods and services,
- ratio of debt service to GDP,
- international investment position.

3 Liquidity indicators
- coverage of highly mobile debt (debt service plus short-term debt) by external reserves,
- ratio of external reserves to money supply,
- external reserves relative to three months' imports of goods and services.

4 Other indicators
- nominal effective exchange rate,
- real effective exchange rate.

These indicators are monitored in two ways. Their development is analysed and, where applicable, their current trend is compared with the sensitive level. The sensitive level for each indicator is based on prevailing standards in international markets (e.g. 40% for the external debt/GDP ratio).

The Statistics Department of the CNB is responsible for statistical activities in the balance of payments area. It covers methodology, collection of information from banks and non-financial institutions, data publication according to a fixed calendar and presentation of selected data for analytical purposes within the central bank

THE RELATIONSHIP BETWEEN CENTRAL BANKS AND STATISTICAL INSTITUTES

The Relationship between Central Banks and Statistical Institutes

Eva-Maria Nesvadba and Aurel Schubert (Austrian National Bank)

Central banks and statistical insritutes are natural partners in the production of information on the state of the economy.

- They have to find a division of labour that builds on the comparative advantages of the respective institutions.
- The two institutions have to work in a complementary way and should not compete with each other.
- It is in the interest of the respondents as well as of the tax payers that redundancies are being avoided.
- The central banks should concentrate on the financial statistics while the statistical institutes should focus on the real side of the economy .
- In Austria, a newly enacted Statistics Act 2000 as well as a reorganisation of the national statistical institute could form the basis for a redefinition of the relationship of the two statistics-producing institutions.

ARTICLES

Securities market statistics from the standpoint of a central bank

The experience of the Banco de España

Miguel Ángel Menéndez
Beatriz Sanz

1 Introduction

The compilation of complete, reliable and relatively timely (in respect of the period to which they refer) statistics on issues and holdings of securities by residents in Spain, the study of their characteristics and, generally, the explanation of developments on Spanish securities markets have all been a central concern of the Banco de España since a monetary policy in the true sense of the term was first pursued in the second half of the seventies. There were three main reasons for this concern: a) the wish for in-depth knowledge of Spanish securities markets as these developed and grew, as a further facet of the knowledge that all central banks should have on the financial system in which they operate; b) the very pursuit of an active monetary policy by the Banco de España, which required sound knowledge of securities markets as an element for proper assessment of the monetary policy transmission mechanism[1]; and c) the preparation of the financial accounts which the Banco de España undertook as from the late seventies, the main aim of which was to act as a basis for the analysis of the inter-sectoral financial imbalances in the Annual Report on the Spanish economy and of the level of indebtedness of the national economy and the various sectors comprising it, made securities statistics a pivotal component for analysing stocks and flows of inter-sectoral financing.

These three reasons were important enough to convince the Banco de España to undertake the task of compiling quality statistics on securities markets as from the onset of the eighties without a legal provision explicitly requiring this having been promulgated. In fact, it was not until the enactment of Law 13/1994, of 1 June, on the Autonomy of the Banco de España, that there was an explicit reference for the central bank to "compile and publish statistics related to its functions". The updating of this legislation as a result of the start of Monetary Union (Law 12/1998, of 28 April) establishes as one of the tasks of the Banco de España that it shall "compile and publish statistics related to its functions and assist the ECB in the compilation of the statistical information needed for the fulfilment of the ESCB's functions" Article 7(5)(f)]. Prior to the Law of Autonomy, the functions of the Banco de España were laid down in Article 3 of Law 30/1980, of 21 June, on the regulation of its governing bodies, in which there was no explicit mention of the compilation of statistics. Nonetheless, the need for statistics logically arose from the other functions of the central bank, in particular the supervision of credit institutions and the implementation of monetary policy.[2]

1) *Indeed, from the mid-eighties, when Spain first began to undergo intense financial innovation (linked to the development of the markets for public debt, initially, and for short-term private securities, subsequently), to the mid-nineties, when the Banco de España abandoned the monetary policy framework based on the control of the monetary aggregates, the availability of accurate data on securities markets was essential in order to assess correctly the monetary policy being implemented by the Banco de España.*

Currently, the legal basis for compiling statistics is to be found, apart from in Law 13/1994 on the Autonomy of the Banco de España, in the Spanish Administration's four-year Statistical Plans. These include, as part of the General Statistics of the Nation, the Financial Accounts, the Balance of Payments and the International Investment Position compiled by the Banco de España. Moreover, the Banco de España, as a member of the ESCB, is obliged to compile and make available to the ECB the statistics the latter deems necessary for the proper conduct of monetary policy in the euro area. Among these statistics, the ECB has stipulated those relating to euro area securities markets (euro area residents' issues, in both euro and other currencies, and those by non-residents in euro).

Against this background, the aim of this article is to document the experience of the Banco de España in compiling securities statistics. The article is thus organised in five sections, in addition to this introduction. One of the qualities securities statistics compilers should have is a sound knowledge of the markets, operations and agents through which securities activities are conducted. In this connection, section 2 summarises the key events occurring in the Spanish financial system since the late seventies that have contributed to the development of the securities markets, and it details how, in parallel, the Banco de España has set about compiling the related statistics. Section 3 analyses the current status of these statistics, their main characteristics and their limitations. Section 4 discusses the integration of securities statistics into the financial accounts, a factor which has added internal consistency to these statistics. Next, section 5 examines the work under way within the ECB to develop and improve the quality of these statistics. The article finalises with summary and conclusions in section 6.

2 The different stages of development of the securities markets and of the compilation of securities statistics by the Banco de España

Securities markets in Spain did not develop and grow until the eighties once, at the end of the previous decade, the foundations had begun to be set in place to free the Spanish financial system from the regulatory stranglehold that had impeded its development. Indeed, the main elements characterising the financial system in the first half of the seventies were, firstly, firm State intervention in economic activity, exerted through a welter of rules and regulations including most notably, as far as this article is concerned, the obligation for credit institutions to meet compulsory ratios via investment in public and private securities and via special loans, the aim of which was to extend privileged finance at lower-than-market rates to specific economic activities and companies. In exchange, credit institutions could automatically pledge at the Banco de España the public debt held by them and avail themselves of the rediscounting of private bills at the central bank. Secondly, there was no active monetary policy; as a result, the Banco de España lacked the necessary instruments to enable it to drain off the liquidity generated automatically by the arrangements for public debt pledging and the rediscounting of bills. Thirdly, private banks were closely linked to industry. This was reflected by the predominance of bank credit in the non-privileged financing of companies and by the fact that, in the scant medium and long-term fixed-income securities issues by banks, these ensured their liquidity where necessary. Together with the relatively high costs incurred in transactions both on the primary and secondary markets, this prevented the development of the markets. Finally, during those years the Spanish economy was almost completely closed to the foreign sector.

In 1974 the Government announced its wish to set an orthodox monetary policy based on the control of liquidity in place, capable of redressing the intense inflationary process that had progressively taken hold and which had raised consumer-price inflation from an average of around 4% in the period 1965-69 to 11% between 1970 and 1974, with a figure of 18% for the latter year[3]. Nonetheless, not until 1977 did the Banco de España, the institution entrusted with monetary implementation, equip itself with the tools necessary to control liquidity[4]; until 1980 the Bank had no autonomy in the implementation of monetary policy; and until 1982, with the creation of Monetary Regulation Certificates, the instruments for absorbing liquidity were not reinforced. Besides these de-

2) *In this connection, the 1962 legislation on the nationalisation and reorganisation of the Banco de España established that, in connection with its functions as an adviser on and executor of monetary policy and credit, banks (including State-held entities) and savings banks would report accounting information to the Banco de España. Further, this Law established that the Banco de España could request statistical data of other entities and institutions in order to conduct statistical studies.*

3) *The inflation figure peaked at 26.5% in 1977.*

4) *Among these tools was the distribution of loans to credit institutions to extend liquidity to the system by means of tenders, compared with the procedure in force until then consisting of allocating such loans on the basis of each institution's own resourcesl.*

cisions, others were adopted in this period to reorganise and liberalise the markets. The events which, thereafter, most contributed to the development of securities markets were: the creation of a Public Debt Book-Entry System in 1987, the administration of which was entrusted to the Banco de España; the creation of the Association of Securities Dealers [*Asociación de Intermediarios de Activos Financieros (AIAF)*], also in 1987; the promulgation of Law 24/1988, of 28 July, on the securities market; and the inception of the markets for financial derivatives in 1989[5]. A discussion follows of the content of all these measures in terms of their contribution to the expansion of securities markets and the statistics which, in step with this expansion, have been compiled by the Banco de España.

2.1 The initial stage of the development of securities markets

The new system of monetary implementation adopted in 1977 marked the start of the expansion of the interbank market which, at a subsequent stage, contributed notably to the development of the public debt market. That same year, the government decided to commence issuing medium and long-term public debt at market rates; it continued the procedure it had initiated some years back of exchanging pledgeable for non-pledgeable debt; and 18 months later, it did away with the system of rediscounting bills in the Banco de España. Subsequently, 1981 saw the first issue of short-term securities (Treasury notes), which came into being endowed with the possibility of taking the form of an electronic accounting record (book entries)[6]. Despite all these measures, securities markets developed very slowly since the burden of the compulsory ratios and, therefore, the access to privileged financing by major economic sectors and companies was still at that time very important. Thus, in 1984 the investment ratio, set on the borrowed funds of banks, was still between 25% and 22% (depending on the kind of banks) and for savings banks it still stood at close to 40%, despite having been reduced considerably[7]. It was necessary to wait until January 1989 before the government finally decided to eliminate these ratios, phasing them out over the period to end-1992. Nonetheless, it should be clarified that, in the last seven years of their existence, the ratios were aimed at supporting the expansion of public debt, the markets for which were growing very slowly. In fact, although the government began issuing medium and long-term public securities at market rates in 1977, and short-term instruments in 1981, the proportion of general government debt covered by these instruments was only 16% at end-1982. And this despite the fact that, in this period, outstanding general government debt as a percentage of GDP rose from 13.5% to 28% (see Charts 1 and 2). Consequently, most of the growing budget deficit of the Spanish economy had to be financed with non-marketable debt and with loans from the Banco de España and, at the close of 1982, both instruments accounted for 67% of outstanding general government liabilities.

Public securities really began to take off after 1984 when credit institutions were authorised to conduct repo transactions both on the interbank market and with the public in general, and these securities began to be used to implement monetary policy. Thus, by the close of 1990, the degree of significance of debt instruments had turned around from the situation prevailing eight years earlier. In 1990, 78% of outstanding public debt was in the form of public securities and the overall amount of loans from the Banco de España and non-marketable securities accounted for only 11% (see Chart 2).

On the private securities markets, the outlook in the early eighties was not better than on the market for public securities. Among the credit institutions in early 1980, only certain types of banks (the industrial banks) issued fixed-income securities maturing at over two years, frequently at around five years, which had tax benefits. At the end of 1980, commercial banks were authorised to issue similar instruments called *bank bonds*, which typically matured after three years. Finally, as from 1982, medium and long-term *mortgage securities* began to be issued. Generally, the fact that the issuing entity would, for all these securities, guarantee their liquidity explained the non-existence of a secondary market, which in turn limited their issuance. Only one of these types of mortgage securities - *mortgage certificates* - grew to any extent in the eighties.

Turning to short-term securities, the trading of those issued by specialised credit institutions (mortgage lending, financing, leasing and factoring companies) received a boost with the creation of the fixed-income *AIAF* market. Conversely, those issued by banks, savings banks and credit co-operatives, which were known as *bank promissory notes*, were mostly not traded on the markets and were treated rather as time deposits. This situation changed in 1999 when such institutions began actively to issue short-term securities negotiable on the *AIAF* market.

5) *Other more recent measures that have also contributed to the development of the securities markets have been: the fiscal reform of 1991 and other, subsequent years, which contributed to the surge in securities mutual funds, and the creation of securitisation funds in 1992 (initially only mortgage-backed instruments, and all other assets in 1998).*

6) *Dematerialisation, which underpins the book-entry system and is one of the key aspects of the Law on Securities Markets, decisively boosted securities trading on secondary markets as physical securities gradually disappeared.*

7) *The figure had stood at 80 per cent in the early seventiees.*

As regards non-financial corporations, the instruments present on the market until the late seventies took the form of medium and long-term fixed-income issues by State-owned corporations and electric utilities, all of which were eligible to meet the obligatory investment ratio requirements. The early eighties saw two new short-term negotiable instruments linked to non-financial corporations come into being: *commercial bills* and *commercial paper*. *Commercial bills*, which were also called *endorsed bills*, came about when a banking institution drew a bill on its own order and against one of its clients, normally a large corporation, which accepted it. This instrument was actually a substitute for bank credit which was made via a bill instead of a loan contract. Subsequently, these bills were endorsed in blank and made available either through the Stock Exchange or directly to the deposit clients of the drawer institution, which actually converted them into a very close substitute for bank deposits. Thereafter, the bill would circulate freely with the letter of credit. The market grew relatively strongly in the early eighties before declining mid-decade, being replaced by that for bank bills and commercial paper. Both the latter are short-term instruments issued at a discount by credit institutions and non-financial corporations of a certain size, respectively.

Throughout this period, the compilation of securities statistics could be described as a "hand-made" process, owing to the scant IT resources then in place. Thus, the medium that acted as a basis for obtaining and storing the required information was initially paper, and the main sources for public securities were provided by the Directorate General of the Treasury and Financial Policy of the Ministry of Finance. This was because, at that time, it was this government agency which had to authorise all issues of such securities. In addition, direct information was used from issuers themselves, such as the Autonomous (Regional) Governments and Local Governments. Regarding credit institutions, the information on securities was essentially from the related issuance prospectuses, from Stock Exchange gazettes, from the former Instituto de Crédito a Medio y Largo Plazo (Medium and Long-Term Credit Institute) of the aforementioned Directorate General of the Treasury and Financial Policy and from the balance sheets and supplementary statements thereto which these institutions were obliged to report to the Banco de España for supervisory purposes. As to issues of fixed-income securities and shares via the Stock Exchanges by non-financial corporations, these were obtained (up until the 1988 securities market reform) directly from the daily gazettes published by the Stock Exchanges.

In the light of such rudimentary resources, the Banco de España addressed, in the early eighties, the creation of a security-by-security database and constructed time series, in most cases back to the early sixties. In addition to the above-mentioned sources, data from commercial suppliers were used. The concern of the Banco de España for these statistics at that time was patent in the way in which it tackled the compilation of data on the commercial paper market. The Banco de España devised a questionnaire aimed at issuers (then mainly large State-owned corporations and electric utilities) and requested it be completed on a monthly basis.

The data set compiled and disseminated in the Banco de España's monthly *Boletín estadístico* of all these statistics was, from the outset, most complete. Within each group of issuers, breakdowns were provided by type of instrument and by various features thereof, namely: gross issues, redemptions and net issues, interest rate or yield at issue, and trading on the secondary market. In respect of the equity market, data were also furnished on share price indices by sector and dividend/price ratio of the electric utilities, which were then the biggest group of non-financial corporations listed on the stock market.

2.2 The creation of the Public Debt Book-Entry System

The firm resolve of the Government to finance the budget deficit with market instruments and the momentum gathered by public securities once repo transactions were authorised in 1984 prompted the authorities to reorganise the public debt markets in the spring of 1987 by means of the creation of a book-entry system for public debt. Characterising this system is the fact that securities are not in paper form but dematerialised as simple entries in electronic accounting records. The purchase and holding of securities under this system is unrestricted and open to any type of investor. However, only certain intermediaries can hold accounts under their name in the Public Debt Book-Entry System (PDBS). Virtually all financial intermediaries who are duly listed in the official registers can be *account holders (market members)*, as can too the international financial agencies of which Spain is a member and the central banks of the member countries of the International Monetary Fund[8]. Other non-member investors have to hold their securities in the accounts of duly authorised *entidades gestoras (registered dealers)*. Only banks, savings banks, credit co-operatives, official credit institutes and securities-dealer companies and securities agencies can be regis-

8) *Since 1999 financial institutions without a permanent establishment in Spain can also be market members, as can, from 2001, certain general government agencies.*

tered dealers. In turn, there are different types of registered dealers. Within the group of so-called full-capacity registered dealers[9] is a sub-group called *market-makers*, whose main task is to provide liquidity to the wholesale segment of the market.

By means of the related legal provisions, the requirements to be met by financial intermediaries and other institutions to gain access to PDBS market membership and to acquire status as a registered dealer or market-maker[10] were established and updated. For the purposes of this article, the obligations of registered dealers include most notably the direct notification to the PDBS of the stocks of each security relating to non-members; keeping record of each transaction entered into with its customers or those operations which, transacted by said customers, affect the stock of book-entry debt; and the weekly communication of the daily breakdown of these records.

The types of transactions that can be conducted through the PDBS are widely varied and cover: outright spot and forward transactions, set-date or on-demand transactions with a repurchase agreement and repos involving simultaneous spot and forward transactions, with futures and options contracts being regulated in early 1989. Since mid-1997, there has been the added possibility of trading in government bond strips, a possibility progressively extended to the other issues negotiated on the PDBS.

The boost given by this system to the market for public securities was substantial. Traded on this market today are not only the securities issued by the State but also those relating to 12 Autonomous (Regional) Governments (of a total of 17 in Spain[11]) and several State-controlled agencies.

From the standpoint of the compilation of statistics, the inception of the book-entry system has proven pivotal since, through it, the Banco de España has full access to information on issues and virtually full access to that on secondary market operations[12]. The significance of this is clear if it is borne in mind that, over the past ten years, between 60% and 75% of the total outstanding stock of securities other than shares, except financial derivatives, issued by Spanish residents (general government, financial intermediaries and non-financial corporations) has related to public securities of the Banco de España Book-Entry System. On the secondary market, the turnover of book-entry fixed-income securities accounts for virtually 100% of total trades in Spain.

2.3 The establishment of the Association of Securities Dealers

At the beginning of the 1980s, the financing of Spanish non-financial corporations was centred on bank lending. Private bond issuance was rigidly controlled, with the former Institute of Medium and Long-term Lending (*Instituto de Crédito a Medio y Largo Plazo*) establishing limits, schedules and interest rates for issues, while the secondary markets suffered from serious organisational and operational problems, which also restricted both bond and equity financing.

Against this background, in 1982, Spanish non-financial corporations began to issue, by auction, short-term discount securities known as *commercial paper (pagarés de empresa)*. At first, these issues were made through the stock market. However, given the excessive regulation and rigidity of this market, the issuance and trading of *commercial paper* began to take place, with notable success, through direct bank-sponsored channels between issuers and purchasers. This instrument eventually replaced the *corporate or endorsed bills* (*letras de empresa* or *letras endosadas*) referred to in section 2.1, once these were included in the reserve base for calculating banks' reserve requirements, given that they were clearly substitutes for bank deposits, and because, in comparison with endorsed bills, commercial paper involved low costs for the firm in terms of commissions and taxes.

In response to the emerging boom in the commercial paper market, the Banco de España, from 1986, promoted a forum in which the main issuers and most active financial intermediaries in this market could address then main problems that might arise in relation to issuance, collateral, the secondary market and statistical information. This led initially to rules of self-regulation for the market and subsequently to the establishment in July 1987 of the Association of Securities Dealers [*Asociación de Intermediarios de Activos Financieros, (AIAF)*]. This was made up of the main credit institutions, with most securities-dealer companies and securities agencies eventually joining. The basic objectives of the association were to increase legal certainty, investor guarantees and market transparency. A decisive step in this direction was taken in mid-1989 with the creation of a system for the registration, clearing and settlement of securities known as ESPACLEAR. These operations are currently carried out through the *AIAF* Fixed-income Market Clearing and Settlement System (S*istema de Compensación y Liquidación de AIAF Mercado de Renta Fija*),

9) *These are market members and can operate with non-members without any restrictions.*

10) *The figure of the market-maker was re-defined in 1999, and is now called public debt market-maker of the Kingdom of Spain, to which group financial institutions without a permanent establishment in Spain may belong.*

11) *The Regional Governments of Catalonia and the Basque Country have their own book-entry system for public debt.*

12) *A small part of this market has been conducted through the Stock Exchanges since the trading of public debt book-entry operations via the Stock Exchanges was authorised in 1992.*

which runs the Securities Clearing and Settlement Service (*Servicio de Compensación y Liquidación de Valores*).

The passing of Law 24/1988 of 28 July 1988, under which the securities markets were reorganised, raised the problem of how to fit the *AIAF* into the securities markets' new organisational structure. Initially the *AIAF* was classified as a decentralised, wholesale and unofficial organised secondary market, on which fixed-income securities fulfilling certain requirements were traded. One such requirement was compliance with the issuance conditions laid down in the Securities Market Law, e.g. registering the issue prospectus with the National Securities Market Commission and issuing the securities in book-entry form. In 1998, an amendment to this law made the *AIAF* an official market. Besides short and medium-term commercial paper, other fixed-income securities issued by residents are traded on the *AIAF* market, including ordinary, indexed or mortgage-secured non-convertible bonds, mortgage bonds, certificates and participations, mortgage-backed bonds and, since 1988, preference shares too. Peseta-denominated, generally long-term, fixed-income securities issued by non-residents, commonly known as "matador bonds", are also traded on this market.

The development of the commercial paper market underwent a tremendous boom between mid-July 1989 and the beginning of 1991. During this period, owing to the need to control liquidity, the monetary authorities established direct administrative controls over bank lending to the private sector. Commercial paper became established as the obvious substitute both for bank credit (an alternative way to obtain financing) and for bank deposits and other instruments for the investment of short-term savings (an alternative for savers). Following the lifting of credit restrictions, the rate of expansion of this market moderated.

Before the *AIAF* was set up, the Banco de España collected statistical information on the commercial paper market directly from issuers, by sending them questionnaires, as mentioned above, and also from forms requesting information sent to credit institutions, given their active intermediation role in this market. Since the inception of the *AIAF*, these data, and also data on medium and long-term fixed-income securities, have been obtained directly from this association by electronic means.

2.4 The stock exchanges and the reorganisation of the securities markets pursuant to Law 24/1988 of 28 June 1988

After a long gestation process, that began in 1977 when a commission was set up to study the securities market, reform finally came 11 years later with the passing of Law 24/1988 of 28th June 1988[13]. This law attempted to respond to the long-felt need within the Spanish financial system for primary and secondary securities markets that would widen the financing possibilities for economic agents and improve the workings of the markets. The law laid down a code of conduct for market participants in line with the recommendations of the European Communities, whose cornerstones were the protection of investor interests and market transparency. It regulates the use of privileged information and requires the immediate release of information on any event or decision that might affect the price of a security. The core elements of the reform were: a) the setting up of the National Securities Market Commission [*Comisión Nacional del Mercado de Valores (CNMV)*] which was assigned significant powers to ensure the smooth working of the system; b) the vesting of the management of the stock exchanges (*bolsas de valores*) (known, until then, as *bolsas oficiales de comercio*) in a public limited company; and, c) the abolition of individual brokers. The existence of organised futures and options markets was not explicitly envisaged by the law until its amendment in 1990.

This reorganisation of the securities market also changed the regulation of collective investment undertakings; they were brought within the ambit of the *CNMV* (they had previously come within that of the Directorate General of the Treasury and Financial Policy of the Ministry of Economy and Finance) and adapted to Community law.

The *CNMV* was set up as a separate public-law legal entity. It was assigned the tasks of regulating, supervising and inspecting securities markets, to ensure the transparency of their operations, efficient price formation and adequate investor protection. To this end, it was granted sanctioning powers over natural and legal persons operating on the securities markets. This institution is also required to publish all such information as may be necessary to achieve its goals. The dissemination of information on securities markets is very complete and takes place on the Internet (www.cnmv.es)

The aim of abolishing individual brokers and replacing them by specialised financial institutions, incorporated as public limited companies and called securities-dealer companies and securi-

13) *This law has been subject to various amendments, notably in 1990, to include futures and options markets as organised markets, and in 1998 to transpose various EU directives.*

ties agencies (*sociedades de valores* and *agencias de valores*), was to adapt the system to the workings of other stock markets and to ensure that brokers had greater resources. The difference between these two types of institution lies in the fact that securities-dealer companies can take positions for their own account or for the account of third parties, while securities agencies can only act for third parties. The range of transactions that both types of institution can carry out is very varied. However, some of them may also be performed by credit institutions, by portfolio management companies and by exchange brokers (*corredores de comercio colegiados*).

With regard to the stock exchanges, securities-dealer companies and securities agencies can be members. Each exchange shall be managed by a public limited company whose capital is held by its members[14]. Securities-dealer companies and securities agencies can be members of more than one exchange at a time. The existing exchanges, and any new ones that may be set up, must be integrated by means of a computer network to form a national electronic stock-exchange interconnection system on which those securities determined by the *CNMV* and listed on at least two exchanges are traded. The management of the stock-exchange interconnection system was vested in *Sociedad de Bolsas*, formed by the managing companies of all of the exchanges. The new law also established the Securities Clearing and Settlement Service (*Servicio de Compensación y Liquidación de Valores)* with the status of a public limited company, whose functions are to keep the accounting records for securities listed on the stock exchanges and to manage exclusively the clearing of securities and cash deriving from market trading. A similar electronic trading system was introduced from 1991 for the trading of fixed-income securities on the exchanges.

In relation to the *primary market*, the law established that securities may be freely issued without the need for authorisation or placement. However, very strict rules were established for the advertising of new issues. For example, issuers are required to publish a prospectus setting out the features of the issue. The law also envisages the possibility of all the securities being represented by book entries.[15]

In the case of the *secondary markets* the law distinguishes between official and unofficial markets. Official markets are those which operate in accordance with the provisions of the law. The law establishes three types of official secondary market: a) stock exchanges; the only market on which shares and securities convertible into shares can be traded; b) the market for public debt, represented by book entries; and, c) such others as the government may grant the status of official secondary securities market. As regards the public debt book-entry market, the law provides for co-ordination of the Banco de España and the *CNMV* through the establishment of an advisory committee to ensure the sound operation of the public debt book-entry market, which both institutions belong to. Another important aspect of the law is that it dispensed with the requirement for a Notary Public to be involved in transactions.

In view of the above, following the passing of Law 24/1988, and its 1998 amendment, the official organised securities markets in Spain are: the stock exchanges; the public debt book-entry market, the *AIAF* private fixed-income market; and the financial futures and options markets.

From the outset, the collaboration of both the *CNMV* and the stock exchanges with the Banco de España for the *compilation of securities market statistics* has been very close and effective, ensuring a very high degree of detail and quality. Initially, the information was supplied by means of magnetic tape or floppy disk, but now computer connections are used.

2.5 The official financial futures and options markets

As in the case of the commercial paper market several years earlier, in the late eighties, in the financial futures and options markets, operations and events also took place before the government had established the related legal regime. In this case, the large portfolios of government securities issued at arm's length built up by holders led the latter, especially institutional investors, to press continually for the authorisation of instruments for hedging the market risk to which they were exposed. This was made more difficult by the ban then in force on forward transactions with clients on the debt book-entry secondary market.

The response of the authorities to these pressures was a decision of the Directorate General of the Treasury and Financial Policy of 31 March 1989. This authorised registered dealers to enter into forward transactions in public debt with any natural or legal person who does not hold an account with the Book-Entry System and to set up a clearing and settlement system to enable an unofficial organised market in book-entry government debt futures and options to operate, with the Banco de España being made responsible for their supervision. This is the basis on which the options market managed by the firm Options Market Ibérica (OMIB) and the futures market man-

14) *As from 2001, it is possible for non-market-members to particpate in the capital of these companies.*

15) *The spread of book-entry representation of securities has meant that most trading on these markets is now electronic, and ring or open-outcry trading has decreased significantly.*

aged by the firm *Mercado de Futuros Financieros, S.A. (MEFF)* came into existence, in November 1989 and March 1990, respectively. Subsequently, in late June 1990, Law 24/1988 on the securities market was amended to recognise the futures and options markets as unofficial organised secondary markets, enabling those that already existed to trade contracts on 3-month peseta-denominated interbank deposit interest rates. OMIB and *MEFF* both came within the scope of these new provisions and, therefore, responsibility for their supervision passed to the *CNMV* and they were able to expand their operations. Finally, Royal Decree 1814/1991 of 20 December 1991 regulated generally the establishment, organisation and operation of official financial futures and options markets. Markets of this type that had been authorised before this decree entered into force were given six months in which to obtain official status under the new legislation. This decree left open the possibility of setting up markets for non-financial futures and options.[16]

Under these new legal provisions, the power to authorise official financial futures and options markets was vested in the *CNMV*. This institution was also made responsible for approving the general terms and conditions of the contracts traded on each market. Special prominence was given to the market rules that must be drawn up by the relevant managing company. These rules had to cover the status of market members, the rights and obligations of clients, the contents of standard contracts, the listing, and trading and settlement system, the commissions systems, disciplinary rules and collateral requirements, both for market members and clients, as well as the method for making daily adjustments to collateral at the close of business, in accordance with price movements.

The members of these markets had to be securities-dealer companies, securities agencies or credit institutions. At their request, members may be shareholders of the managing company. This is an intermediate position between the stock exchanges, in which all market members are also shareholders of the managing company, and the Banco de España Book-Entry System, in which there is complete separation between the market members and the managing institution, namely the Banco de España.

Following this Royal Decree, OMIB and *MEFF* merged under the name *MEFF*, with the new company being subject to its provisions. *MEFF* had two centres, one in Madrid specialising in equity futures and options (*MEFF Renta Variable*) and the other in Barcelona concentrating on interest-rate and currency contracts (*MEFF Renta Fija*). Today both markets are fully consolidated within the Spanish financial system.

The *statistics* on these markets were initially compiled on the basis of data supplied directly by *MEFF* on floppy disk for fixed-income contracts and by the *CNMV* for equity contracts. Nowadays the data are obtained from the information that *MEFF* publishes on the Internet (www.meff.es).

* * * * *

As this section has clearly shown, although the securities markets have developed with a lag in Spain, comparison with the situation just fifteen years ago confirms that they have come a considerable distance. Admittedly there are still many aspects that could be improved, but the current state of development of the Spanish securities markets is clearly shown by the figures for funds raised on them by general government (52% in 1985 and 86% in 2000) and non-financial corporations (12% in 1985 and almost 30% in 2000), for market capitalisation, and for turnover on the secondary markets.

For further details of these developments the reader should consult the statistical annex at the end of this paper, which covers both the primary and secondary securities markets.

16) *A market for citrus fruit futures was set up in Valencia in 1995.*

3 Banco de España securities statistics: current status, main characteristics, sources and limitations

The securities market information currently disseminated by the Banco de España is in Chapters 21 and 22 of its monthly *Boletín estadístico*, which is on the Internet at www.bde.es [17]. Chapter 21 covers primary markets and Chapter 22 secondary markets and the markets for financial derivatives. This section will follow the same order in which these chapters are found.

3.1 Primary domestic markets for securities (Chapter 21 of the Banco de España Boletín estadístico)

The various series covered by this information are classified by issuing economic sector and by instrument, in both cases according to the categories established in ESA 95. Thus, itemised information is provided for the sectors *Financial institutions*, *General government* and *Non-financial corporations*. In addition, series of *peseta* issues by *Non-residents* are published. In connection with instruments, there are data on *Securities other than shares* (distinguishing between the short and long term) and on Shares and other equity[18]. For the various instruments, information is given on gross issues (placements), redemptions (whether due to maturity, early redemption or conversion), net issues (gross issues less redemptions), outstanding balances, interest rates at issue and currency of issue (pesetas/euro or currencies other than pesetas/euro). In the case of equity instruments, data are offered on capitalisation and on capital increases involving an increase in paid-up share capital, detailing those relating to listed shares.

The significance of each sector as a securities issuer, the specific instruments it is issuing and whether such instruments are financed in the securities markets in pesetas/euro can be deduced from the information in this chapter.

The Banco de España stores the information on the primary markets in two security-by-security databases. One shows the information on fixed-income securities, the other that on equities. The information these databases include is specified in Scheme 1 and, as can be seen, it is quite extensive.

Currently, the main source of information for these bases is the *CNMV* which, as indicated in section 2.4, is the agency entrusted in Spain with the regulation, supervision and inspection of securities markets. As a consequence of these functions, the *CNMV* keeps official records of issuance-related notifications and prospectuses which, in accordance with current regulations, must be disclosed in order to issue securities. Also among the functions allocated to the *CNMV* is the coding of negotiable securities (entrusted to it pursuant to RD 291/1992, of 27th March), which led to the creation of the National Securities Coding Agency (*Agencia Nacional de Codificación de Valores*). As a result of the foregoing, both the registration of issues and the process arising from coding functions are the main sources for preparing securities statistics.

Scheme 2 explains how the registration of securities is carried out, showing how maximum information can be had for the issues that have to comply with all stipulated registration requirements. For issues exempt from registration, alternative sources of information must be used. To illustrate the registration system, Scheme 2 uses as a basis the distinction between negotiable and non-negotiable securities. A breakdown of the instruments making up both types of security is then given in Scheme 3. As regards negotiable securities, the placement of which is via a public offering, Scheme 4 furnishes a breakdown of those that are exempt from registration requirements and of the information sources used in this case. On occasions, the National Securities Coding Agency of the *CNMV* is a valuable source of information. Other key sources are the Directorate General of the Treasury and the Public Debt Book-Entry System for central government securities. The latter is also a source for certain regional government issues and, in general, for issues admitted to trading on this System. Credit institutions, for their part, regularly report detailed information to the Banco de España on their issues of securities other than shares. Complementing these sources are the official gazettes of the State and the Autonomous (Regional) Governments, the records with which the Balance of Payments is drawn up and specialist publications, in particular those covering resident issues on foreign markets.

17) *Completing this information on securities markets are further data in Chapter 20 of the Boletín Estadístico, covering interbank market statistics. Information on the monetary regulation operations conducted by the Banco de España (since 1999 these operations have been determined by the European Central Bank's monetary policy implementation decisions) is disseminated, as are interbank operations between Spanish credit institutions.*

18) *The recent completion of specific work has allowed for a breakdown of the information on shares into listed and unlisted categories.*

Scheme 1

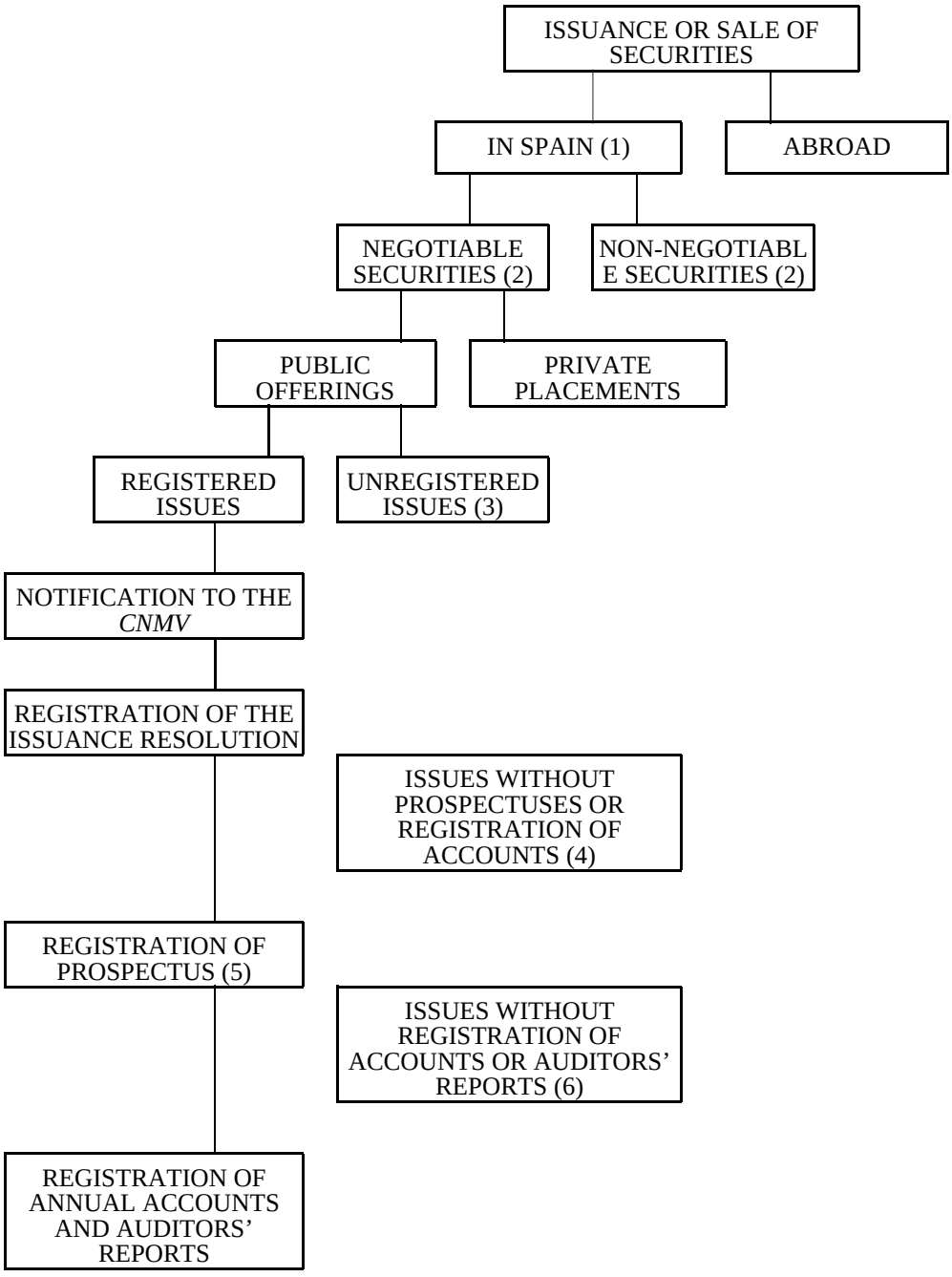
VARIABLES INCLUDED IN THE SECURITY-BY-SECURITY DATABASES

Fixed-income database	Equity database
1. Data on the issuer and the issue Name of the issuer ISIN code of the security Issuer's CNAE (Spanish national classification of economic activities) Issuer's code Currency of the issue Type of security	***1. Data on the issuer and the issue*** Name of the issuer ISIN code of the security Issuer's taxpayer identification number Currency of the issue
2. Data on the date of issuance Date of issuance Date of subsequent placements Average placement price Amount of the issue Amount of subsequent placements Order number of the issue	***2. Data on the date of issuance*** Date of issuance Nominal amount of the capital increase Amount of the bonus issue Paid-up amount of the capital increase Paid-up amount of the share premium
3. Data on the date of redemption Date of first redemption Date of subsequent redemptions Date of final redemption Redemption price (if other than par) Amount of successive redemptions Number of redemptions	***3. Data on the date of redemption*** Date of capital reduction Nominal amount of the capital reduction
4. Coupon data Coupon rate: fixed, indexed, variable or zero Initial coupon Frequency of coupon payment Coupon applicable in each period (except for issues with indexed interest rate)	***4. Data on dividends***[1]
5. Other data Indication of domestic markets on which listed Indication of convertibility Indication of guarantees	***5. Other data*** Indication of whether the security is listed

[1] *At present the database does not have any information on dividends distributed by public limited companies, although it is planned to include such data shortly.*

Scheme 2

REGISTRATION OF ISSUES WITH THE NATIONAL SECURITIES MARKET COMMISSION



(1) Domestically advertised securities offering and/or securities analogous to other securities of the same issuer listed on domestic secondary markets.

(2) See Scheme 3.

(3) See Scheme 4.

(4)This exemption applies to: securities marketed to institutional investors; securities marketed to fewer than 50 investors or to current or retired employees of the issuing entity or its group; issues with a total value of less than one billion pesetas or whose actual unit price or minimum payment is greater than or equal to 25 million pesetas; bonus shares; securities offered in exchange for others of the same company; and shares required in mergers or spin-offs.

(5) Arrangements have been in place since 1998 allowing a prospectus relating to an issuance facility or schedule to be registered.

(6) This exemption applies to securities of public agencies connected with or reporting to the State or the Autonomous (Regional) Governments, which do not have the status of commercial companies, and to issues of international agencies of a public nature or foreign states.

Scheme 3

NEGOTIABLE AND NON-NEGOTIABLE SECURITIES

Negotiable securities	Non-negotiable securities
Shares, equity units, subscription rights and warrants	Shares in private limited companies
Bonds	Partners' shares in general and limited partnerships
Bills of exchange, promissory notes, certificates of deposit not deriving from commercial transactions or issued individually	Capital contributions to co-operatives
Mortgage certificates, mortgage bonds and mortgage participation	Shares in the capital of mutual guarantee companies
Shares in mutual funds	Shares in Stock Exchange Managing Companies and market authorities (1)
Rights tradable on a market	

(1) As from 2001, it is possible for non-market-members to participate in the capital of Stock Exchange Managing Companies. As a result, these shares will become negotiable.

Accordingly, the main approach used for preparing securities issuance statistics is to store data security by security for those securities on which sufficient information is available. The Banco de España has a series of computer applications for storing and using the information on securities. These applications were set in place twenty years ago. Initially, they were designed for a computer configuration based on an IBM mainframe with an MVS operating system and 3270-type terminals. The information is stored in VSAM and related sequential files. It is used by means of Fortran applications or ad hoc developments in SAS. This application has progressively been adapted as and when required by the changes in recent years in securities markets. Currently, as this application has become outdated in view of the new database management techniques available, the processes have been set in motion to design a system that will run on a computer network using Windows-NT and AIX operating systems. ORACLE and FAME will be employed as database managers and this will allow the use of SQL (System Query Language) for information retrieval. This review of storage and use procedures will enable the Banco de España to participate actively in the preparation of the Centralised Securities Database of the European Central Bank.

Scheme 4

ISSUES EXEMPT FROM REGISTRATION REQUIREMENTS

Issues	Alternative source
State	Directorate General of the Treasury Book-Entry System (1)
Autonomous (Regional) Governments	Autonomous (Regional) Governments Directorate General of Co-ordination with Territorial Finance Departments National Securities Coding Agency (*CNMV*) (2) Book-Entry System (1) *AIAF* (Association of Securities Dealers) (3) Stock Exchanges Balance of Payments
State and Autonomous (Regional) Government agencies	National Securities Coding Agency (*CNMV*) (2) Book-Entry System (1) *AIAF* (Association of Securities Dealers) (3) Stock Exchanges Balance of Payments
Banco de España	Banco de España
ECB and ESCB	
Credit institutions' securities with agreed maturity of less than 12 months that are traded between the institution and its customers, or that are marketed to institutional investors	Credit institutions (Banco de España)
Shares in public limited companies issued to founders upon its formation (4)	
Securities issued upon the exercise of options or rights	Stock Exchanges
Shares in mutual funds	Mutual funds (*CNMV*) (2)
Mortgage securities issued individually for institutional investors	Credit institutions (Banco de España) Securitisation funds (*CNMV*) (2)
Promissory notes issued individually that do not derive from commercial transactions	

(1) Banco de España Book-Entry System, which manages the official secondary market for government debt.

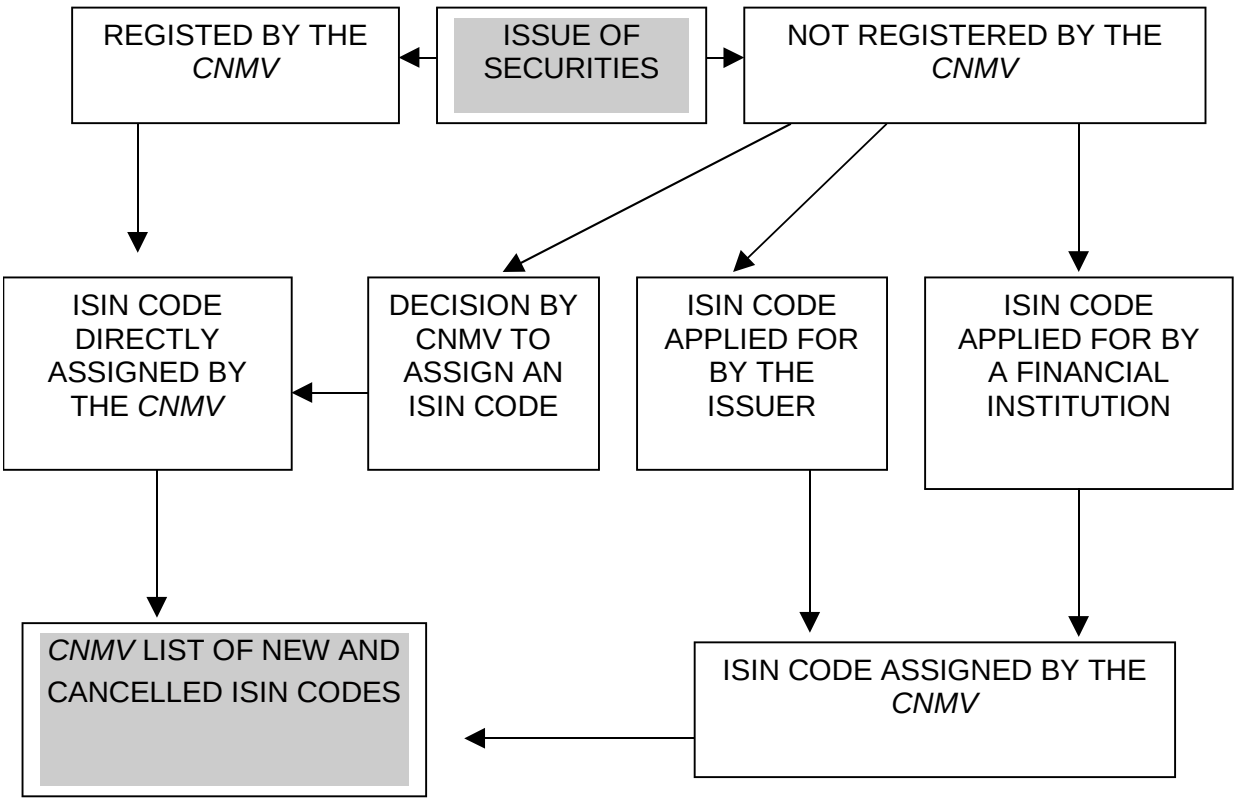
(2) National Securities Market Commission (Comisión Nacional del Mercado de Valores).

(3) Official fixed-income market.

(4) Shares sold by public subscription upon the formation of a public limited company shall comply with registration requirements.

Drawing on the sources indicated, virtually all issues of securties other than shares, except financial derivatives, and listed shares are included in a security-by-security database. Excluded from this security-by-security approach are private placements of securities other than shares on which information is lacking, unlisted shares that do not involve the resort to the general public for funds, and other equity other than shares in mutual funds. In these instances, the securities issuance statistics should be prepared through an alternative approach drawing on sources making it possible at least to obtain an aggregate breakdown by sector of financing via securities issues. In the Banco de España statistics, the alternative sources available to do this are taken from the Central Balance Sheet Office. Nonetheless, this source does not allow the data to be obtained monthly, as is the case with the security-by-security information. Consequently, these statistics are not provided monthly and, as a result, they are not included in Chapter 21 of the *Boletín estadístico*, only quarterly in the Financial Accounts of the Spanish Economy.

Scheme 5



As mentioned above, besides the *CNMV* registers, there is another basic source for compiling securities statistics, namely the records of the *CNMV*'s National Securities Coding Agency. This source complements both the information obtained from the *CNMV*'s process of registering securities and that obtained from alternative sources. Issues registered with the *CNMV* are assigned an ISIN code (International Securities Identification Number) by the *CNMV*. Issues not registered with the *CNMV* are assigned an ISIN code in the following cases: a) at the discretion of the *CNMV*; b) at the request of the issuer and; c) at the request of a financial institution[19]. Scheme 5 shows the complete procedure for assigning ISIN codes, which concludes with the publication by the *CNMV* of a list of new and cancelled ISIN codes.

3.2 The secondary securities markets

Information on secondary securities markets is essential to be able to value negotiable securities at

19) *It is generally custodian banks that request coding, although other institutions, e.g. collective investment undertakings, also do so.*

market prices, and to provide a benchmark for estimating the approximate market value of non-negotiable securities. These data are crucial for certain important aspects of economic analysis: for example, in the case of equity markets, for observing trends in the financial wealth of non-financial corporations and households, which will affect their spending decisions; and, in the case of securities other than shares, prices provide information on the transmission of monetary policy from short-term to longer-term interest rates, and therefore on how the financing conditions of economic agents are affected. With this information it is also possible to construct a curve of interest rates over time, showing expectations of future financing conditions. Moreover, ESA 95 requires securities to be valued at market prices when preparing the financial balance sheets and revaluation accounts for the Financial Accounts[20]. From the viewpoint of inter-sectoral imbalances, the importance of the secondary markets is determined by the degree of liquidity they afford to securities. Accordingly, the trading of securities on secondary markets and net issuance on primary markets account for a large part of the financing between economic sectors.

As mentioned at the beginning of this section, the Banco de España publishes statistics on secondary securities markets in Chapter 22 of its *Boletín estadístico* (www.bde.es). This chapter contains information on the four official organised markets existing in Spain: the Public Debt Market of the Banco de España's Book-Entry System (*el Mercado de Deuda Pública de la Central de Anotaciones del Banco de España*); the Spanish Association of Securities Dealers [*Asociación de Intermediarios de Activos Fianncieros (AIAF)*] fixed-income market; the stock exchanges; and lastly, the organised financial derivatives markets. The statistical series refer to turnover and prices or interest rates. The sources of information for these statistics are the authorities of the respective organised markets: the Book-Entry System, managed by the Banco de España, for the Public Debt book-entry market; the *AIAF* for the *AIAF* market; in the case of the stock exchanges, their managing companies; and *MEFF* for the financial derivatives markets. Depending on the source, the data available for preparing the published statistical series range from practically transaction by transaction (in the case of the Book-Entry System) to security-by-security trading and aggregate data for different categories of security (in the case of the stock exchanges and the *AIAF* market) and aggregate data by type of contract (derivatives market).

A brief reference is made below to the information contained in Chapter 22 of the Banco de España's *Boletín estadístico* on these four markets.

As regards the *Public Debt book-entry market*, statistical series are published of outstanding stocks, turnover and interest rates by maturity, with a breakdown by instrument (Treasury bills and medium and long-term government bonds) and by different types of transaction (outright and repos). Also a yield index is published for medium and long-term bonds, along with its component price and interest indices. Finally, information is given on market turnover *ratios* (ratios between turnover and outstanding stocks). It should be noted that these data published monthly in the *Boletín estadístico* can be supplemented by those published daily in the *Bulletin of the Book-Entry System*. Both publications are released on the Internet (www.bde.es).

In the case of the *stock exchanges*, information is given on turnover in equities and bonds, with details of transactions by the sector of the issuer and by stock exchange. In Spain there are four stock exchanges (Madrid, Barcelona, Bilbao and Valencia) and an exchange interconnection system, managed by the Sociedad de Bolsas, for executing trades of securities listed on at least two of them. For the latter market, data are collected on the total nominal value of the listed securities. As a benchmark for equity prices, series are included for the share price index of the Madrid Stock Exchange and the IBEX-35 index published by Sociedad de Bolsas[21].

For the *AIAF market*, information is published on turnover and interest rates, with a breakdown by instrument (commercial paper, mortgage notes and medium and long-term bonds) and maturity and the nominal value of outstanding listed commercial paper.[22]

As for the *financial derivatives market*, information is given on trades executed and open positions for each type of contract.[23]

4 Securities statistics in the context of the *Boletín estadístico* and the Financial Accounts compiled by the Banco de España

The Banco de España began to compile *Financial Accounts of the Spanish Economy (FASE)* in the late seventies, within the reference framework of the National Accounts. Initially, the methodology followed was that of ESA 79[24] and their periodicity was annual[25]. Since the 2000 edition, the

20) *See Section 4.*

21) *The Stock Exchanges publish information daily on market trading in their trading bulletins, which can be found on the Internet (www.bolsamadrid.es; www.borsabcn.es; www.bolsabilbao.es; www.bolsavalencia.es and*

accounts are compiled on the basis of ESA 95 methodology and published in a bilingual Spanish/English edition. Annual series currently exist for the period 1994-1999 for stocks and 1995-1999 for flows, and quarterly series for the period 1995 Q1-2000 Q3[26]. These accounts are published on the Internet (www.bde.es) (annual and quarterly) and, once a year (in June), in a hard-copy monograph, concurrently with the *Annual Report* on the Spanish economy. Indeed, they form the basis of the analysis contained in the chapter of the *Annual Report* devoted to the financing of the economy. The quarterly updating of the accounts on the Internet takes place with a sixteen-week lag on the calendar quarter to which the latest observation relates.

As is well known, the systems of National Accounts establish the different categories of financial assets and liabilities whose transactions are recorded in the Financial Account. ESA 95 further estabilishes the revaluation account, the other changes in volume of assets account and the financial balance sheets.

Within the Financial Account for which ESA 95 establishes the various instrument categories[27], financial assets and liabilities in the form of negotiable securities make up a subsystem of financial instruments that are negotiated or may be negotiated on a market and that are included in the categories *Securities other than shares* and *Shares and other equity*. To obtain more details of the financing channelled through the securities markets it is useful to have more detailed information on these categories, namely whether a financial derivative transaction is involved, whether a fixed-income issue is short or long-term, whether listed or unlisted shares corporations are involved, or other equity in firms. This subsystem is extremely valuable for financial analysis. In fact, these categories show the flows of financing, between the various sectors and between these and the rest of the world, channelled through negotiable securities. For the issuer of the securities these transactions are an alternative to credit financing, and it is possible to analyse the extent to which these securities are acquired by institutional investors, by non-financial corporations and households and by non-residents. For the holders of the securities, these instruments, due to their negotiability, incorporate the possibility, unlike other assets they hold, of being transferred on secondary markets[28], and therefore, of constituting a source of financing. All these elements provide significant data on: the process of intermediation or disintermediation in the economy; the structure of issues and of securities holdings by maturity, alerting to any possible vulnerability of the system; on the depth of the capital markets, through the outstanding stocks of securities; and on the international role of the national or area currency, through the issues in that currency made by non-residents.

The main source of information for the securities categories included in the Financial Accounts is the securities statistics obtained from the primary markets, from the secondary markets and from the markets for financial derivatives. The statistics on these markets that are currently compiled and released by the Banco the España were described in the preceding section. These data provide the basis for preparing what has been called the securities subsystem of the *Financial Accounts of the Spanish Economy*. This subsystem is structured in such a way that it provides a complete view of the flows of financing exchanged between the various sectors. In fact, as mentioned in section 3.1, for the primary market, the data provided by the monthly series of the *Boletín estadístico* are completed by other additional data so that sufficient quarterly information is available on securities issues by economic sector. However, to have a complete overview of the securities markets it is necessary to incorporate the data on the counterpart sectors, which are the holders of these securities. Thus, information is given in the *FASE* for each sector on the financial instruments used to raise financing from other sectors (liabilities) and on the financial instruments used, in turn, to finance other sectors (financial assets). Moreover, the criteria established in ESA 95 for the valuation and allocation of accrued interest must be followed when the Financial Accounts are com-

www.bolsas.es).

22) *The AIAF also publishes a daily bulletin containing extensive details of market trading. This information is also released on the Internet (www.aiaf.es).*

23) *MEFF publishes monthly trading information in its quarterly publication "MEFF News". It also releases daily trading data on the Internet (www.meff.es).*

24) *European System of Accounts, second edition, 1979.*

25) *The annual time series span the period 1970-1998. Quarterly series are also available for the period 1997 Q1-1999 Q4.*

26) *It is planned to extend the time series back to 1990 by the end of the year 2001 and beyond 1990 as soon as possible, although it is still difficult to specify precisely when that will be.*

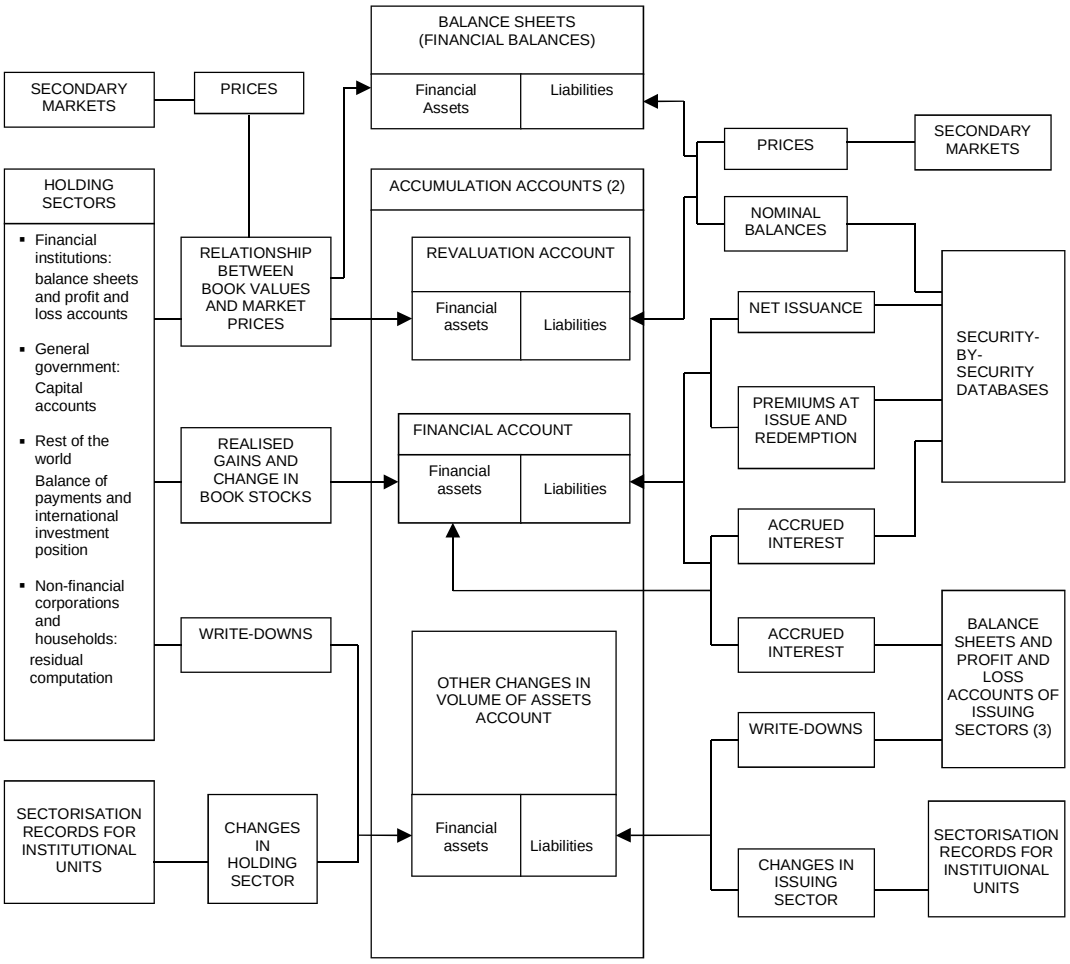
27) *Monetary gold and special drawing rights (SDRs); Currency and deposits; Securities other than shares; Loans; Shares and other equity; Insurance technical reserves; and Other accounts receivable/payable.*

28) *Although loans can be transferred, such transactions are not normal for individual loans. Moreover, if a loan is negotiable on a secondary market, under ESA 95 it is classified as Securities other than shares instead of Loans. Likewise, securities that arise from securitisation, whether directly or through a specialised financial intermediary (such as securitisation funds), are classified under the category Securities other than shares.*

Scheme 6

SCHEME OF PREPARATION OF THE NATIONAL ACCOUNTS FOR THE CATEGORIES OF SECURITIES OTHER THAN SHARES, EXCLUDING FINANCIAL DERIVATIVES

Issues of sectors resident in Spain[1]



(1) The information on issues of non-residents is obtained form aggregate Balance of payments and International investment position records. The preparation of a centralised database of securities will enable a statistical security-by-security approach to be applied to these issues too.

(2) The capital account, which will be affected by the accrued interest recorded in the distribution and use of income accounts as resources (for holders) and uses (for issuers) is not included in this scheme.

(3) Includes Central Balance Sheet Data Office information for non-financial corporations.

piled. For all the above reasons, there are three fundamental differences between the Financial Accounts and the statistics on securities issuance contained in the *Boletín estadístico*, namely*:*

a) They incorporate the counterpart sectors of the issuing sectors, i.e. the holders of the securities. This requires sources of information from which such data on securities portfolios may be obtained. As in the case of issuance, the approach can be a security-by-security one, with data on the holders of each outstanding security, classified by sector (with monthly or quarterly periodicity), or else aggregated data may be used. This latter case requires data on the securities portfolio of each sector, with a breakdown of the different categories of security (other than shares, short and long-term, listed and unlisted shares, other equities, financial derivatives) by issuing sector. In our case an aggregated approach is followed to obtain the portfolios, using as the basic source of information the balance sheets and other supplementary accounting statements of financial institutions: credit institutions, insurance corporations and pension funds, collective investment undertakings, other financial intermediaries and financial auxiliaries.

b) The financial transactions correspond to the issuance less redemptions (a concept that basically coincides with that of net issuance in Chapter 21 of the *Boletín Estadístico*) plus the interest accrued less interest paid during the period. The recording of interest thus follows the criteria laid down in ESA 95: accruals and allocation to the financial transactions of the instruments by which it is generated[29].

c) Stocks are valued at market prices. For securities other than shares, except financial derivatives, either the prices observed on the secondary market are used or a market value is approximated for those securities whose quotation is not frequent. For listed shares, stock-market capitalisation is used, and for unlisted shares market value is approximated on the basis of the changes in prices observed for listed shares of the sector or sub-sector in the event that such sector or sub-sector is considered sufficiently represented on stock markets. For those sectors in which this benchmark does not exist they are valued by an alternative method based on the discounting of estimated ordinary profits[30]. Finally, the valuation method applied for *other equity* is that of the corporation's own funds.

Scheme 6 summarises the preparation procedure followed for categories of securities other than shares, except financial derivatives, issued by residents, of the Financial Accounts of the Spanish Economy.

5 Work currently under way at the ECB to improve securities statistics

According to Article 5 (1) of the Statute of the European System of Central Banks (ESCB) and of the European Central Bank (ECB), the ECB, assisted by the national central banks, shall collect the necessary statistical information in order for the ESCB to undertake its tasks. In accordance with Article 3 of such Statute, these tasks include defining and implementing the monetary policy of the Community and contributing to the smooth conduct of the policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system, in accordance with Article 105 of the Treaty on European Union. The statistics that the ESCB has established as necessary to carry out effectively its tasks are monetary and banking, balance of payments, financial accounts and other statistics relating to financial intermediation. The latter include securities statistics.

Against this background the ECB, in collaboration with the national central banks and the Bank for International Settlements (BIS), addressed the compilation of securities statistics for the euro area some time ago. This task is going to be performed in two phases. Phase one of this work has focused on the construction of statistical series on securities, of certain quality, which refer to: 1) securities issued in euro and in other currencies by euro area residents, with monthly periodicity, and 2) securities issued by non-residents of the euro area, in euro (or national denominations of the euro), with quarterly periodicity. The ECB began to publish these series in the Euro area statistics section of the November 1999 edition of its Monthly Bulletin (www.ecb.int). Currently this information is contained in Tables 3.5 and 3.6 of the Monthly Bulletin and refers to: *Securities issues other than shares* (issues, redemptions, net issues and amounts outstanding) by *original maturity, residency of the issuer* (by euro area residents and by non-residents of the euro area) *and currency denomination* (euro and other) (Table 3.5) and to *Euro-denominated securities other than shares* by original maturity, residency (by euro area residents and by non-residents of the euro area) and

29) *The accruals principle has been applied from the so-called issuer's viewpoint; i.e. the interest has accrued from the internal rate of return upon issuance of the securities.*

30) *A summarised version of this method may be found in the methodological note of the publication Cuentas Financieras de la Economía Española 1995-1999, June 2000.*

sector of the issuer [Monetary Financial Institutions (Banks in the case of non-residents), non-monetary financial corporations, non-financial corporations, central government and other general government] (Table 3.6).

In attempting to compile these statistics, the ECB encounters two types of problem. First, those of any euro area country that compiles statistics on the areas mentioned (monetary, banking, balance of payments and financial accounts), which arise from the fact that the information sources for compiling data on each of them are generally different and use different accounting and transaction-recording systems, so that, attempting to make the information provided by each of these groups of statistics consistent frequently becomes an arduous task. Second, the ECB has the additional problem arising from the fact that the procedures for compiling these data, their characteristics, their coverage and their quality differ greatly across the countries making up the euro area. For all the above reasons, and given the importance attached by the ESCB to securities statistics, at the same time as efforts are being made to improve the quality of the data regularly supplied by the countries and to extend the time series, the ECB began in late 1999 an ambitious project to compile statistics more efficiently and with a wider coverage. This project, which will constitute phase two of its approximation to the subject of securities statistics, is based on the creation of a centralised security-by-security database (CSDB) whose information is used both for securities statistics themselves (which should supplement the information on monetary aggregates and their counterparts) and those of the balance of payments, those on the international investment position and those on the financial accounts. The ECB is carrying out this work with the collaboration of the national central banks (including the Banco de España) and the BIS. This work should be set in the framework of the questionnaire prepared jointly in June 2000 by the BIS, the ECB and the IMF to obtain information on the existence, scope and coverage of security-by-security databases in different countries, with the purpose of obtaining a CSDB at the international level.

An initial stage of the ESCB's CSDB project has focused on identifying user requirements. Given the extensive range of users (securities, monetary, banking, balance-of-payments and financial-accounts statistics compilers and analysts), one of the main conclusions of this phase is that itemised data are needed not only on the issuers of securities but also on the holders. This latter aspect is undoubtedly the most complex one. Thus, it would be best initially if efforts were to focus on resolving how to obtain data on securities issues. Other key aspects of the project include establishing the supply sources for the CSDB; determining how static or dynamic it should be; incorporating data quality control; and reducing, where possible, data availability lags.

The diversity of the sources poses the problem of their hierarchisation. It is likely that the main CSDB supply source will be the National Central Banks in possession of security-by-security databases, and the BIS will act as a complementary source. There is consensus that the CSDB should be dynamic, i.e. that data should be available on both the issuer and the issue throughout the life of said issue. Finally, the ECB accords great importance to the aspects of data quality and lags in their availability. In this connection it will devote substantial effort and resources to ensuring, first, that the necessary checks are performed to avoid gaps and duplication and, further, that lags are limited.

6 Summary and conclusions

The development of securities markets in Spain was fairly belated as a result of the excessive regulations burdening the financial system for many years. Development did not take off until well into the eighties, once the financial markets began to be progressively liberalised and modernised. However, there has been such significant headway over the past 15 years that, today, Spanish securities markets may be said to be as dynamic and efficient as those of any other developed country. This explains why currently more than 85% of general government financing and approximately 30% of that of non-financial corporations is covered by the securities markets.

At all times, the Banco de España has paid particular attention to the compilation of securities statistics, convinced that they are important for a proper assessment of monetary policy and of specific aspects of the financial system as a whole. As in other areas of statistics, the compilation of quality data on the securities markets requires, firstly, in-depth knowledge of the markets, operations and agents on which it is wished to gather statistical information. Secondly, fluid contact must be maintained with the primary sources of data production. And finally, suitable IT resources must be at hand for rapid and reliable use of the information. The Banco de España has spared no resources or efforts in all these areas so it may have Spanish securities markets statistics that are extensive, timely and comparable with those in other European countries. These statistics are disseminated in the monthly *Boletín estadístico* and the quarterly *Financial Accounts* via the Internet (www.bde.es) and also in hard copy.

The quality of the Banco de España's securities statistics and the experience it has built up in this area have been placed at the disposal of the ECB in the ongoing project to develop a centralised security-by-security database for the entire European Union.

January 31, 2001

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STATISTICAL ANNEX

Chart 1

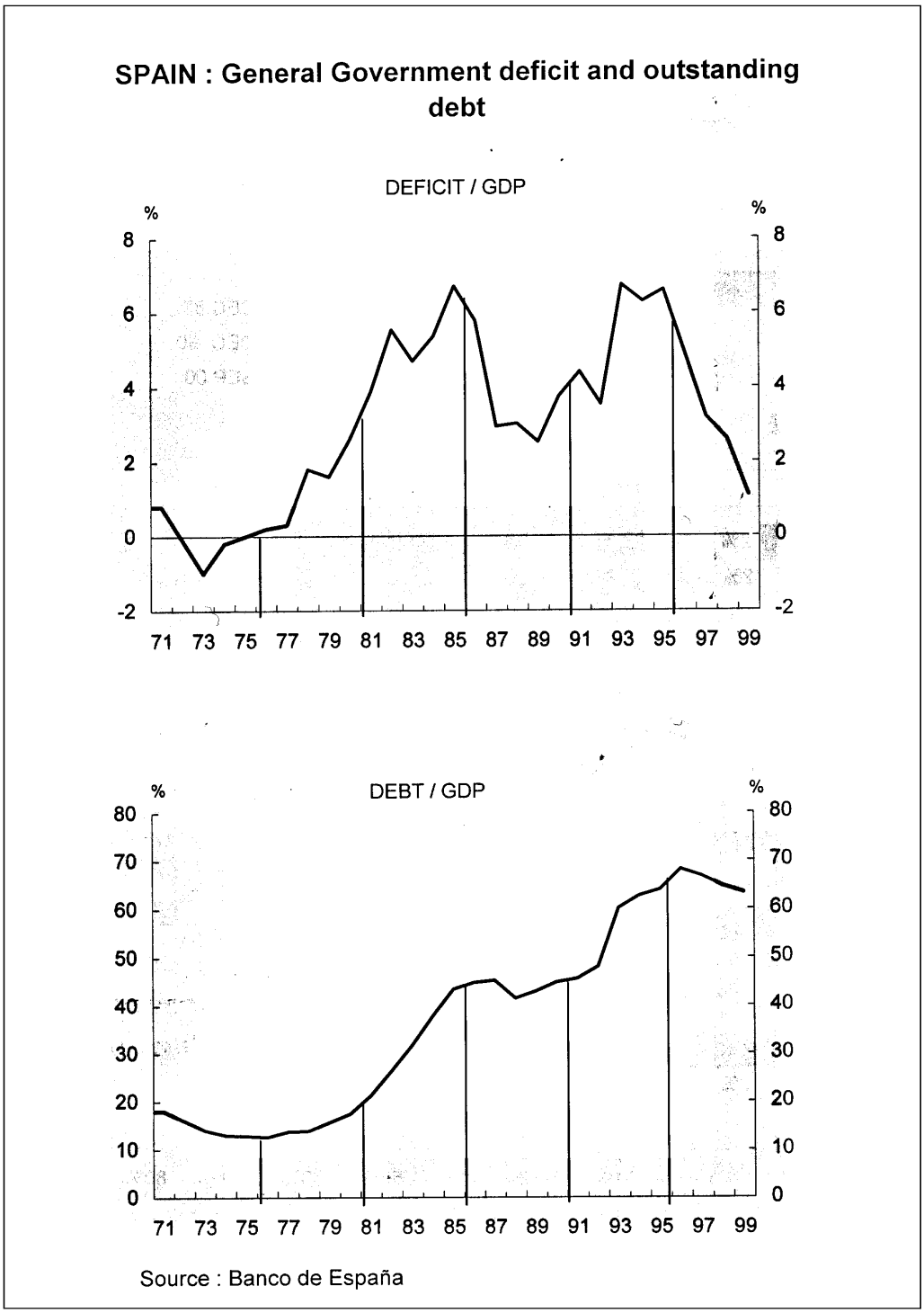


Chart 2

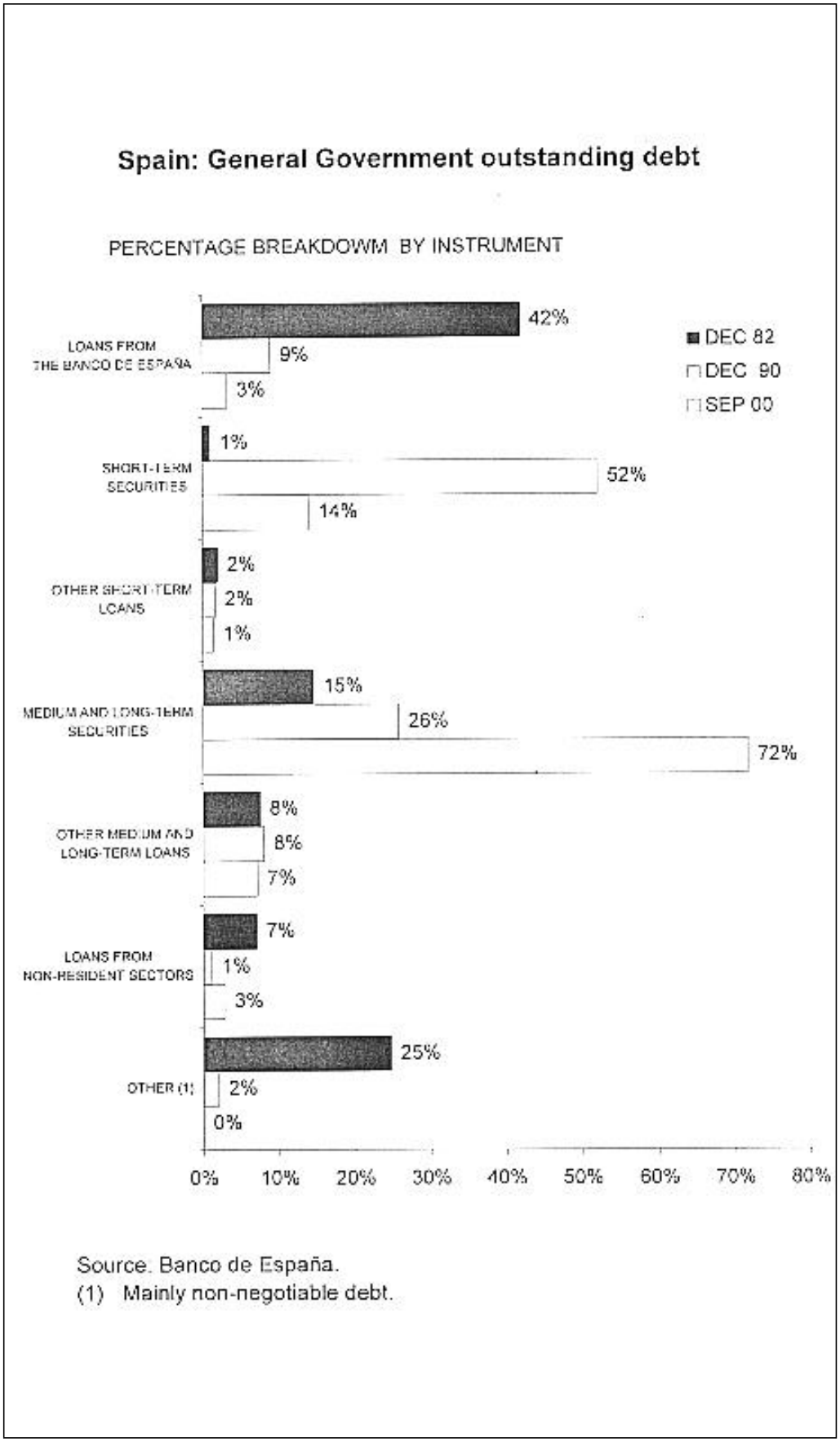

Spain: General Government outstanding debt
PERCENTAGE BREAKDOWM BY INSTRUMENT
DEC 82
DEC 90
SEP 00
LOANS FROM THE BANCO DE ESPAÑA
42%
9%
3%
SHORT-TERM SECURITIES
1%
52%
14%
OTHER SHORT-TERM LOANS
2%
2%
1%
MEDIUM AND LONG-TERM SECURITIES
15%
26%
72%
OTHER MEDIUM AND LONG-TERM LOANS
8%
8%
7%
LOANS FROM NON-RESIDENT SECTORS
7%
1%
3%
OTHER (1)
25%
2%
0%
0%
10%
20%
30%
40%
50%
60%
70%
80%
Source. Banco de España.
(1) Mainly non-negotiable debt.

Table 1

Domestic primary market for securities

Securities other than shares, except financial derivatives
Breakdown by issuing sector and subsector

Nominal value (euro millions and percentages)

Year	Total	Amounts outstanding							
		General Government			Financial institutions			Non-financial corporations	Rest of the world
		Central Govt.	Autonomous (regional) Govt.	Local Govt.	Monetary Financial Institutions	Securitisation funds	Other		
1990	164566	100406	1695	4557	30875	-	173	26856	3256
1991	173722	109525	2215	2604	32315	76	194	26789	4987
1992	192617	120885	3531	867	39046	73	215	27996	5994
1993	237032	163911	5935	1377	38179	218	201	27210	8063
1994	251151	179374	7836	1779	37329	674	248	23908	8333
1995	273507	203624	10629	1873	35060	1203	244	20872	9029
1996	303530	233919	12705	1983	33807	2204	249	18661	12130
1997	324695	252725	15051	2252	34512	2348	181	17625	17891
1998	342464	265192	16279	2375	35539	5630	111	17337	17241
1999	390846	280844	18446	2177	57719	10862	159	20638	15622
2000	401266	291553	19749	2202	52946	16336	373	18104	13311

Table 2

Domestic primary market for securities

Total economy

Securities other than shares, except financial derivatives
Breakdown by issuing sector and term

Nominal value (euro millions and percentages)

Year	Amounts outstanding							
	Total		General Government		Financial institutions		Non-financial corporations	
	Short term	Long term	Short term	Long term	Short term	Long term	Short term	Long term
1990	84838	79727	71264	35398	-	31048	13575	13282
1991	77101	96621	65112	49235	-	32586	11990	14800
1992	83469	109148	64634	60652	6884	32450	11960	16046
1993	79356	157676	65434	105791	4362	34236	9561	17649
1994	82370	168780	71196	117796	3741	34510	7434	16474
1995	80808	192699	72056	144073	2348	34159	6405	14467
1996	89473	214057	82095	166515	1591	34668	5787	12874
1997	79512	245184	72822	197208	938	36103	5752	11872
1998	68157	274307	61036	222812	1041	40238	6080	11257
1999	76500	314346	54335	247132	14817	53923	7347	13291
2000	59630	341635	45784	267721	10301	59355	3545	14559

Percentage of total issues		
General Government	Financial institutions	Non-financial corporations
64.8	18.9	16.3
65.8	18.8	15.4
65.0	20.4	14.5
72.2	16.3	11.5
75.2	15.2	9.5
79.0	13.3	7.6
81.9	11.9	6.1
83.2	11.4	5.4
82.9	12.1	5.1
77.1	17.6	5.3
78.1	17.4	4.5

Percentage of total issues					
General Government		Financial institutions		Non-financial corporations	
Short term	Long term	Short term	Long term	Short term	Long term
43.3	21.5	-	18.9	8.2	8.1
37.5	28.3	-	18.8	6.9	8.5
33.6	31.5	3.6	16.8	6.2	8.3
27.6	44.6	1.8	14.4	4.0	7.4
28.3	46.9	1.5	13.7	3.0	6.6
26.3	52.7	0.9	12.5	2.3	5.3
27.0	54.9	0.5	11.4	1.9	4.2
22.4	60.7	0.3	11.1	1.8	3.7
17.8	65.1	0.3	11.7	1.8	3.3
13.9	63.2	3.8	13.8	1.9	3.4
11.4	66.7	2.6	14.8	0.9	3.6

Table 3

Domestic primary market for securities

Total economy

Securities other than shares, except financial derivatives
Breakdown by issuing sector and currencies (1)

Nominal value (euro millions and percentages)

Year	Amounts outstanding							
	Total		General Government		Financial institutions		Non-financial corporations	
	Euro	Non-MU currencies	Euro	Non-MU currencies	Euro	Non-MU currencies	Euro	Non-MU currencies
1990	161145	3420	104836	1825	30283	765	26026	830
1991	170362	3360	112542	1805	31811	775	26009	780
1992	186285	6331	120827	4459	38598	736	26861	1135
1993	228911	8121	165684	5541	37476	1122	25752	1458
1994	242741	8409	182998	5993	37290	961	22453	1455
1995	265290	8218	209287	6842	36249	258	19754	1118
1996	293871	9658	241023	7587	35369	890	17480	1181
1997	312474	12221	261396	8633	35253	1788	15825	1800
1998	328078	14386	273646	10201	38394	2886	16037	1300
1999	373285	17561	289116	12351	64983	3757	19185	1453
2000	380708	20558	299971	13534	64034	5622	16703	1402

1) The “Euro” column includes all national MU currencies for the whole period.

Table 4

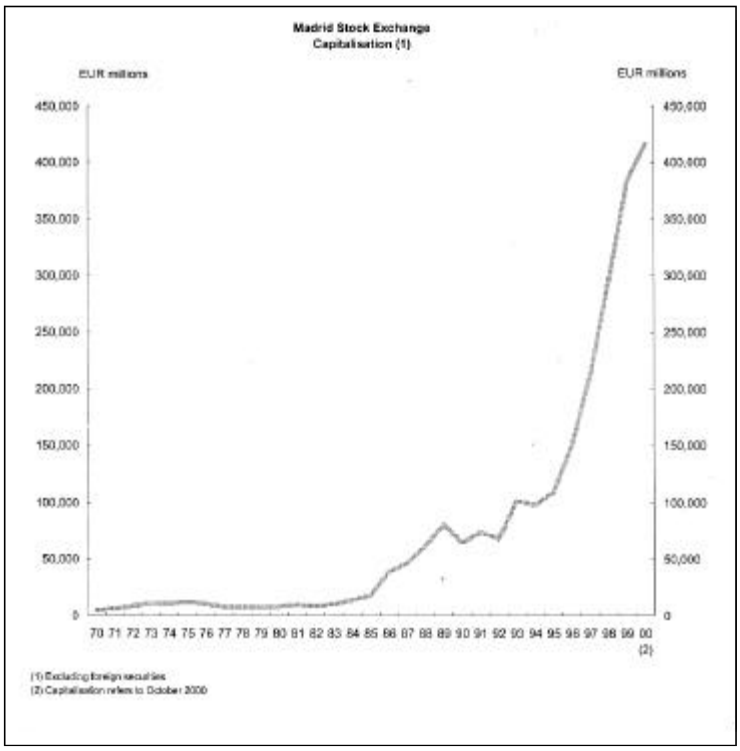
Secondary market for securities

Turnover (euro billions)

Year	Public Debt	Stock Exchanges		AIAF
		Shares	Securities other than shares, except financial derivatives	
1990	1984	27	4	3
1995	6697	48	32	16
1999	13110	292	45	86
2000	-	493	40	100

Percentage of total issued					
General Government		Financial institutions		Non-financial corporations	
Euro	Non-MU currencies	Euro	Non-MU currencies	Euro	Non-MU currencies
63.7	1.1	18.4	0.5	15.8	0.5
64.8	1.0	18.3	0.4	15.0	0.4
62.7	2.3	20.0	0.4	13.9	0.6
69.9	2.3	15.8	0.5	10.9	0.6
72.9	2.4	14.8	0.4	8.9	0.6
76.5	2.5	13.3	0.1	7.2	0.4
79.4	2.5	11.7	0.3	5.8	0.4
80.5	2.7	10.9	0.6	4.9	0.6
79.9	3.0	11.2	0.8	4.7	0.4
74.0	3.2	16.6	1.0	4.9	0.4
74.8	3.4	16.0	1.4	4.2	0.3

Chart 3



Fisher's Short Stories on Wealth 49-55

Arthur Vogt

The present batch deals with distribution of wealth, i.e. with the inequality of its distribution. Wealth may be expressed by income or by capital. Fisher was pioneer in distinguishing these two kinds of magnitudes in economics. Three scientific inspirations happened to the young Irving Fisher according to a letter of June 19, 1901 to his wife (Vogt and Barta 1997:6):

> Night before last I had a sort of inspiration about an important problem in Economics. It is an idea I have hunted for, or rather waited for, for many years and when duly set forth will, I feel sure, solve the problem of "interest" and bring your old bobby some game. Foolish boy, he is taking satisfaction already in it. This is the third time such a thought has come to me in a flash and without effort, and the three times are connected in a natural series. The first time was in Switzerland when driving from Lauterbrunnen to Zermatt.

This first inspiration suddenly occurred to Fisher on a mountain trip he made in Switzerland in July 1894 on his wedding tour while looking at a watering trough, and its inflow and outflow: The basic distinction needed in order to distinguish capital and income was substantially the same as the distinction between the water through and the flow into or out of it (Fisher 1947). This was, according to Tobin, the follower of Fisher at his chair at Yale University and winner of the Nobel Price in Economics in 1981, the very moment when the distinction between flows and funds was introduced in the economic science, a distinction which was traditionally made before by bookkeepers! However, Fisher (1909) mentioned that Newcomb already showed clearly the distinction between flows and funds.

Fisher's Short Stories on Wealth, 1926-1933

*Dr. **Arthur Vogt** has drawn our attention to a series of simple explanations of elementary principles of economics which Fisher wrote in an agreement with the Worker's Education Bureau. Fisher called them "Short Stories of Wealth". The bureau issued them monthly for publication in any union newspaper that desired to print them. They appeared in the "Brotherhood of Locomotive Firemen and Enginemen's Magazine", "Trade Union News", "Labor Herald" etc.*

The stories had never been reprinted and had not been included in "The Works of Irving Fisher" (General Editor W.J. Bates, Consulting Editor J. Tobin), which was published in 1997. However, the Stories are worth to be read up to the present day. Besides the scientific and historical interest they are of didactical use as they are models of explaining economic phenomena to the public. The IFC Bulletin decided to publish all these "Short Stories of Wealth"

Fisher starts Story 79 "Social Insurance" with:

> I have now finished discussing the various practicable ways of increasing per capita prosperity and turn to its distribution. A complete program for improving the distribution of wealth should aim at limiting the minimum and maximum [...] There are special measures for raising the minimum in addition to merely raising the general average.

The title of Story 84 is even "Remedies for Wrong (sic!) Distribution", Fisher thus distinguishes not only between just and unjust distributions but even between right and wrong ones.

Fisher would not be Fisher if he would not also think at measuring inequality of distribution. In Story 83 "Inequality of distribution" he did so. He not only suggested simple measures for static distributions corresponding to a particular point in time. He also proposed dynamic inequality measures for the change of inequality. One might speak of the inequality problem in the two-situation-case analogously to the price index problem in the two-situation-case (cf. Story 8 in IFC Bulletin of December 1998). This dynamic inequality problem has two versions: One might investigate the change in the distribution neglecting who earns the wealth. More interesting is to observe each individual's career. When, at the second point of time, the distribution is the same as before but many individual have changed their place in the "wealth pyramid", it is reasonable to speak of great mobility. Fisher, in Story 83, is concerned with this second version of dynamic inequality. This was developed further later e.g. by Shorrocks (1978).

49–51: Distribution

The first Story of the present batch (No. 49) has the same title as Story 33, reprinted in IFC Bulletin of April 2000. Then, the distribution of income among the factors of production, land, labour and capital was treated, now the distribution among individuals. Fisher (1910:464) differs

- the distribution of income relative to the agents or instruments which produce that income, and
- the distribution of this same income relative to those who own and enjoy it.

In Story 50, Fisher applies the concepts of impatience and exchange of present and future income introduced in the interest batch in Stories 27f. He uses the expression that from individuals who have a low appreciation of the future "the more durable instruments will tend to gravitate into the hands of those who have the opposite trait." This reminds to the joke: "Money is the only thing that does not obey to the law of gravity, it goes from down upwards."

In Story 51, Fisher mentions different reasons for an unequal distribution. One of them is (good) luck and bad luck. He did not mention his own bad luck: As mentioned in the prelude to Stories 40 - 48, Fisher lost his fortune of $10,000,000 in the Stock Market Crash of October 1929, after which his fortune melted down to minus half a million (IFC Bulletin 7, 20). It is noteworthy that the present Story was published only half a year after this crash...

52: How rich can a man become?

In the comment to Story 23, the question How rich can a man become? was raised (IFC Bulletin 5: 110). There, references were give to Marx (1894) and Price (1772) who raised the same question with a compound interest example similar to the present one by Fisher: One dollar put at compound interest for 2000 years at 4% would amount to many, many times as much as the earth composed of solid gold.

The conclusion of Fisher is that this absurdity of compound interest would not happen. According to him, said accumulation of a dollar over 2000 years would, after a certain time, reduce opportunities for reinvestment and therefore reduce the rate of interest. The sum would no longer increase at 4% but at 3, then at 2, and finally, conceivable at zero per cent. One might say that funds would not grow according to the exponential curve but according to the logistic curve. This curve is common in ecology, a subject treated by Fisher in Story 74. It describes growth in a finite (limited) surrounding. It is to mention here that the taxation of inheritance is another limit to the growth of capitals.

Referring to the comment to Story 24, we will now present the solution by Leibniz to the compound-interest-paradox. In order to protect debtors, Leibniz proposed to use his compound interest formula only for (backwards) discounting (German: *abzinsen*) but not for (forward) capitalizing (German: *aufzinsen*). Forward capitalizing should be done with the simple interest formula. In the present example: If a debtor has to pay now for the globe bigger than the earth in gold due in 2000

years, he has only to pay 1$. But if somebody places the 1$ now, he, in 2000 years, has not the right of the gold globe but only of simple interest, e.g.

801$ = 1$+ 0.04*2000$.

Generally, with

T as the base moment,
t as the observed moment
K as the capital at the base moment
i as the interest rate and
V as the capital at the observed moment

the interest formula used today reads

$$V(K,T,t) = e^{i(7-T)}K \tag{1}$$

and the one attributed to Leibniz here

$$V_{Leibniz}(K,T,t) = \begin{cases} e^{i(t-T)}K & t < T \\ i(t-T)K & t \geq T \end{cases} \tag{2}$$

The interest formula (2) yields the following graph.

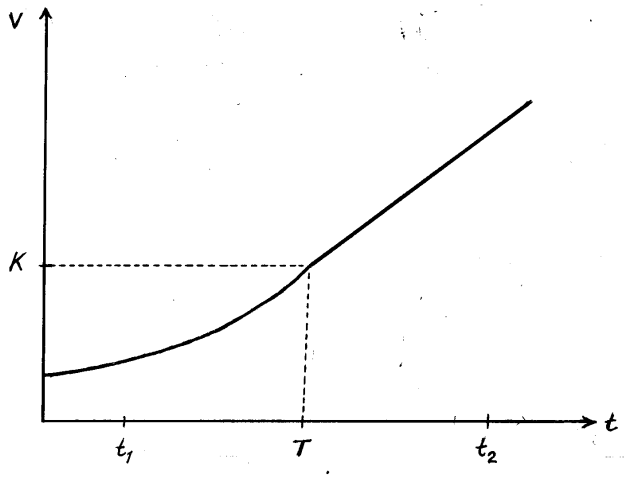


Figure 1

When I, as a debitor, have to pay back in time T the capital K, and I pay it back before, in time t_1<T, the compound interest formula (upper part of formula (2)) is used. On the other hand, when I receive in time T the capital K and will have to pay it back in time t_2>T the simple interest formula is used (lower part of formula (2)). The first problem, backwards discounting, is the subject of Leibniz (1683a). The "discount" you get when paying back the debt earlier than agreed upon originally is called *interusurum* in Latin. For the second problem, forward capitalising, Leibniz's solution solves the paradox of impossibly high final values shown in the present Story by Fisher. This solution is more appealing than the one often mentioned, saying that "revolutions and wars prevent capitals to grow too much". It was already mentioned in the comment to Story 24 in IFC Bulletin of October 1999 referring to a letter of Leibniz to Pfautz (Leibniz 1683b).

Capital accumulation (and the corresponding interest formula) can be characterised by two properties. Firstly, the final amount does not depend on a splitting of the capital. It yiels the same final sum if the capital is placed at one bank only or if it is split and placed at two banks. Secondly, the final capital does not depend on a splitting of the time interval. That is, it yiels the same final sum if the money is placed at one bank first and subsequently the resulting amount is placed at another bank (Aczél and Eichhorn 2002). The second condition is not fulfilled by the proposal of Leibniz mentioned above.

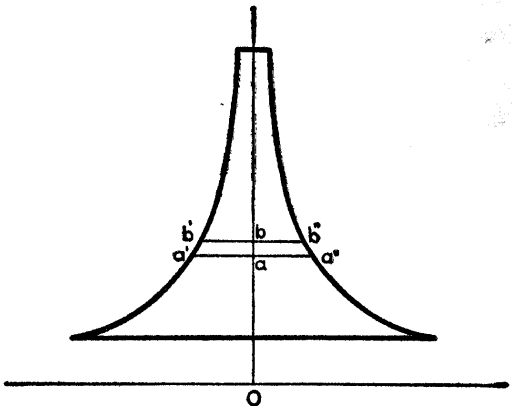


Figure 2

53–55: The Limits of Accumulating Fortunes; Mobility of Distribution; A "Word Picture" of Distribution

In 53, Fisher gives historical examples of long-continued reinvestments. He states that "with a world market for investment, we have every prospect of a great increase in private fortunes".

In 54, Fisher treats the mobility of distribution, the falling down of rich people to poverty and the rising of poor people becoming rich. He uses the image of the goldfish in a aquarium. In Fisher (1910:490) it is printed:
It may be compared to an age pyramid. Instead of age, fortune gives the high in the figure. As there are few old people there are few rich people. And as there are many young people there are many poor people. As mentioned above, Fisher comes back to the subject of mobility in Story 83.

In 55, a "word picture" of a distribution is given. This word picture is a kind of Lorenz curve in prose. Lorenz introduced his curve in 1905, Gini his measure in 1912 (Dagum 1983). Between these dates, Fisher (1906:142) mentioned the "distribution curve by Pareto" dating from 1897.

The word picture is a long, didactical and popular quotation comparing the inequality of fortunes with the differences in height of plants in a fictitious parc.

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Short Stories on Wealth

Irving Fisher

49. Distribution[1]

HAVING considered aggregate and per capita income and capital, we come finally to the more important subject of their distribution among different individuals. Although a whole nation may be rich or poor relatively to another nation, the widest differences between nations are small as compared with the difference within one nation. Every nation has its extremely poor, its extremely rich, and its classes in intermediate conditions. In the United States there are many wage earners who can not earn a living and who have no income except what they earn by labor, while at the opposite extreme are multimillionaires who receive incomes of over $1,000,000 a month.

What are the reasons for such prodigious inequalities in personal distribution Are such inequalities contrary to the public interest? If so, are they preventable? It so, by what means? These are some of the most burning questions of the day. Out of them spring many proposals for reform such as socialism, communism, anarchism, syndicalism, the single tax, the trade union movement, labor legislation, thrift campaigns, industrial education, high inheritance taxes, and so on. No proper answer can be made to the last question – how to cure the unequal distribution of wealth – until we have answered the first question – what causes this unequal distribution. As often happens, more study has already been devoted to cure than to diagnosis, and with the usual ineffective result of quack remedies.

Our present object wil1 be to set forth the causes which effect the relative personal distribution of wealth. Whatever these causes may be, they are evidently fundamental and universal; for we find that extremes of poverty and riches have existed at all times and places. They are mentioned in the Bible and other histories of peoples in all ages and stages of civilization. It is probable that the degree of inequality differs as between the Oriental civilizations; like China and India, on the one hand, and the Occidental, like England and France, on the other, and also as between the older settlements of western civilization, like Russia and Italy, and the newer, like the United States and Canada. But the fact of inequality and also its causes are nearly the same everywhere. Distribution differs in some degree, it is true, according to political institutions, as, for instance, between Germany and England. There was, before the war, a comparative absence of extreme poverty in Germany as contrasted with England and the United States; a comparative prevalence of poverty in Russia and Italy; and a comparative frequency of extreme opulence in Holland.

The causes which have produced the present inequalities of wealth are largely historical; that is, they lie in the past. It usually takes more than one generation to affect greatly the economic standing of a family. For this reason some people have foolishly imagined that if today we could once correct the inequalities in wealth handed down to us from the past, the problem would be solved, and with a new and even start we would be forever rid of great poverty by the side of great wealth. But if wealth were once equally divided, it would not remain so. The analysis of what would happen will serve as the best introduction to our study of distribution.

Let us suppose that, through some communistic or socialistic law, the wealth in the United States were divided with substantial equality. Such equality could not long endure. Differences in thrift alone would re-establish inequality. We cannot suppose that human nature could be so changed and become so uniform that society would not still be divided into ":spenders" and "savers"; much less can we suppose that different people would all spend or all save in exactly the same degree. So long as there are any differences whatever between people in regard to their degrees of impatience to spend or reluctance to save under like conditions, they will be led by these differences to exchange present and future incomes among themselves. As a consequence there will ensue differences in spending and saving, and therefore differences in capital accumulated.

1) *The Lather, Cleveland, Vol. XXX, No. ?, March 1930, pp. 30-31*

50. The Effect of Thrift and Thriftlessness on Distribution[2]

THE larger the amounts saved or spent, the more rapidly is capital gained, or lost. As we have seen, the process by which individuals thus gain or lose fortunes by saving or spending consists, in the last analysis, of an exchange of present and future income.

If two men have to start with the same income, but one has a rate of impatience of 10 per cent, that is he values $100 in hand today as worth to him as much as $110 due a year from now, while he finds he can borrow for less, say, 5 per cent; and the other man has a rate of impatience of 2 percent, which is below the market rate of interest, the first will continue to get rid of future income for the sake of its equivalent in immediate income, and the other to do exactly the opposite. The first man, with spendthrift tendencies, will borrow, i.e., pledge future income for the sake of present income; or he will sell any durable goods which offer remote income, such as farms or forests, and buy perishable goods which offer immediate income, such as food, clothing and amusements; or he will change the uses to which he puts his capital, avoiding those which require improvements, and choosing instead those on which he can realize quickly, thus letting his property run down.

The second man, with saving tendencies, on the other hand, will lend or invest present income for the sake of future, will sell perishable and buy durable goods, and will make farsighted uses of his capital. He will invest in stocks and bonds and in real estate capable of large future income. Both men will pursue their respective policies up to the point where it forces their marginal rates of impatience to harmonize with the rate of interest.

The first man will borrow until he is less impatient, so that his rate of impatience is reduced from 10 per cent to 5 percent. The second man will lend until his impatience is raised from 2 per cent to 5 per cent.

Spendthrift individuals or those of the type of Rip Van Winkle, if in possession of land and other durable instruments, will proceed to sell or mortgage them in order to secure the means for obtaining enjoyable services more rapidly. The effect will be, for society as a whole, that these individuals who have an abnormally low appreciation of the future and its needs will gradually part with the more durable instruments, and that these will tend to gravitate into the hands of those who have the opposite trait.

It requires only a very small degree of saving or spending to lead to comparative wealth or poverty, even in one generation. It is remarkable how much may be saved in a lifetime by thrift. Cases are sometimes found of day laborers who, by saving and putting at interest, accumulate within a lifetime a small fortune, and in the meantime rear a family. As Micawber said, a man with an income of one pound sterling a week will reach ultimately poverty if he spends just one penny more, and reach opulence if he spends just one penny less.

A central role in the distribution of wealth is thus played by the degrees of impatience, or preference for present over future income as compared with the market rate of interest. The existence of a general market rate of interest to which each man adjusts his impatience or rate of time preference supplies an easy highway for the change in his capital in one direction or the other. If an individual has spendthrift tendencies, their indulgence is facilitated by access to a loan market; and reversely, if he desires to save, he may do so the more easily if there is a market for savings. The rate of interest is simply the market price for such exchanges. By means of this market price those who wish to trade present for future income and those who wish to do the reverse may both satisfy their desires. The former will gradually increase, and the latter gradually diminish, their capital.

If all individuals were hermits, it would be much more difficult either to accumulate or to dissipate fortunes, and the distribution of wealth would therefore be much more even. Inequality in distribution arises largely from the exchange of present and future income, carrying, some individuals toward wealth and others toward poverty. The improvident sink like lead to the bottom, while the provident rise to or toward the top. I once asked a labor leader of great ability why he and laboring men generally did not more generally save money. He said "probably because we lack the acquisitive instinct."

But thrift, important as it is, is not the only road to wealth, nor thriftlessness the only road to poverty. Besides differences in the rates of impatience, there are equally important differences in ability, industry, luck, and inheritance. These will be considered next.

2) *The Lather, Cleveland, Vol. XXX, No. 7, March 1930, pp. 31-32.*

51. Causes of Unequal Distribution[3]

WE have seen that thrift gradually enriches a person or family while thriftlessness impoverishes. But thrift is only one of many factors in explaining the enrichment of some people and groups of people. We must add ability, industry, inheritance and luck, force, and fraud. By the ability is meant one's capacity to earn: by industry, the use of this capacity. Examples of getting rich from ability and industry are very common. Almost all of the rich men in this country who have made their fortunes have done so in part at least, through ability and industry. Inheritance is so important and variable that it will be given special consideration later. Often luck has aided greatly in ,making some people rich. There are many examples of miners who got rich in Colorado by simply stumbling on a gold mine. Luck plays a larger role in the accumulation of fortunes than many are inclined to believe. Unforeseen increase in ground rents has given rise to large fortunes from time immemorial. It is also unfortunately true that some men have really got their start, if not their larger accumulations, through fraud. This has sometimes occurred through "high finance," which consists very largely in making contracts with one's self at the expense of others whose interests the defrauder, as a director, trustee, etc., happens to control. If a man is a director in a corporation, and votes to have it buy materials of himself at prices which he himself sets, he naturally can become rapidly wealthy at the expense of the stockholders. Also through political "graft," and especially through getting city franchises for gas and waterworks and street car companies, and through special tariff legislation, many men have become wealthy. Poverty, on the other hand, has often resulted not only from thriftlessness, but from incompetence, i.e., lack of ability, slothfulness (lack of industry), and misfortune or bad luck, and from having been defrauded by others.

We conclude, therefore, that equality of wealth is an unstable condition and, even if once established, would not endure, because of unequal forces of thrift, ability, industry, inheritance, luck, and fraud.

But inequality once established tends, by inheritance, to perpetuate itself in future generations. The workman who accumulates a few thousand dollars from nothing makes it easier for his children to accumulate more. He gives them a start or a "nest egg." Recently four sons of a Connecticut farmer met in a family reunion. Many years previously the father had sent them into the world to make their fortune, giving each $700 to start with. When they met at the recent family reunion, all were worth thousands. The well-known woman millionaire, Mrs. Hetty Green, was an example of a person who inherited a large fortune and then accumulated more, largely by virtue of her thrift, her preference to accumulate for the future rather than to spend in the present. A fortune of $6,000,000 was bequeathed her and at her death her fortune was reputed to be worth over $100,i-000,000.

Likewise poverty may be passed down from generation to generation. A special cause for handing down inequality of fortunes lies in the reduction of the birth rate among the rich. The tendency today is for the poor to have a high birth rate and for the rich to have a low birth rate. There results a tendency toward an increase in the numbers of the poor and a decrease in the numbers of the rich. This result tends to exaggerate the differences in the per capita wealth between the two classes; for in the upper classes there will be a relatively larger share for the few who inherit fortunes, and in the lower classes there will be an increasingly smaller share for the many.

We see then, that there is at least a tendency for the rich to grow richer and the poor to grow poorer. We may even go so far as to say that the richer a man or family becomes, the easier it is to brow richer, and that the poorer a family becomes, the more difficult it is to keep from growing poorer. Large fortunes often grow without effort. Usually all that is necessary is for their owners to refrain from squandering. On the other hand, a family once caught in poverty is apt to be drawn deeper into the mire. Overwork, anxiety, and unsanitary surroundings bring on disease or disability, which robs the family of what little it once had. The opportunity of the wealthy is their wealth, and the curse of the poor is their poverty.

3) *The Lather, Cleveland, Vol. XXX, No.8, April 193J, pp. 32-33.*

52. How Rich a Man can Become?[4]

WHAT are limits of the possible enrichment or impoverishment of an individual? The ordinary downward limit is reached when a man loses all his capital. He has then no source of income left except his own labor. When a man has lost all his capital, the process of losing usually comes to an end, because society, in self-protection, decrees that it shall go no further. He is in most civilized lands not allowed to sell himself or to pledge much of his distant future services. But where there is no such safeguard, the unfortunate victims may sink into even lower stages, such as the debt servitude in the Malay Archipelago or in Russia under the czars, and to some extent in Ireland; or they may even sell themselves or their families into slavery. In moat countries the poor come to be a large and permanent and sometimes a helpless class.

As to the upper limit, the opportunity to increase one's wealth depends upon the extent of available markets. A hermit cannot become immensely wealthy; nor can any of the inhabitants of a small island, if cut off from the rest of the world. The utmost that a man in an isolated community can own is the capital which that community has or can get – its land, dwellings, means of locomotion, instruments of manufacture, and so on. These are necessarily limited by the size of the community. As the market widens, the limits to the growth of large fortunes widen also. Today, with world markets, there is no limit to what one man like a Ford or Rockefeller may accumulate except that he cannot more than "own the earth."

This relationship between the possible size of individual fortunes and the size of the market to which the owner of the fortunes has access is important. Practically it means that, in these modern times, the possibilities of individual fortunes are greater than ever before. Few people realize this fact; for most people imagine that at any time in the world's history any fortune could have increased at compound interest. But a fortune is capital value, and, as we have seen, capital-value has no power to produce income, but on the contrary, is merely the discounted value of anticipated income. The only way a man's fortune can increase at compound interest is by his constantly reinvesting income as it comes in; that is, exchanging it for rights to other and later income at its present, or discounted, value. But evidently he must find willing sellers before he can buy. His income has no power whatever of itself to create other income. In short, an extreme upper limit to the growth of any individual fortune is set by the scarcity of income-producing instruments available.

The common idea that "money has power to breed money" leads to absurdity when applied to compound interest. Were it true, any person might leave fortunes to posterity far exceeding the possible wealth which this earth can hold. The prodigious figures which result from reckoning compound interest always surprise those who make the computation for the first time. One dollar put at compound interest at 4 per cent would amount in one century to $50, in a second century to $2,500, in a third century to $125,000, in a fourth century to over $6,000,000, in a fifth century to over $300,000,000, in a sixth century to over fifteen billions, in a seventh century to over 750 billions, in an eighth century to over forty trillions, in a ninth century to over two quadrillions, and a thousand years to over 100 quadrillion dollars. Now the total capital in the United States is less than half a trillion, and that in the world at large – even assuming that the per capita wealth elsewhere is as large as the United States, which is an absurdly large allowance – must be far less than ten trillions, which is only one ten-thousandth part of what we have just calculated as the amount at compound interest of $1 in 1,000 years. Yet, 1,000 years is only half the time since the Christian era began. In 2,000 years the $1 would

amount to 100 quadrillion times 100 quadrillions, which is many, many times as much as a world composed of solid gold! We can scarcely believe that such a prodigious increase of wealth could ever actually take place, for the simple reason that this is a finite world.

What is the answer? The difficulty lies, not simply in the reluctance of people to provide for accumulation several centuries after their death, but also to the fact above mentioned, that large accumulations would reduce opportunities for reinvestment and therefore reduce the rate of interest. The attempt, for instance, to invest trillions every year, on say Long Island, or even in the United States, or even this whole planet would drive up the prices of all investable property, bonds, stocks, real estate and other capital. To invest such sums would practically require the purchase by the supposed rich man or his estate of all existing railways, steamships, factories, lands, dwellings, and so on. But many of the present owners of these, having already sold a large portion of their property and thus reduced their degrees of impatience to equality with the prevailing rate of interest, would not part with any more except at prices so high that the purchaser would make little or no profit or interest on his investment. Thus the approach toward the limit of investment would reduce the rate

4) *The Lather, Cleveland, Vol. XXX, No. 9, May 1930, pp. 32-33.*

of interest. The sum would no longer increase at 4 per cent per annum but at 3, then 2, then 1, and finally, conceivably at zero per cent. That is, the process would retard, and finally, altogether prevent, further accumulation.

53. The Limits of Accumulating Fortunes[5]

THERE are some interesting examples of long-continued reinvestments. Benjamin Franklin at his death, in 1790, left £1.000 to the town of Boston and the same sum to Philadelphia, with the proviso that these sums were to accumulate for a hundred years, at the end of which time he calculated that, at a percent compound interest, each legacy would amount to £131,000, or about $650,000. In the case of the Boston gift, it actually amounted, at the end of the century, to $400,000, and has since accumulated to about $600,000. The sum received by the city of Philadelphia did not increase so fast.

Another interesting case of accumulation is that of the Lowell Institute in Boston, which was founded in 1838 by a bequest of $200,000, with the condition that 10 per cent of the income from it should be reinvested every year and added to the principal. A peculiarity of this provision is that it applies in perpetuity. There is, therefore, theoretically, no limit to the future accumulation thus made possible, and it would be interesting to know what will be its history in future centuries. The fund, after only 67 years, amounted to $1,100,000. Another example is the "Sailors' Snug Harbor" of New York. This has outgrown the work originally intended and the trustees have had to apply to the courts for relief.

With a world market for investment, we have every prospect of a great increase in private fortunes in the next few centuries. But practically the limit reached in the history of most large fortunes is very far from "owning the earth." There is usually a reaction against the desire to accumulate. Each reduction in the rate of interest tends, apparently, to - check the desire to accumulate. Moreover, this desire often palls with the increase of wealth, if not in the mind of the accumulator, in that of his descendants. A multimillionaire recently left his fortune to accumulate until 21 years after the death of the youngest heir, with the intention of accumulating by that time the largest fortune on record. In his case there was scarcely any limit to his ambition. But his heirs had no such desire. They much preferred to use the fortune during their own lifetime, and succeeded in breaking the will. Even had they not succeeded, those who finally came into the fortune would probably have begun, at least in a few generations to dissipate it; for the usual effect of great wealth is to produce habits of spending.

One's degree of impatience for future income will be high or low according to one's past habits. If a man has been accustomed to simple inexpensive ways, he finds it fairly easy to save and ultimately to accumulate a considerable amount of property. These habits of thrift, being transmitted to the next generation, result in still further accumulation, until, in the case of some of the descendants, affluence or great wealth may result. But if a man has been brought up in the lap of luxury, he may have a keener desire for present children of the rich, who have been accustomed to the simple living of the poor. The effect of this factor is that the children of the rich, who have been accustomed to luxurious living, and who have inherited only a fraction of their parents' means, and often lack their ability and business training, will, in attempting to keep up the former pace, be compelled to check the accumulation and even to start the opposite process of the dissipation of their family fortune. It requires a certain amount of ability merely to maintain a fortune. Bad investments carelessly entered into are often the means of impairing or even annihilating a fortune. And then the unfavorable effects of luxury begin. A few years ago there came to this country an Englishman who had inherited a large fortune, but who had also inherited the desire to indulge himself in the present to the full extent o! his capacity. To defeat the effects of this desire, his parents had left him only the income of their wealth "in trust". It is not an unusual thing in England, where there are spendthrift sons, to leave property so that they may use only the income so as not to impair the capital value. Nevertheless, this man contrived, by chattel mortgages and in other ways, to spend a good deal more than the interest annually accruing, and as a consequence he was always in debt and in trouble. The result of such a course is, sooner or later, what is called a "shabby genteel" class. Eventually people in this class will have to overcome their pride, go to work, and become laborers – and often common laborers. After a few generations of poverty and the illiteracy which often goes with it the wealth-holding ancestry is forgotten. It is said that examples of such ancestry are common among laboring men, and would be more generally recognized were it not for the loss of records which is the inevitable accompaniment of illiterate poverty.

5) *The Lather, Cleveland, Vol. XXX, No. 10, June 1930, p.p. 32-33.*

54. Mobility of Distribution[6]

WE have seen that the limits set by scarcity of investments (i.e., scarcity of purchasable instruments or shares in them) to the possible growth of large fortunes are always far higher than the vast majority of fortunes ever approach. Most fortunes rise and then fall, the turning point being due to the abandonment of thrift and the substitution of thriftlessness which the fortune itself sooner or later engenders. An old adage has put this observation in the form, "From shirt sleeves to shirt sleeves in four generations." We have no inheritors today of the fortune of Croesus, who, in his day, was supposed to be a wealthier man than Rockefeller, not only in proportion to the wealth of his time, but "absolutely." A man with a start of that kind ought to have been able to make the fortune increase rather than decrease with the future, and yet we know of no heirs to that fortune. Today we have a large number of wealthy families in this country, but most of them are only one generation old! Thus the very rich families, so far from growing rich indefinitely usually do not even continue rich more than a few generations but grow poor, arriving, too, at that condition without the vitality or the character necessary to retrieve themselves.

Likewise, at the opposite extreme, it does not always happen that the poor grow poorer or even remain poor. Just as wealth often relaxes thrift, so poverty sometimes stimulates thrift. The children of the poor then become fired with ambition to get on in the world simply because they are poor. These people rise from the ranks, and rise rapidly. It should be noted, however, that unlike the downward movement of large fortunes, this upward movement is the exception, not the rule. It may be that 90 per cent of large fortunes reach a maximum and decline, but it is doubtful if 1 or 2 per cent of the poor reach a minimum and rise. Many fall into pauperism or die. The vast majority simply remain poor.

We see, then, that while it is very easy for those who have once reached the top of the economic strata to stay at the top, this result seldom occurs, chiefly because of their conversion from savers to spenders; and while reversely it is very easy for those who once reach the bottom to stay at the bottom, they do not always do so, chiefly because of their conversion from spenders to savers.

The churning up of society resulting from saving and spending and other causes neutralizes the tendency for the rich to grow richer and the poor to grow poorer, and, what is more important, it prevents – to some extent – the establishment of wealth castes; by continually changing the personnel of wealth and poverty. The individuals of society are like goldfish in an aquarium. Those once started upward continue to ascend for a time, whereupon they start down again. Those once

started downward continue to descend until perhaps they reach the bottom whereupon they (may) start up again. To complete the figure, we must suppose the shape of the aquarium to be like g bell, very small at the top and very large at the -bottom. There is room for only a few at the top and the struggle of the many to get there makes it difficult for any, while it makes it easy for all to descend. There is most room at the bottom, and consequently there is less change there than anywhere else. Reversely, at the top there is most change. The constant changing of position in this bell jar, while of great moment to the individual, does not greatly affect the distribution of society as a whole. There will always be about the same proportion of fish at each successive stratum.

55. A "Word Picture" of Distribution[7]

WE have been discussing the inequality of the distribution of wealth. This distribution is sometimes pictured as a social pyramid. Mr. Karl C. Karsten, an able statistician, has made a model of such a pyramid for me for use in my classes at Yale. In his book, Charts and Graphs, he has described such a pyramid on a large scale as follows:

"The range of modern incomes baffles the imagination. It is impossible at the same moment to visualize the very small incomes of the great mass of families and the large fortunes enjoyed by a small handful of them. The variation is too great, both as to size of incomes and number of families.

"Imagine a round field, one mile across, in every square foot of which one plant is growing. The plants, about twenty-two million in number, will represent approximately the families of the country, each plant for one family; and we can assume that the height of the plant indicates the annual income of the family, one foot for each thousand dollars, and that the tallest plants are clustered to-

6) *The Lather, Cleveland, Vol. XXX, No. 11, July 1930, p.34.*
7) *The Lather, Cleveland, Vol. XXX, No. 12, August 1930, p. 34.*

gether in the center of the field. Let us start at the edge of this circular field and walk the distance of a half mile to the center, observing the height of the plants which we pass on the way.

"For more than three-quarters of our walk we can only speculate on the height of the plants we pass, for lack of any definite information from any source. If the tax collector catches even the majority of those who have income of three thousand dollars or more, none of the plants thus far will reach up a yard from the ground. On the basis of the incomes he does report, however, we can make Intelligent speculations, one of which is that the first half of our walk will be among plants puny and ill-nourished, reaching about our ankles. At 300 yards from the center we reach what is called the "upper tenth," the plants growing nearly to our knees. At 200 yards from the center they stand up two feet and at 150 yards they will be a yard high.

"We now enter the inner cluster of plants, comprising two or three per cent of the total, and with definite information from the government we watch a rapid increase in height. Thus at 300 feet from the center the plants climb to five feet, at 200 feet they rise overhead 10 feet from the ground, at 100 feet they reach up 30 feet, at 50 feet they tower a hundred feet high. At 30 feet from the center they climb to 200 feet, at 15 to 500, at nine to a thousand feet high. These last represent nearly 300 families whose income exceeds a million dollars a year. In the center of these, extending far out of sight, about a dozen rise to heights of which we know little except that they stretch at least a mile into the sky."

Two special figures may interest the readers. Half of the incomes in the United States are less than $1,100, 99 per cent are less than $9,000:

The frequency of changes in fortunes, whether up or down, will differ greatly in different countries according to the ages of the countries, and their laws and customs. Among these factors the laws and customs as to the inheritance of property are of great importance. If there is an equal distribution among the children of the rich, the fortune is pretty sure to run itself out in a few generations or centuries; but in England this result is prevented by giving to the oldest son the bulk of the estate and cutting everybody else off with small stipends. The effect of this custom is to maintain the family "dignity" and the integrity of the large estate. In this country there are signs that we are gradually changing toward this English custom by which a rich man, instead of dividing his fortune evenly, leaves the bulk of it to one of his heirs. Such a change in custom will furnish a new and powerful tendency for existing inequalities to be accentuated and perpetuated.