

**MONEY IN SPAIN. NEW HISTORICAL  
STATISTICS. 1830-1998**

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Pablo Martín-Aceña

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## **Abstract**

The purpose of this Working Paper is to present a reconstruction of the main monetary aggregates for the period 1830, when the first modern banknotes were issued, to 1998, the last year before the substitution of the peseta by the euro. It offers series for currency in circulation and its components, bank deposits and its components, high-powered money and the money supply. With regard to previous monetary historical statistics, this Working Paper improves the quality and the time-span of the series, covering a period of more than 150 years. The Working Paper offers also a short approach to the long-term evolution of the quantity of money in Spain and the changes in its composition. The sources and methodology employed are explained in detail.

**Keywords:** monetary statistics, monetary history, currency in circulation, bank deposits, money supply.

**JEL classification:** E49, E51, N1, N9, Y1.

## **Resumen**

La finalidad de este Documento de Trabajo es presentar la reconstrucción efectuada de los principales agregados monetarios para el período comprendido entre 1830, cuando se pusieron en circulación los primeros billetes bancarios modernos, y 1998, el año anterior a la sustitución de la peseta por el euro. Ofrece series para el efectivo en circulación, los depósitos bancarios, la base monetaria y la oferta monetaria. Las estadísticas monetarias de este Documento de Trabajo mejoran las publicadas hasta ahora y cubren una etapa histórica de más de 150 años. El Documento de Trabajo proporciona, además, una breve descripción de la evolución de la cantidad de dinero en España y de los cambios en su composición. También se detallan las fuentes utilizadas y la metodología empleada.

**Palabras clave:** estadísticas monetarias, historia monetaria, efectivo en circulación, depósitos bancarios, oferta monetaria.

**Códigos JEL:** E49, E51, N1, N9, Y1.

## INDEX

**Abstract** 5

**Resumen** 6

**1 Introduction** 8

**2 A new database of the main monetary aggregates** 12

2.1 Money in the mid-19th century: 1830-73 12

2.2 From monopoly of issue to the turn of the century: 1874-99 16

2.3 Monetary aggregates in the early 20th century: 1900-39 17

2.4 Money in the mid-20th century up to nationalisation of the Banco de España:  
1940-61 21

2.5 The last years of the peseta. Money before the euro: 1962-98 23

**3 Money in Spain: 1830-1998** 26

3.1 The predominance of currency, coins and banknotes: 1830-99 26

3.2 The transition from currency to bank money: 1900-35 32

3.3 The end of an era: the money between 1940-98 36

3.4 Money, income and prices: a graphical representation 38

**REFERENCES** 41

**STATISTICAL ANNEX:**

**I. 1830-1873** 44

**II. 1874-1899** 50

**III. 1900-1935** 55

**IV. 1940-1961** 59

**V. 1962-1998** 63

## 1 Introduction

This Working Paper is part of an ongoing research project on the monetary history of contemporary Spain. It has been prepared with reference to one of the main objectives of this project: study of the development and composition of the money stock in Spain. The time span covered is the longest possible: from 1830, when the first banknotes were put into circulation,<sup>1</sup> until 1998, the year before the peseta was replaced by the euro. The aim has been to make the series as homogeneous as possible. Thus, although the unit of account of the monetary system before 1864 was the *real* and subsequently, for a brief period ending in September 1868, the *escudo*, all the figures have been converted into pesetas to give the numerical series the necessary continuity.<sup>2</sup> The data presented in this Working Paper are annual and relate to the end of each period. However, quarterly data are also available for the period 1921-61, excluding the Civil War years, and monthly data from 1962 onward.<sup>3</sup>

Money is understood to be whatever the community generally accepts as a means of payment. The concept has changed over time. From the Middle Ages up to the mid-19th century, money consisted essentially of coin, made of gold, silver, copper or alloys of those metals. Banknotes first appeared in China in the 7th century and spread to Europe in the 17th century; that said, they remained in limited use until the 19th century. Banknotes began to circulate in Spain in the 1820s; current accounts and bank deposits began to be used as a means of payment at the same time. Coins and banknotes held by the public constitute what is commonly known as currency; adding deposits to currency gives us what is known as the money supply. The breadth of the money supply depends on the deposits included: if only current accounts or sight deposits are added to currency, one obtains a narrow definition of money; if term deposits and savings accounts are also added one obtains a broader definition of the money supply, which is generally more practical and comprehensive. There are, therefore, several definitions of the money supply or money stock held by the public. The narrowest, known as M1, comprises currency held by the public plus current accounts or sight deposits. The next, M2, comprises M1 plus savings accounts. The broadest definition is M3, also known as “broad money” (DL by its Spanish initials), which is the sum of M2 plus term deposits.<sup>4</sup> This Working Paper provides the money supply series for the broadest definition.

<sup>1</sup> Issued by Banco de San Fernando, which was founded in 1829 and was the immediate successor to Banco de San Carlos, established back in 1782. The latter also issued banknotes, known as “cédulas”, so that the issuance of fiduciary paper in Spain strictly dates back to the late 18th century. However, the introduction of the “cédulas” was not successful and the experiment failed as a result of the public’s lack of confidence in the bank’s ability to convert its “cédulas” into cash (Tedde, 1888), pp. 251-60).

<sup>2</sup> The conversion rates used were four *reales* to the peseta and two-and-a-half pesetas to the *escudo*. Conversion into euro, where applicable, is also simple, at the rate of 166.386 pesetas.

<sup>3</sup> Quarterly and monthly data available upon request: pablo.martin@uah.es.

<sup>4</sup> In the terminology of the Banco de España before the entry into the euro area and adoption of the euro, the DL series included all the liabilities of the credit system; a broader definition, known as “liquid assets held by the public” (ALP by its Spanish initials), added a small item that the statistical bulletins called “other components of ALP”. The definition of money supply chosen for economic analysis depends on the historical period to be studied. M3 is perhaps not the most appropriate definition for the early years, but it is certainly the most appropriate for the 20th century. Moreover, the definition used should take into consideration monetary policy objectives. Thus, for example, the Banco de España has altered the definition of the money stock that it publishes and uses in its studies according to its ultimate monetary policy objectives.

In 1830, the first significant date in contemporary Spanish monetary history, money consisted essentially of coins, while banknotes had scarcely begun to circulate. By 1874, a second important date as it marked the end of the plurality of issue of banknotes and the beginning of a long period of monopoly of issue that concluded when Spain began to participate in Economic and Monetary Union, coins continued to predominate but banknotes and current accounts at banks accounted for 13% of the money held by the public. In 1900, at the turn of the century, coins and banknotes combined accounted for 65%, but by 1935 this figure had fallen to just 30%, with deposits at banks and savings banks making up the remainder. By 1962, another milestone year as it was when the Banco de España was nationalised, bank deposits accounted for more than 80% of the money held by the public. In 1998, prior to the introduction of the euro, the situation was precisely the opposite to that of the first year covered by the Working Paper series, with coins and notes accounting for 10% and deposits for 90%. Accordingly, between 1830 and 1998 there was a radical change in the composition of the money held by the public, both the result and a reflection of Spain's economic and financial development.

As statisticians and historians well know, compiling numerical data is not an easy task. The numbers are not always available to researchers in the necessary quantity or quality or in the form required. Primary sources contain deficiencies and gaps that need organising and editing. The farther back into the past one goes, the greater the challenge. Although there are a multitude of statistics of all kinds on economic and financial variables, in general they are quite disparate and of a varying degree of reliability. In the financial-monetary sphere some figures, and in some cases many figures, are a result of the initiative or interest of the public authorities. The greater their concern for ascertaining the tax wealth of taxpayers or for controlling the behaviour of the currency, its external value, interest rates or prices, the greater their determination to obtain good data.<sup>5</sup>

The tax authorities have traditionally been a major producer of statistics, compiling data since ancient times on tax collection and budgetary payments and on public debt in circulation. The Banco de España appears in second place and has accounting data sources that are of incalculable wealth although not always easy to understand. Since its beginnings the Banco de España has compiled and in some cases published balance sheets, income statements and supplementary financial statements (annual, monthly, weekly and daily). And since 1960, when the first *Boletín Estadístico* was published, it has provided a huge amount of information, not only on monetary variables but on all kinds of economic magnitudes.<sup>6</sup> Other monetary data on which the empirical material in this paper draws are taken from various private institutions and organisations. Balance sheets and income statements of credit institutions, included in their annual reports and published by law or at their own initiative to gain the trust of shareholders and customers. Various private publications, such as *Anuario Financiero y de Sociedades Anónimas*, and semi-private publications such as *Anuario Oficial de Valores de la Bolsa de Madrid* or

<sup>5</sup> For example, Poveda (1972, pp. 103-04) drew attention to the lack of monetary data in the two decades following the Spanish Civil War, owing to the lack of monetary control characteristic of the time.

<sup>6</sup> On the Banco de España's production of statistical-historical data, see Poveda (1972), Martín-Aceña (2000) and Martínez Méndez (2008a).

*Memorias de las Cámaras Oficiales de Comercio, Industria y Navegación*. And for the first half of the 20th century, the splendid *Boletín* of the Consejo Superior Bancario and the periodic publications of the CECA (Spanish Confederation of Savings Banks). However, the presentation and organisation of the data from primary sources is a reflection, at each point in time, of the interests and concerns of the compilers. The clearest example of this is the Banco de España, which compiles monetary data in its statistical bulletins according to monetary policy objectives; when these change, the control variables and base figures are adapted to the new objectives, although the more traditional magnitudes are respected, as “pro-memoria” (memorandum items).

The information contained in this Working Paper draws not only on the primary sources cited but also on monetary studies produced in recent decades. Indeed, a large part of the information has already been published in books and articles that have redrawn the monetary history of Spain. In addition to funding some of these works, the Banco de España has also produced historical series for certain periods, motivated by its unrelenting concern to gain in-depth knowledge of Spanish economic history.

Apart from the multitude of financial statistics provided by contemporary authors, the pioneering contribution in the compilation and preparation of monetary series was clearly the book of Sardá (1948), which is a mine of economic and financial information.<sup>7</sup> For the period 1830-73 there is the excellent information collected in *Ensayos sobre la economía española a mediados del siglo XIX*, and also the contributions of Tortella (1973), Titos (1999a; 1999b), Tedde (1999), Martínez Soto, Pascual and Cuevas (2004a; 2004b), and Sudriá and Blasco (2016) for that period. Monetary series for the subsequent period (1874-99) were reconstructed by Anes, Tedde and Tortella in different chapters of the collective work *La banca española en la Restauración*. The quantitative basis for the early decades of the 20th century and the inter-war years (1900-35) was published in Martín-Aceña (1985) and in various works of incalculable value by Martínez Méndez (2008a), brought together by the Banco de España in a recent publication. The Civil War years are an exception, as the data available are scant and disparate, although some attempts at reconstruction were made by Martín-Aceña (2006), who also compiled data for the period 1940-62 (Martín-Aceña (1988)). Moving closer to the present, there is the book of Poveda (1972). In addition to the works cited, the publications of the Banco de España, in a series of statistical bulletins with historical series starting in 1962.<sup>8</sup> The monetary data for the later decades of the 20th century, up to 1998, are taken from the Banco de España’s monthly statistical bulletins.

Broad quantitative and quality data are essential for preparation of a historical work, especially if one seeks to provide a sound analysis of the monetary past and present. However, a student of money also needs an appropriate theoretical framework. The analytical model used in this Working Paper to prepare the empirical material is identical to that used in similar works and

<sup>7</sup> In this Working Paper only the best known and most important works are cited. The ongoing research on the monetary history of Spain has a comprehensive list of statistical sources.

<sup>8</sup> In particular, *Boletín Estadístico. Series Históricas I: Banco de España* (February 1975); *Boletín Estadístico. Series Históricas II: Banca privada* (October 1976); and *Boletín Estadístico. Series Históricas I: Banco de España, 1962-1981* (June 1982).

draws on Cagan (1965) classic study. It is the model that was used previously with indisputable success by Friedman and Schwartz (1963 and 1970), subsequently imitated in various European monetary histories.<sup>9</sup> The same model has also been used in some Spanish works.<sup>10</sup>

This Working Paper presents the reconstruction of the main Spanish monetary magnitudes for the period 1830-1998. The classical series for monetary analysis have been prepared, as well as those used in monetary history studies and which also feature prominently in the Banco de España's statistical bulletins since their launch in 1960. The Working Paper includes, for each of the periods considered, the money supply and its components, currency held by the public and bank deposits. The former also distinguish between coins and banknotes in circulation and for deposits drawing a distinction between current accounts, savings accounts and term deposits. Series are then reconstructed of the monetary base or high-powered money and its main aggregates, currency in circulation and the reserve holdings (or liquid assets) of commercial banks and savings banks.

The work has benefitted from the assistance of a great number of people. I am particularly grateful to the archivists and librarians of the Banco de España, who for many years have met all my requests for documents, and to various members of the Statistics Department of the Directorate General Economics, Statistics and Research who have helped me to understand the Banco de España's accounting models. I am equally grateful for all the support, comments and suggestions I have received from the Banco de España's economists throughout my research career. I am also indebted to the officials and employees of the archives and libraries of the Archivo Histórico Nacional, the Archivo General de la Administración Pública, the Archivo del Ministerio de Hacienda, the former Consejo Superior Bancario (now the AEB, Spanish Banking Association) and the CECA. All these institutions gave me a warm welcome and gave me all the help I needed. Juan Francisco Jimeno, Galo Nuño and an anonymous referee read this Working Paper and have made very useful comments.

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<sup>9</sup> Among others: Abildgren (2010); Barbiellini *et al* (2016); Capie and Webber (1985); Edvinsson and Ögren (2014); Eitheim, Hetzel (2002a; 2002b); Klovland and Øksendal (2016); Fratianni and Spinelli (2005); Jobst and Kernbauer (2016); Jonung (1976); Llonja (1992); Mar (1955); Nakamura; Pamuk (2004); Patat and Luffalla (1986); Saint-Marc (1983).

<sup>10</sup> Sánchez Pedreño (1960); Anes (1974a); Tortella (1974a); Poveda (1972); Martínez Méndez (1981) and Martín-Aceña (1985).

## 2 A new database of the main monetary aggregates

### 2.1 Money in the mid-19th century: 1830-73

As indicated above, the definition of money supply or stock of money in circulation comprises currency held by the public (coin and notes) plus bank deposits (current accounts, savings accounts and term deposits), minus credit institutions' reserve holdings. This first period is the most complicated and is where the most hazardous assumptions must be made. Nevertheless, the final result is a good fit with the later, more plentiful and better quality, statistics.

The (gold and silver) coin stock from the end of the 18th century up to 1873 was estimated by Tortella.<sup>11</sup> For our purposes here, the starting point of his calculation is 1865. For that year he calculates that the coin stock in circulation totalled 1.35 billion pesetas, of which 1.1 billion in gold coins and 250 million in silver coins.<sup>12</sup> Subsequently, to obtain a complete series from 1830, he deducts from that total the gold and silver coins minted each year, using figures that are well known and duly published.<sup>13</sup> To calculate the coins in circulation from 1865 to 1873 he uses a similar method, adding the gold and silver coins minted in each subsequent year to the figure for the first year.<sup>14</sup> Thus, courtesy of these simple exercises, it is possible to obtain a quite reliable estimate of the coins in circulation in the period 1830-73. This estimate is presented in the Statistical Annex (Table I-1) and is a good fit with the calculations made for later periods.<sup>15</sup>

The estimates of banknotes in circulation and of bank deposits has been made drawing on the information provided by the balance sheets of the banks of issue and credit institutions (commercial banks and savings banks) of the time.<sup>16</sup> For more than a decade, Banco de San Fernando (founded in 1829) was the only Spanish financial institution authorised to issue notes payable (in cash) on demand and to the bearer. The banknotes were issued in Madrid under a local monopoly, but they could – and indeed they did – circulate in other provinces. In 1844 two new

<sup>11</sup> Tortella (1982; 1983).

<sup>12</sup> The figures do not include copper or copper alloy coins, on which there is no information available. For dates when the figures are known, copper coins accounted for some 1% of coins in circulation. Excluding the copper coin series slightly underestimates the total, but only by a small percentage.

<sup>13</sup> *Ensayos sobre la economía española a mediados del siglo XIX*, Appendix II.

<sup>14</sup> Tortella warns that one failing of these estimates is that no account is taken of the possible additions or subtractions resulting from imports or exports of gold and silver coins. As a consequence of this omission, the series are skewed to the downside, even though silver exports were higher than imports. A recent reconstruction of the balance of payment flows shows that although silver outflows exceeded silver entries, the different was relatively small (Prados de la Escosura (2010)).

<sup>15</sup> These estimates may be compared with those provided by Anes (1974c) and Tortella (1974b). Tortella estimates a gold stock for 1870 of 1,323 million pesetas, close to the figure in Table I-1; for 1873, however, the difference is more significant, since the author gives a figure of 1,206 million pesetas, compared with 1,537 million in this Annex. In the estimate of the silver stock for the period 1868-74 made by Anes, his starting point is 238.6 million pesetas, below the 313 million in the series in Table I-1. For 1873, Anes calculates 393 million pesetas, compared with 462 million in the series estimated here; the latter figure is, however, very close to the 464 million calculated by Anes for 1874. In any event, considering that these are estimated historical figures for the distant past, these are neither excessive nor serious differences.

<sup>16</sup> The most complete studies of the Spanish financial system in the mid-19th century are still Tortella (1970 and 1973), to which we must now add the splendid work of Sudrià and Blasco (2016) that includes monographic studies of the provincial banks of issue.

banks of issue were founded: Banco de Barcelona and Banco de Isabel II. The Spanish banking system really began to flourish after 1856 with the enactment of the Law on Banks of Issue and the Law on Credit Companies, both aiming to regulate a banking sector that was thus far free from public control (except for the provisions of the first Commercial Code of 1829). The Law on Banks of Issue enshrined the principle of plurality of issue and authorised the creation of a bank of issue in each province. It also changed the name of Banco de San Fernando, which became the Banco de España. In the years that followed up to 21 new banks of issue were founded, although their number was subsequently reduced to 16 as the result of successive collapses, and to just one when, in 1874, the Banco de España was awarded the monopoly of issue.

For its part, the Law on Credit Companies led to the emergence of a number of institutions able to carry out a wide variety of activities, ranging from short-term trade credit and discount to long-term lending and investment in industrial shares and bonds. Since there were hardly any restrictions for the formation of these institutions, they soon proliferated against the backdrop of the prevailing trade boom. By 1866, in just over a decade, there were 32 credit companies; subsequently, as a result of successive crises, this number fell to 13. In the period, activity was equally febrile in the formation of savings banks. The first official regulation was the Royal Order of 3 April 1835, which resulted in the formation of Caja de Ahorros y Monte de Piedad de Madrid. Subsequently, to give new momentum to the savings movement, two new regulations were issued, in 1839 and 1853, which gave rise to a total of up to 24 savings banks across almost all the Spanish provinces. In addition to the commercial banks and savings banks, in the mid-19th century there was also a small number of *sociedades de giro y banca* (non-corporate discount and credit companies) in operation, and a large group of merchant bankers whose number it is impossible to determine.<sup>17</sup>

Table I-2 shows the banknotes in circulation between 1830 and 1873. One column depicts the series corresponding to the notes issued by Banco de San Fernando and, after 1855, by the Banco de España.<sup>18</sup> The second column includes, from 1844 to 1855, the banknotes issued by the three provincial banks (Banco de Barcelona, Banco de Isabel II and Banco de Cádiz),<sup>19</sup> and from 1856 to 1873 those of all the provincial banks of issue. The figures for this second period come from the information contained in *Ensayos sobre la economía española a mediados del siglo XIX*.

Currency (coin and notes) in circulation is shown in Table I-3. By deducting the reserve holdings from that total, the figure for currency held by the public is obtained. For the period 1830-55, the reserve holdings of Banco de San Fernando are taken from its balance sheets; the reserve holdings of the banks of issue are those of Banco de Barcelona (the reserve holdings of Banco de Isabel II are not considered as the bank was very short-lived, nor those of Banco de Cádiz, owing to the lack of information). The reserve holdings of the credit companies and

<sup>17</sup> Possibly 150 by around 1874 and 239 by 1900, when the numbers peaked, mostly operating in Madrid and Barcelona. On this segment of the financial system, see García López (1985 and 1989), Tedde (1983) and also Titos (1999b).

<sup>18</sup> The figures for Banco de San Fernando are taken from Tedde (1999).

<sup>19</sup> The figures for these banks are taken from Blasco and Sudrià (2010), Santillán (1982) and Ruiz-Vélez-Frías (1977).

savings banks are also unknown; in this case, an estimate has been made, by applying to each group the reserves-to-deposits ratio calculated for Banco de Barcelona. For the period 1856-73 the information improves. The reserve holdings of all the banks of issue are taken from Appendix I of *Ensayos sobre la economía española a mediados del siglo XIX*. However, data are not available on the reserve holdings of credit companies and savings banks, so they have also had to be estimated based on the annual reserves-to-deposits ratio calculated for the provincial banks of issue. This calculation is made excluding the Banco de España and assuming that provincial banks of issue, credit companies and savings banks held similar levels of reserve holdings.

The same sources have been used to calculate bank deposits. For the period 1829-55 the information available on three (Banco de San Fernando, Banco de Isabel II and Banco de Barcelona) of the four commercial banks has been used, plus the deposits of the existing savings banks. The lack of sources for the non-corporate discount and credit companies and the Banco de Cádiz mean that the total is slightly underestimated. The first were small companies, and the Banco de Cádiz's current accounts in 1856 amounted to less than 10% of the total.

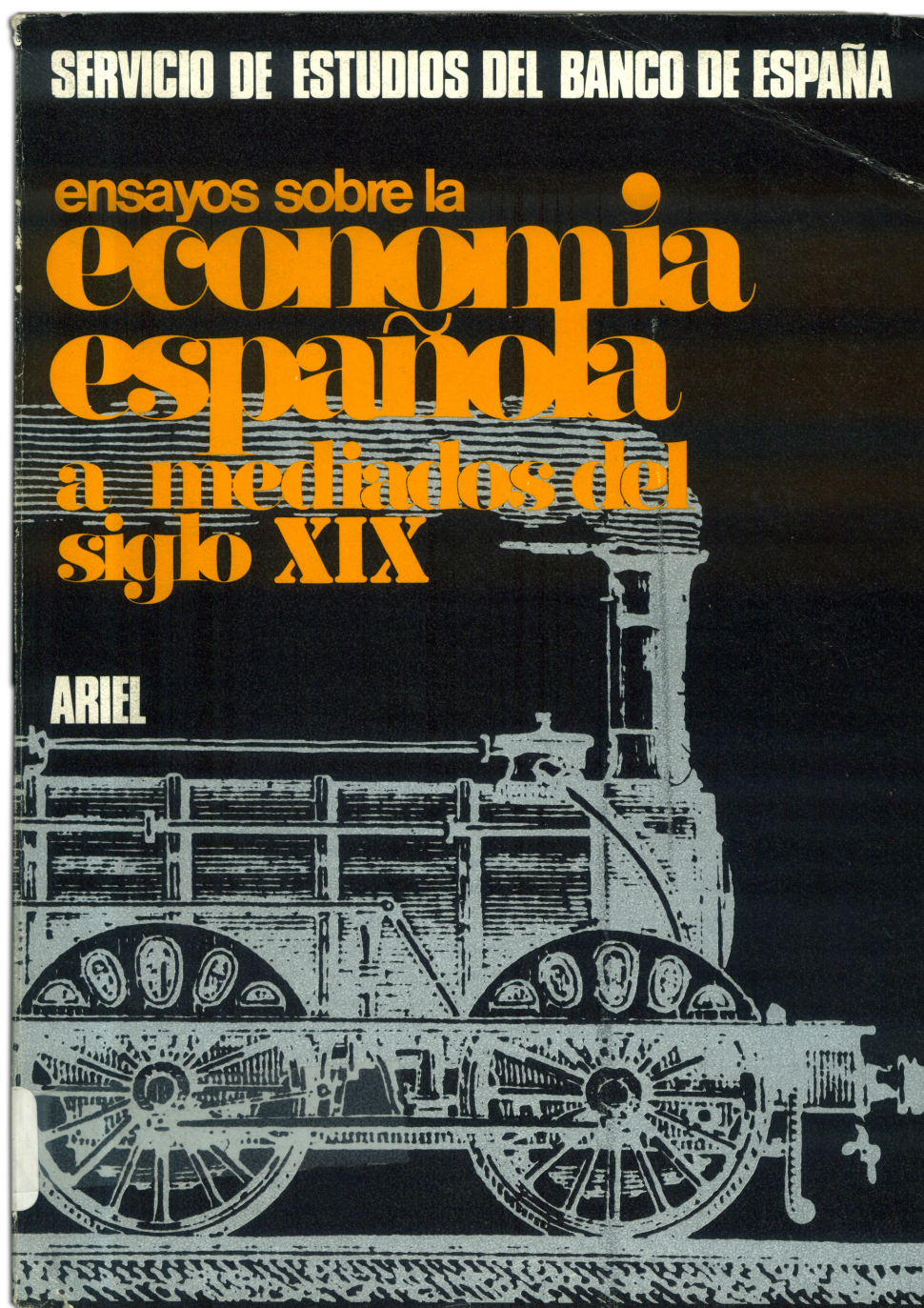
Calculating deposits for the period 1856-73 is rather more complicated. The figures for deposits at the banks of issue have been public knowledge for some time, likewise the figures for deposits at the savings banks. However, the total must also include deposits at the credit companies formed after enactment of the Law of 1856; if these are not included, the bank deposit total is significantly underestimated. As balance sheets are not available for all credit companies and/or all years, these figures must be estimated, however roughly and approximately. The starting point taken is 1860, calculating for that date the deposits of the main credit companies whose balance sheets are known for the years 1857-64.<sup>20</sup> In total, 47.1 million pesetas, which is the figure attributed to the intermediate year selected. This is double the sum of the current accounts of the provincial banks of issue ( $25.9/47.1 = 55.0\%$ ) and is 40.4% of the sum of total deposits.<sup>21</sup> To forward extrapolate the series sought (credit companies' deposits) to 1873, the deposits series of the provincial banks of issue is used, assuming a similar trajectory for both series. Accordingly, the annual change in the known series (banks of issue) is calculated and applied to the series sought. For the first three years (1857-59), the figure of 55.0% obtained for 1860 is applied to the figures of the provincial banks of issue. The result of this simple but plausible estimate is shown in column 4 of Table I-4. On the information available it is relatively easy to calculate the monetary base (Table I-5). And summing up the currency held by the public and bank deposits it is not difficult to calculate the money supply or stock of money (Table I-6)

It is important to note that Nuño, Tedde and Moro (2011) and Moro, Nuño and Tedde (2015) reconstruct the money supply series for the period 1856-73 differently. First, they propose a distinct method than that used by Tortella to calculate coins in circulation, basing their estimate on the inflows and outflows of metal, which they take from various sources, rather than drawing on the annual mint series. Thus, taking 1874 as their starting point, they extrapolate backwards, adding and subtracting exports and imports of gold and silver. The second difference relates

<sup>20</sup> The balance sheets known are those included in Tortella (1970).

<sup>21</sup> That is, Banco de España (43.3 million) plus provincial banks (25.9 million) plus credit companies (47.1 million).

to the different components of bank deposits. The three authors mentioned only consider the deposits of the banks of issue (Banco de España and provincial banks of issue), whereas in this Working Paper the (estimated) deposits of commercial banks that are not banks of issue, such as credit companies and savings banks, are included. The differences between the two series are considerable, as can be seen by comparing columns 3 and 4 of Table I-6.



## 2.2 From monopoly of issue to the turn of the century: 1874-99

Reconstructing the money supply for this period was more straightforward, as most of the work was done many years ago by Anes, Tedde and Tortella in *La banca de España en la Restauración*.<sup>22</sup> The series included in this section are taken from that work, with a few minor changes.

As for the previous period, the currency held by the public is the sum of the coins and banknotes in circulation, minus credit institutions' reserve holdings. Tortella calculates the gold stock in two stages.<sup>23</sup> First, drawing on the disparate figures found in the economic literature of the time (individual authors and official sources), he generates a gross gold stock series for the period 1870 to 1905 by a straight-line approximation using the least squares method. He then calculates the gold stocks at the Banco de España drawing on the data contained in its public balance sheets. Given that after 1897 the real gold stock was higher than that obtained from the straight-line approximation, he considers, quite logically, that in that year and thereafter the gross gold stock in Spain is equal to the Banco de España's gold reserves. He thus obtains a second series with the gold stock outside the Banco de España (Table II-1). Anes estimates the silver stock using a similar procedure.<sup>24</sup> Taking the figure for 1868 proposed by contemporary writers of the time, he generates an annual series by adding the coins minted and subtracting the coins received for reminting. Next he adds imports and subtracts exports of silver (taken from the *Estadística general del Comercio Exterior*), obtaining a representative series of the silver stocks for the entire period under study. To conclude, drawing on the existing silver coin series and subtracting the silver stocks held by the Banco de España, he estimates the silver stock outside the Banco de España (Table II-1).

Reserve holdings comprise the coins and banknotes held by commercial banks and savings banks and the metallic reserve (gold and silver) of the Banco de España. The first addend, in the part corresponding to private (commercial) banks, is known thanks to the estimate made by Tedde (1974b). For the savings banks there is insufficient information in this respect. Accordingly, taking what would seem to be the most logical approach, it has been assumed that the savings banks' reserves-to-deposits ratio was the same as that of the commercial banks. In consequence, by applying that ratio to the known figures of the savings banks, the reserves holdings series is obtained<sup>25</sup>.

Table II-2 shows five series: total coin (gold and silver) in circulation and Banco de España banknotes in circulation, which together give currency in circulation. By subtracting the reserve holdings estimated as described above from this variable, the currency held by the public is obtained.

<sup>22</sup> Published by the Banco de España in two volumes: Vol. I, *Política y economía*, and Vol. II, *Datos para una historia económica*. The data series provided in Vol. II, which are those used in Vol. I, cover the years 1874-1913. In this Annex only the calculations and findings for the period 1874-99 are used.

<sup>23</sup> Tortella (1974b).

<sup>24</sup> Anes (1974c).

<sup>25</sup> Tedde (1974b). The estimated series in this Working Paper differs from Tedde because here saving banks reserves are included.

The bank deposits series includes current accounts, savings accounts and time deposits at private (commercial) non-issue banks, and savings deposits at savings banks and savings accounts at the Caja Postal de Ahorros. The series also includes the current accounts at the Banco de España, which at the turn of the century may still clearly be regarded as belonging to private non-financial holders. The Banco de España's current accounts or sight deposits are taken from its annual balance sheets, compiled by Anes <sup>26</sup>. Sight, term deposits and savings deposits are taken from the balance sheets published by credit institutions (commercial banks and savings banks) in their annual reports, compiled by Tedde and Tortella.<sup>27</sup> The sources and the methods of calculation used are explained fully by the authors of the works cited and need not be reproduced here. Table II-3 presents the summary information on total bank deposits.

The monetary base or high-powered money is defined as the sum of currency in circulation plus deposits and balances drawable by commercial banks and savings banks at the bank of issue. Anes provides two estimates of this aggregate.<sup>28</sup> The first is a narrow definition that includes currency in circulation (coin and notes) and the Banco de España's deposits.<sup>29</sup> The latter are the current accounts that appear on the balance sheets. Given that at that time the bank of issue also operated as a private commercial bank, some of those accounts belong to private individuals and should not be included in a monetary base series, but it is not possible to separate the deposits of private individuals from those belonging to commercial banks and savings banks. The second definition of the monetary base includes the same items as the narrow definition plus the drawable balances (the portion of credit granted not drawn) that appear on the liability side of the Banco de España's balance sheets as "loans granted". In this paper the second definition, consistent with those estimated for other periods, is used. The monetary base and its components are shown in Table II-4.

Taking the information compiled thus far, the money supply for the period 1874-99 is easily calculated by adding together the currency held by the public and bank deposits. The numerical series are shown in Table II-5. Given the process followed to construct the series, they may be deemed consistent both with those obtained in the previous section and with those estimated for later periods.<sup>30</sup>

### **2.3 Monetary aggregates in the early 20th century: 1900-39**

For this third period the work has been particularly simple as all the information is taken from Martín-Aceña (1985), published by the Banco de España in 1985. The book has five statistical appendices that contain a detailed reconstruction of the assets and liabilities of commercial banks, savings banks and the Banco de España. Drawing on that statistical basis, the author

<sup>26</sup> Anes (1974d).

<sup>27</sup> Tedde and Tortella (1974); Tortella (1974c).

<sup>28</sup> Anes (1974a).

<sup>29</sup> As the author admits, including all the Banco de España's deposits in the definition overestimates the monetary base, since the balance sheets include an unknown percentage of deposits of private individuals.

<sup>30</sup> Tortella (1974a) offers two definitions of money supply. The first, corresponding to M1, includes currency held by the public plus current accounts at private (commercial) banks, including the Banco de España. The second, broader definition also includes savings deposits and term deposits at commercial banks and savings banks. The result of the aggregation is a series that Tortella calls broad money, similar to M3; the aggregate that appears in this Annex is different as here a more accurate estimate of currency held by the public is used.



estimates the main monetary aggregates: the monetary base and creation factors and the money supply and its near determinants.<sup>31</sup> Although the original sources used to reconstruct the statistical series were explained at the time, along with the technical method followed in each case, it is appropriate here to include a brief summary by way of a reminder.

Information on the main assets and liabilities of the commercial banks for the period 1900-21 can be found in the *Anuarios Financieros y de Sociedades Anónimas*. From 1922 onwards the quarterly bulletins of the *Consejo Superior Bancario* (CSB) became available. These contained the balance sheets of all the credit institutions operating in Spain, irrespective of

<sup>31</sup> A new feature compared with the reconstruction made for earlier periods was the possibility of providing quarterly series from December 1922 onwards.

whether or not they were commercial banks registered with the CSB, including foreign banks. The CSB's publications provide much higher quality data and have the additional advantage of being quarterly. For non-bank financial institutions, savings banks and Caja Postal de Ahorros the sources used were their respective annual reports, and especially those of Caja de Ahorros y Monte de Piedad de Madrid, a savings bank whose annual reports provided the broadest and most detailed information. The original figures for these institutions are annual, but in the book cited above a statistical exercise was conducted to obtain quarterly data. The Banco de España's annual reports were without doubt the richest and most comprehensive data source, including institutions' balance sheets at 30 or 31 December of each year, and especially the weekly balance sheets compiled by the Banco de España since 1885.

The monetary series included in this paper contain only a portion of the numerical data compiled in Martín-Aceña's book cited above. Table III-I shows currency in circulation (coin and notes) and currency held by the public. The stock of silver coins has been collected from the estimation made by Martínez Méndez<sup>32</sup>. And to offer the series of silver coins in circulation, the registered "silver in cash" in the balance sheets of the Banco de España has been deducted. The quantity of banknotes in circulation has been taken directly from the balances of the Bank Spain. To obtain the figures for currency in circulation in the hands of the public, banks' reserves have been deducted. Banks' reserves comprises three variables: till cash in banks and savings banks, bank's deposits in the Banco de España plus banks's disposable credit account balances in the Banco de España. In order to calculate the figures for each of these components various calculations were needed, especially to distinguish between the Bank's current accounts of financial institution and those pertaining to private individuals. The estimation procedures are explained in detail in the aforementioned book.

Table III-2 shows bank deposits by term and issuer. The first item is the current accounts of the non-financial private sector in the Bank of Spain, since still in this period the official issue bank maintained direct financial relationship with the public. For the years 1900-1921, the figures come from the *Anuarios Financieros de España*, while for the rest of the years up to 1935 come from the *Boletines* of the Consejo Superior Bancario. The information for the savings banks deposits is offered by Tortella in one of his statistical monetary reconstructions<sup>33</sup>, and complemented by the Annual reports published by the Caja de Ahorros y Monte de Piedad de Madrid and by the Caja Postal de Ahorros.

Table III-3 shows the estimate of the monetary base and its components. The basic source to estimate this magnitude has been the annual published balance sheets of the Banco de España. Also of helped have been the high-powered money series reconstructed by Anes for the years 1874-1915", and the estimation of Martínez Méndez for the period 1900-1935<sup>34</sup>. The figures offered in this Working Paper are different from Anes' because the stock of silver of his calculations do not coincide with that employed here. And also are different from Martínez Méndez's because his figures are monthly (December) average, while here are end of the year data.

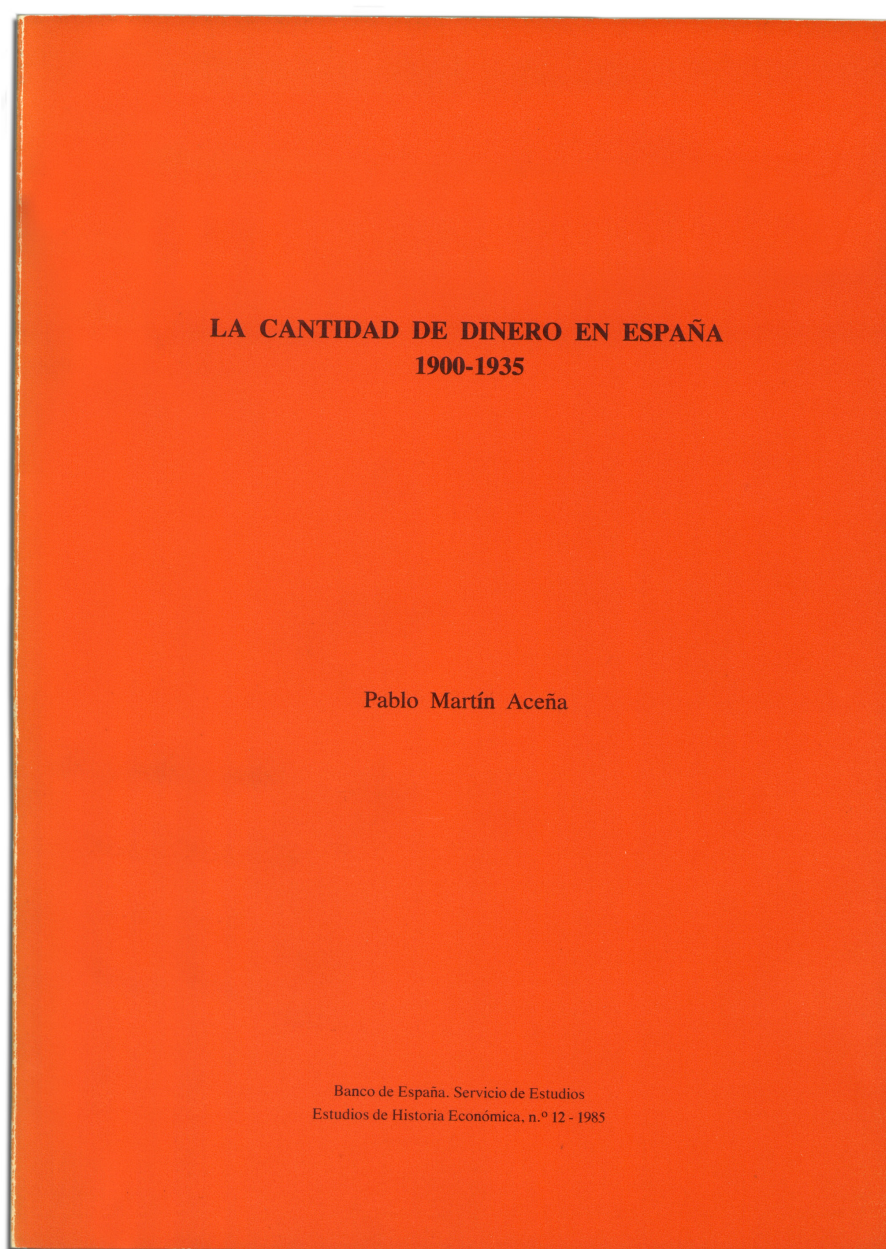
<sup>32</sup> Martínez Méndez (2008b).

<sup>33</sup> Tortella (1974c).

<sup>34</sup> Anes (1974b); Martínez Méndez (2008c).

Finally, table III-4 includes the money supply series and its components: currency in the hands of the public, plus banks' current accounts (deposit at sight), plus banks' time deposits, plus savings account in non-banking financial institutions. It also includes the non-financial private deposits in the Banco de España. All estimation procedures are explained fully in detail in *La cantidad de dinero en España, 1900-1935*.

For the Spanish Civil War years (1936-39) there is no information available similar to that for the previous periods. However, Martín-Aceña, Martínez Ruiz and Pons estimate the narrow money supply (currency plus sight deposits), including the money in circulation in the territory controlled by Franco and in that controlled by the Republican authorities.<sup>35</sup> These estimates are highly plausible and are a good fit with the known figures for 1935 and 1941.



<sup>35</sup> Martín-Aceña, Martínez Ruiz and Pons (2012). The statistical data are provided in the next section.

## 2.4 Money in the mid-20th century up to nationalisation of the Banco de España: 1940-61

As for the previous period, there is a reconstruction of the main monetary aggregates for these years prepared and published by Martín-Aceña (1988). The paper includes series (annual and quarterly frequency) of assets and liabilities of commercial banks and savings banks, asset and liability accounts of the Banco de España, components and explanatory factors of the monetary base and several definitions of money supply. The series are a continuation of those reconstructed up to 1935 and link up with the monetary statistics published by the Banco de España in several *Boletines Estadísticos* with historical series covering the years 1962-75 and 1962-81.<sup>36</sup>

An explanation of the methodological details and the reconstruction exercises relating to each of the monetary variables estimated seems unnecessary, as the reader can find all these details in the above-mentioned publication. Below we refer briefly to the sources used and the series selected and included here.

The numerical data are taken from various sources: the Banco de España's *Boletines estadísticos*, public balance sheets and unpublished adjusted (by economic agents) balance sheets; *boletines* of the CSB and annual reports of the savings banks; and various internal documents compiled by the Statistics Department of the Directorate General Economics, Statistics and Research of the Banco de España, with the adjusted balance sheets of the banking system (commercial banks and savings banks), banking operations and creation factors of banknotes in circulation, among others. Also of significant assistance was Poveda (1972).

As in the previous section, the monetary series included here offer only a portion of the numerical data contained in the above-mentioned work of Martín-Aceña. Table IV-1 shows currency in circulation (coin and notes) and currency held by the public; Table IV-2 bank deposits classified by term and issuer; Table IV-3 the monetary base and its constituent aggregates, and Table IV-4 the money supply and its components.

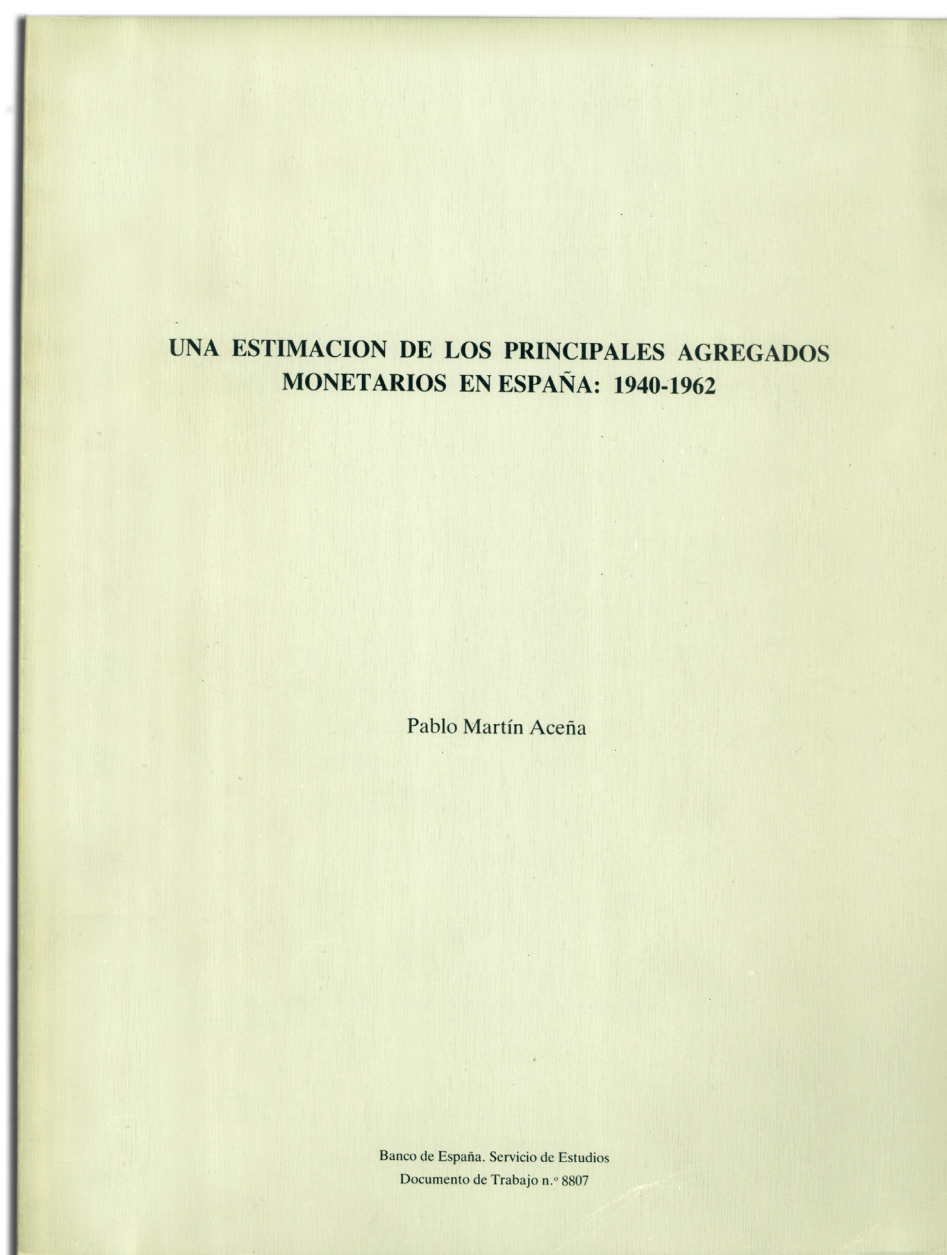
Currency in circulation (metallic coins plus banknotes) comprises currency in circulation plus all banks' reserves. Metallic coins in circulation is the different between coins issues by the Treasury and the quantity of metallic money (coins) in the vaults of the Banco de España. The yearly issues and the vaults cash are known because they are published in the *Memoria anual* of the Banco, and also in the *Boletines Estadísticos*. Banknotes as always is a data taken from the official balance sheets of the Banco. Cash reserves includes till cash in banks and savings banks, banks and savings banks deposits in the Banco de España, and banks and savings banks disposable balances on credit account in the Banco de España. The data comes as well from the official publications of the Banco.

The aggregate series of deposits is the sum of current accounts and time deposits in banks and savings banks, plus sight and time deposits in the savings banks sector. For the period

<sup>36</sup> Banco de España, *Boletín Estadístico. Series Históricas I: Banco de España*. Banco de España, 1975; Banco de España, *Boletín Estadístico. Series Históricas I: Banco de España (1962-1981)*. Banco de España, 1982; and Banco de España, *Boletín Estadístico. Series Históricas II: Banca privada*. Banco de España, 1976.

1940-1956 the figures come from the *Boletines* of the Consejo Superior Bancario. Thereafter, the main source is the *Boletines Estadísticos* of the Banco de España, whose publication began in March 1960, and offered retrospective historical data. Another source were the *Memorias anuales* of the Confederación the Cajas de Ahorros that collects statistical information from all savings banks.

The series of high-powered money and its components is formed as explained in previous sections. The data comes from the official publications of the Banco de España. Money supply has been constructed as well following the standard procedures, and the figures for the period are homogeneous with those of previous periods. All details of sources and methods of estimation of each of the series can be found in the aforementioned contribution of Martín-Aceña (1988).



## 2.5 The last years of the peseta. Money before the euro: 1962-98

The monetary series corresponding to the final period, from 1962 to 1998, are taken from various Banco de España publications and, in particular, from the extensive collection of *Boletines Estadísticos*, first published in 1960.<sup>37</sup> A set of historical series supplements to the *Boletín Estadístico*, which carefully reconstruct the main monetary and financial aggregates, have proved extremely useful. The first of these, *Boletín Estadístico. Series Históricas I - Banco de España*, published in February 1975, compiles the main monetary series included in the monthly bulletins from January 1962 to December 1974. A splendid initiative, motivated by the Banco de España's concern to have available "lengthy, uniform statistical series". The authors of the supplement do not simply reproduce figures that were already known, but revise and standardise the figures and update their presentation, adjusting the data to the monetary regime adopted by the Banco de España in 1971. From that year on, monetary policy was guided by changes in the liquid assets of the banking system and the monetary base, and the statistical bulletins were reorganised to fit that purpose. Accordingly, this first historical series bulletin provides series of the monetary base, its components and its explanatory factors, and also the classification of liquid assets by sector, drawing on data taken from the Banco de España's balance sheet and the accounts of the IEME (former Spanish Institute for Foreign Currency) and the Treasury, but after revising, streamlining and standardising the classification of the accounting items. A highly detailed explanation of the entire process may be found in the extensive notes that accompany the publication.

In October 1976 a second historical series supplement was published (*Boletín Estadístico. Series Históricas II - Banca privada*), similar to its predecessor but focused on the private banking sector. It includes quite comprehensive and detailed information on the assets and liabilities of commercial banks, savings banks and official credit institutions. It classifies items by institution and provides absolute and percentage data and also data on legal reserve requirements. Liquidity, collateral and lending. Almost simultaneously, three highly valuable supplements were published with economic information on business sentiment, employment and wages, and the external sector.<sup>38</sup>

In later years more supplements were published to complement their predecessors, on official credit, the public sector and the securities market.<sup>39</sup> However, the most interesting one for our purposes is the *Boletín Estadístico. Series Históricas I - Banco de España (1962-1981)*, published in June 1982, which superseded the first version discussed above, broadening its content and lengthening the series. The general notes and notes to the tables describe in great detail the structure of the Banco de España's balance sheet and the monetary policy target variables and their counterparts or explanatory factors. The reserve holdings of the banking system, their components and counterparts, grouped into the three classical sectors, i.e., banking system, public sector and external sector, are the main aggregate around which the

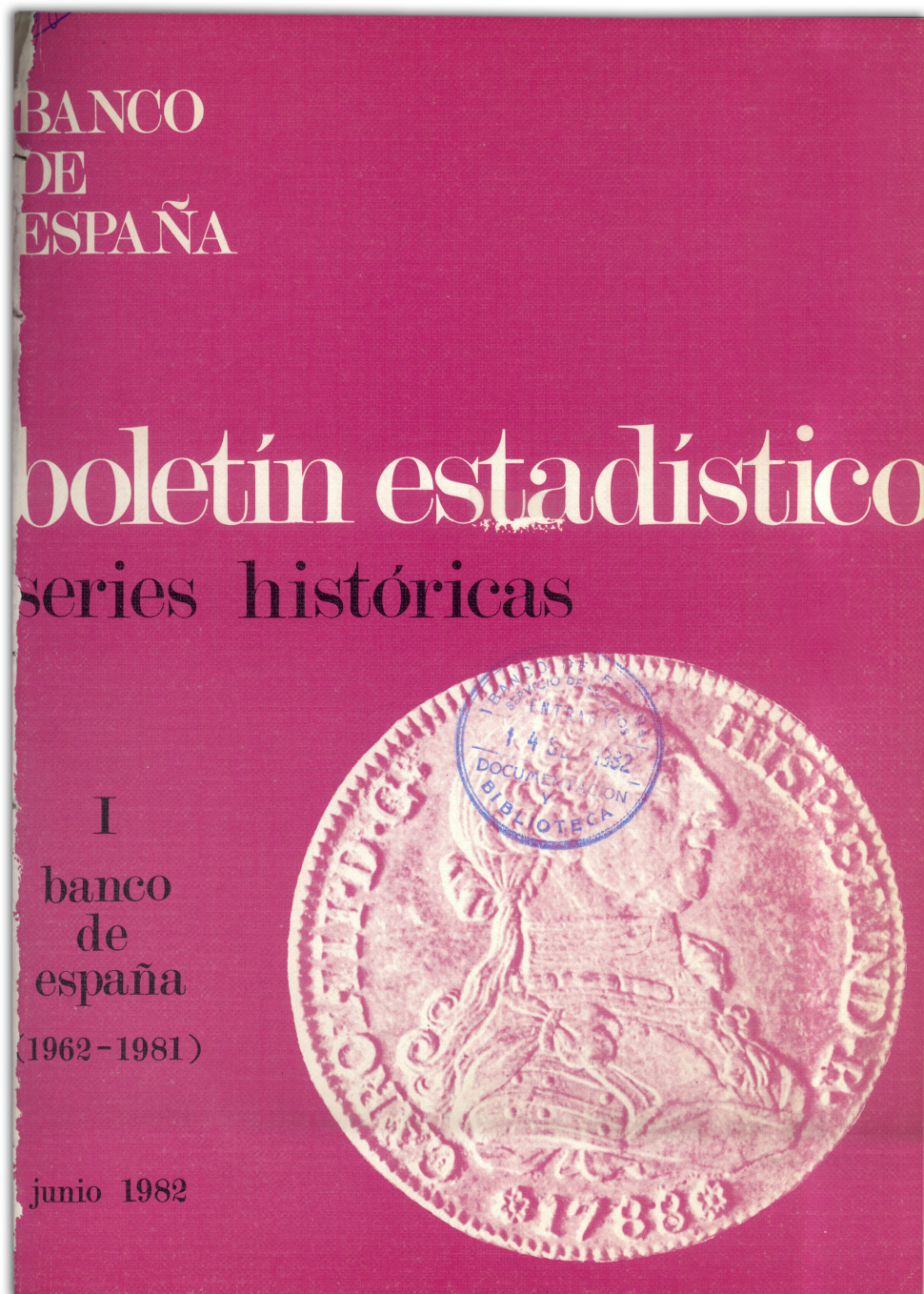
<sup>37</sup> A similar document had circulated within the Banco de España in mimeo form since 1957.

<sup>38</sup> *Boletín Estadístico. Series Históricas. Opiniones empresariales (1962-1974)*; *Boletín Estadístico. Series Históricas. Empleo y salarios (1962-1976)*; and *Boletín Estadístico. Series Históricas. Sector exterior (1962-1977)*.

<sup>39</sup> *Boletín Estadístico. Series Históricas. Crédito Oficial (1962-1982)*; *Boletín Estadístico. Series Históricas. Sector Público. Estado (1962-1981)*; and *Boletín Estadístico. Series Históricas. Mercado de Valores (1962-1982)*.

information provided in this historical bulletin revolves. The supplement also includes a monetary base series (by way of a memorandum item) and details of currency held by the public. The historical series of this outstanding *boletines estadísticos* published in 1982 are used in this Working Paper for the period 1962-81.

Statistics produced by the Banco de España, in this case in its ordinary monthly bulletins, have also been used to complete the numerical information needed to draw up a money supply series that includes bank deposits. Specifically, the monthly bulletins for the period 1961-79 and the December 1985 monthly bulletin.



All the data contained in this Working Paper for the period 1982-98 have been taken directly from four *Boletines Estadístico*: December 1985 for the figures for 1980-84; December 1990 for the figures for 1985-89; and December 1995 and 1998 for the remaining figures. Each provides retrospective information permitting coverage of those last fifteen years prior to the introduction of the euro. The content of the statistical bulletins for those years is so highly complex that, in May 1989, the Banco de España published a lengthy supplement (*Boletín Estadístico. Notas*) designed to “provide information to allow the series included in the monthly Bulletin to be correctly interpreted”. It is important to note that in 1992 the Banco de España undertook a major overhaul of the monetary aggregates used thus far. This was required in order to bring the different definitions of liquidity used by the then European Community members closer together and to adapt those definitions to the financial situation of the single market and the process of convergence towards Monetary Union. Substantial changes were made to the delimitation of holders and issuers of liquid assets and to the classification of the latter. The two narrowest aggregates, M1 and M2, were barely affected by the new criteria introduced in 1992, but the composition of M3 was significantly changed.<sup>40</sup> The interested reader will find in that publication and in the monthly bulletins the methodological notes explaining how the Banco de España compiles the monetary and financial statistics it needs to analyse the Spanish monetary economy and conduct monetary policy, as well as the accounting significance of each variable or monetary series it constructs.<sup>41</sup>

The tables included in this section relate to currency in circulation and currency held by the public (Table V-1), bank deposits (Table V-2), the monetary base (Table V-3), and the money supply (Table V-4).

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<sup>40</sup> Banco de España, *Boletín Económico*, November 1991.

<sup>41</sup> Here I should like to thank Juan Peñalosa and Pedro Abad of the Banco de España's Statistics Department for helping me unravel the content of the statistical bulletins for recent years and for lending me part of their printed collection.

### 3 Money in Spain: 1830-1998

#### 3.1 *The predominance of currency, coins and banknotes: 1830-99*

In the mid-19th century, as Chart 1 shows, currency (coin and notes) accounted for almost all money in circulation in Spain. Likewise, as shown in Chart 2, coins were the predominant means of payment, far exceeding banknotes and current accounts: in 1873, two decades after the banking system was liberalised and the first modern credit institutions were established, coins accounted for 88% of the total money supply, and for almost 90% including copper coins.<sup>42</sup> The situation was similar to that of other European countries, such as Great Britain, France or Italy, where the public preferred to use coins to conduct their transactions and pay off their debts. In the United States, where the financial system was more highly developed and more broadly established throughout the country, the situation was rather different and the public's liquid holdings were split almost equally between currency and deposits.<sup>43</sup>

Until 1874, gold coins in circulation far outstripped silver ones: 1,146 million pesetas in gold coins compared with 408 million pesetas in silver coins, drawing on Mint statistics. Fewer silver coins were minted, not only on account of the higher cost but also because silver exports continued, and the age-old problem of the Spanish monetary economy since the turn of the century, i.e., the use of silver coins for foreign payments, and also their high intrinsic value, explain the low levels of minting and the complaints at the time about their scarcity.<sup>44</sup>

Private individuals, the Banco de España and the Treasury all preferred gold coins to any other means of payment. In the Spain of the mid-19th century, despite the backward agricultural economy, considerably more gold than silver was used in transactions overall. Spain was not a major producer, but a plentiful supply of gold flowed into the mints as the result of a sustained wave of foreign investment in mining, railways and banking, and of the external debt issues made by the tax authorities to cover budgetary imbalances. Net capital inflows in the period 1856-66 amounted to more than 50% of gross investment and served to balance out the huge current account deficits (a far from insignificant 3% of GDP on average), turning the money supply in circulation to gold.<sup>45</sup> Without doubt gold played an essential part in foreign trade and in major transactions but, as in other countries, it must also have played an important part in small domestic transactions.

Up to 1844 the stock of banknotes increased very gradually, on account of the lack of momentum of Banco de San Fernando, the only bank of issue. After two new institutions (Banco de Barcelona and Banco de Isabel II) were established in that year, the number of

<sup>42</sup> According to Mint statistics, copper coins minted between 1830 and 1873 made up 5.2% of the total.

<sup>43</sup> In 1868, for each dollar of currency held by the public, they held 1.2 dollars in deposits (Friedman and Schwartz (1963, p. 16).

<sup>44</sup> Sardá (1948).

<sup>45</sup> On foreign investment in Spain in the mid-19th century: Anes (1970). On balance of payment figures: Prados (2010).

banknotes in circulation rose, but not for long, as a result of the 1847-48 financial crisis, the conservatism of the banks that survived the crisis and also the high denominations of the banknotes issued for which there was limited demand. In 1855, the year before the Law on Banks of Issue was passed, fiduciary (paper) money accounted for just 5% of currency. With the enactment in 1856 of that law, which allowed a bank of issue to be established in each province, thus opening up a brief period of plurality of issue, the volume of banknotes in circulation shot up, reaching a peak of 124.8 million pesetas in 1864 (9% of currency and of money held by the public overall). The upward trend was cut short by the banking crisis of 1866, the deepest crisis of the 19th century and one of the gravest crises of the last two centuries.<sup>46</sup>

As shown in Chart 3, the Banco de España issued more banknotes than all the provincial banks together. Albeit with just two branches (in the cities of Valencia and Alicante), by the mid-19th century the Banco de España was already a national and semi-public financial institution, on account not only of its name but also its size, the fact that its banknotes began to be used as reserves, and its close links with the tax authorities, including tax collection and treasury services.<sup>47</sup>

Chart 4 shows that in 1855 current accounts and bank deposits of the banks of issue and of the few existing savings banks totalled 53.4 million pesetas, slightly more than the banknotes in circulation, accounting for 7% of the total money stock. Until then their trajectory had been similar to that of banknotes: slow moving until 1844, when the new credit institutions mentioned above emerged, followed by a more pronounced increase up to the 1847-48 crisis. With the formation of new savings banks and banks of issue, and the establishment of numerous credit companies under the Law on Credit Companies, also of 1856, which promoted their formation, bank deposits overall (banks of issue, credit companies and savings banks) increased significantly, amounting to 120.9 million pesetas in 1864. They then declined and remained flat as a result of the crisis of 1864-66, before subsequently recovering, slowly and with difficulty, reaching 154.7 million pesetas at the end of the period. This was 7% of the money supply at that time, the same proportion as twenty years earlier. As in the case of banknotes in circulation, the crisis of the 1860s severely marred the development of the financial system.

The monopoly of issue brought about a significant change in the composition of money in circulation.<sup>48</sup> In 1874, coins (gold and silver) were still the main instrument of payment: 1,562 million pesetas, compared with 72 million in banknotes of the Banco de España. By the turn of the century, as Chart 1 shows, the reverse was the case, as banknotes had conquered the market: 1,518 million pesetas, accounting for almost two-thirds of money in circulation. The public preference had shifted definitively towards paper, abandoning the coins that had, since ancient times, been the preferred means of payment not only in Spain but throughout

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<sup>46</sup> Tortella (1973); Sudrià (2013).

<sup>47</sup> Tortella (1970) Anes (1974a).

<sup>48</sup> Drawing on the pioneering work of Tortella (1974a) and Martín-Aceña (1990).

most of the world. The monopoly of issue granted to the Banco de España<sup>49</sup> was clearly a contributing factor in this process. The Banco de España's banknotes became legal tender, not *de jure* but certainly *de facto*, it expanded, albeit gradually, its branch network throughout the country and, with some tardiness, in 1883 it introduced the single banknote. The Banco de España did not assume the responsibilities of monetary policy management, but it did acquire increasing prestige, partly fruit of its privileged relationship with the Treasury and also on account of its size, the high price of its shares, the considerable influence its interest rates had on the credit market and because at no point did it cease to transform its banknotes into coins, although into (devalued) silver rather than gold coins. In addition, the Banco de España was regarded, at the time, as a more comfortable and convenient channel through which to conduct transactions, pay taxes and pay off debts. By the turn of the century, entrepreneurs and consumers alike had become accustomed to the use of banknotes.<sup>50</sup>

The growth of banknotes as a means of payment ran parallel to the disappearance of gold coins from circulation. At the start of the period, gold coins in circulation totalled 1,149 million pesetas, accounting for more than 70% of the cash in circulation and for 66% of the money held by the public. At the turn of the century, gold was no longer part of the money supply. In just two and a half decades the only gold still remaining in Spain was virtually all held by the Banco de España (406 million pesetas). Gold vanished at the same time and pace as its price began to rise in the international markets and the Spanish monetary authorities, not knowing what measures to take, held the official purchase price unchanged. The causes and consequences of the disappearance of gold were the main topics of debate in monetary circles in those years. As will be seen below, this was an issue that became an obsession for a nascent public opinion, politicians, economists and students of Spanish financial matters.<sup>51</sup>

By contrast, the presence of silver coins in total circulation rose, from 413 million pesetas in 1874 to 912 million in 1899, partly filling, along with banknotes, the gap left by gold coins. At the start of the Restoration, silver coins made up 26% of currency held by the public, whereas by the end of the century they accounted for 40% and for one-quarter of the money supply. This growth was attributable to the fact that the Spanish State minted silver coins continually, unlike gold coins, and was in response to public demand for a means of payment with a low denomination and a low intrinsic value, to accompany the high denomination banknote. A net total of 547 million gold coins were minted, two-thirds of which in the period 1877-81, while the net total of silver coins minted was 891 million. The existence of silver coins suited not only economic agents but also the State, because as the international price of silver collapsed, the silver coins minted became a source of extraordinary revenue: the difference between the face value of the minted coins and the intrinsic value of the metal they contained. This use of silver coins by the State was widely criticised at the time. Thus, when several businessmen approached the Treasury in 1880 asking that gold coins continue to be minted, the response was that "at the present time,

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<sup>49</sup> The privilege of issue was granted in 1874 and was renewed in 1891 and again in 1902.

<sup>50</sup> In 1903, the Finance Minister, Raimundo Fernández Villaverde, noted the change that had taken place indicating that "paper money was preferred by the public as the most comfortable and easily manageable means of payment".

<sup>51</sup> See Serrano Sanz (2006) for a recent and rigorous approach to this issue.

the minting of silver coins best suits the interests of the tax authorities".<sup>52</sup> Notwithstanding the extraordinary use made of minting to obtain revenue, the monetary authorities ultimately became convinced of the pernicious effects that this was having on the Spanish economy.

The low overall volume of deposits (164 million pesetas) in 1874, compared with the huge volume of coin and notes, highlights the backwardness of the Spanish financial system at the start of the Restoration when it had barely recovered from the crisis of 1866<sup>53</sup>. Subsequently, between the institutions that survived the catastrophe, the new ones that became established and also the newly founded savings banks, deposits rose. The Banco de España, whose current accounts increased tenfold, from 71 million to 726 million pesetas, made a significant contribution to this rise. The reasons for this growth in deposits are the same as those for the growth in banknotes: the Banco de España was regarded as a "national" bank, with a presence in all provinces and the implicit backing of the State, which renewed the privilege of issue on three occasions. Indeed, the Madrid-based institution was a fearful competitor for the private banking sector, as became patently clear in the financial crises of 1881-82 and 1890-91 when the bank of issue, rather than acting as a central bank, preferred to ignore the difficulties facing the private banking sector and the banking system overall.<sup>54</sup> Chart 4 clearly illustrates the significance of the Banco de España's current accounts, which amounted to more than 40% of the total in 1874 and to almost 60% by 1899. The banks that were not banks of issue, with 375 million in deposits, controlled 31% of the financial business, with savings banks in third place with just 10% of total banking system deposits.<sup>55</sup>

Between 1830 and 1855 the money supply grew at a quite considerable annual average rate of 2.0%. Once plurality of issue was introduced and with the formation of credit companies and new savings banks, the rate of growth of the money stock gained pace, reaching an annual average rate of 5.6% between 1856 and 1874. For the period overall (1830-99) the average rate of growth was around 3.4%; in the last quarter of the century (1874-99) it was lower, at 2.7%. The reasons for this lower rate of growth are the monopoly of issue granted to the Banco de España, the slow progress made by the banking system after the crisis of 1866, the disappearance of gold coins from circulation and a restrictive monetary policy whose (unachieved) aim was to adopt the gold standard.

<sup>52</sup> Cited by Tortella (1974a), p. 482.

<sup>53</sup> As mentioned above (note 17) joint-stock banks were not the only credit institutions providing financial services. Non-corporate banks as well as private banking houses and merchant bankers were large in number, established in all provincial towns and villages where banks of issue and credit societies had not offices, branches or agencies. Current accounts and deposits of non joint-stock financial companies should be added to the total estimated in this working paper, but unfortunately no information is available, except for a few prominent banking houses. Moreover, these and merchant bankers did operate on the bases of their own capital, rather than with customer's liquid resources. They certainly discounted bill of exchange and supplied short and long term credit and a variety of other financial services but they did so employing their own capital funds.

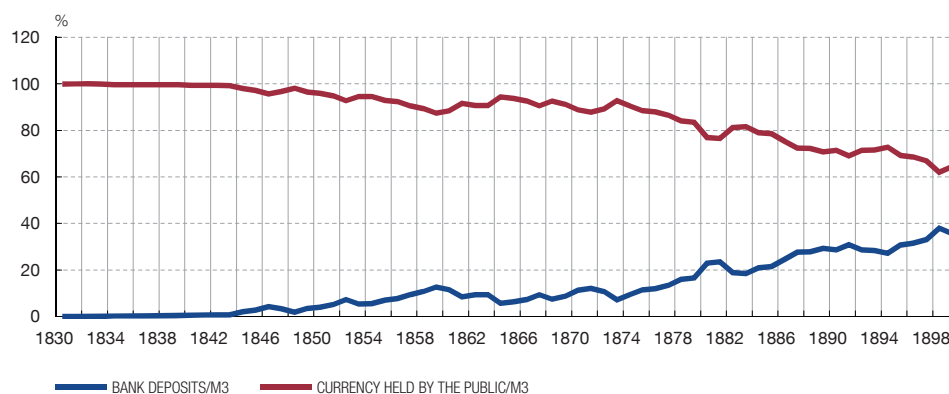
<sup>54</sup> This issue is addressed later.

<sup>55</sup> The different segments of the banking system have been analysed by Tedde de Lorca (1974a) Titos Martínez (1999); Comín (2012); Martín-Aceña (1987). One question that should be raised at this point is the use of bills of exchange as means of payment and short term asset. Bills of exchange are typically not included in monetary aggregates but they were used extensively as a commercial instrument that facilitated payments and the financing of investment and trade. The matter has been studied, among others, by Sudrià et al (1992), Castañeda and Tafunell (1993) and Nogués-Marco et al (2017). They have stressed the significant role played by bills of exchange complementing the use of currency and bank deposits. However, since its volume is yet unknown it cannot be incorporated in the estimates presented here. Besides, bills of exchange are not at all included in international monetary aggregates.

To conclude, Chart 5 depicts the change in the money stock over the period (1830-99). Each of the different stages discussed above are easily identified. The predominance of currency (coin and banknotes) is also evident, although with a clear decline as a proportion of total means of payment. By contrast, deposits gained weight in the 1880s and 1890s as a result of the slow but increasing growth of the banking system.

**CURRENCY HELD BY THE PUBLIC AND BANK DEPOSITS AS A PROPORTION OF THE MONEY SUPPLY (M3), 1830-1898**

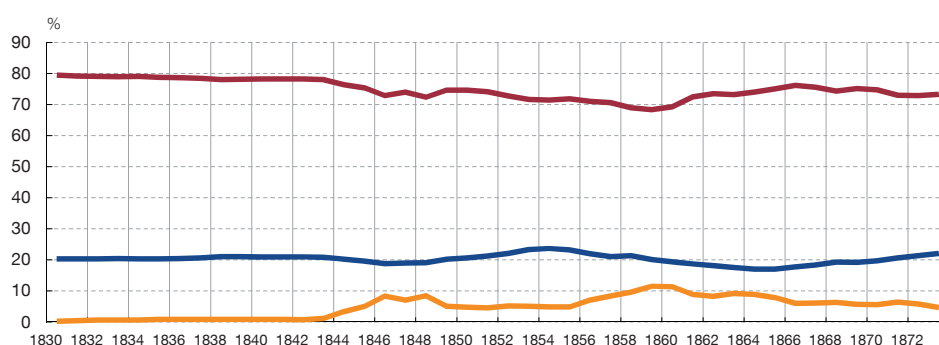
CHART 1



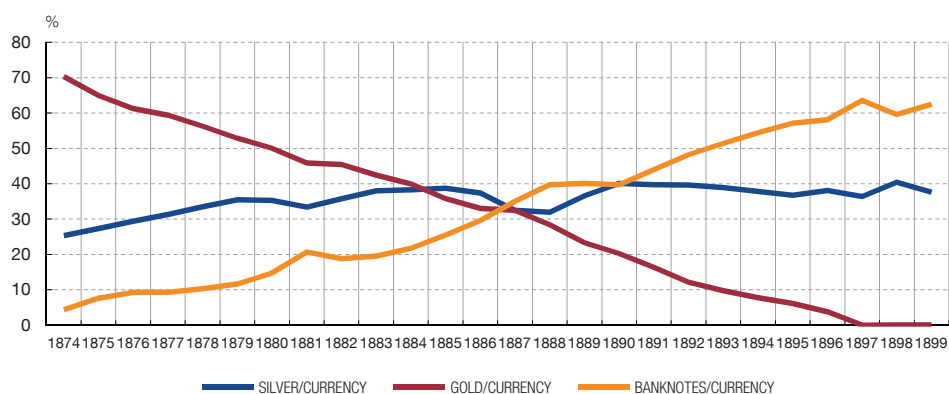
SOURCE: Statistical Annex.

CHART 2

**1 COINS (GOLD AND SILVER) AND BANKNOTES AS A PROPORTION OF CURRENCY IN CIRCULATION, 1830-1873**



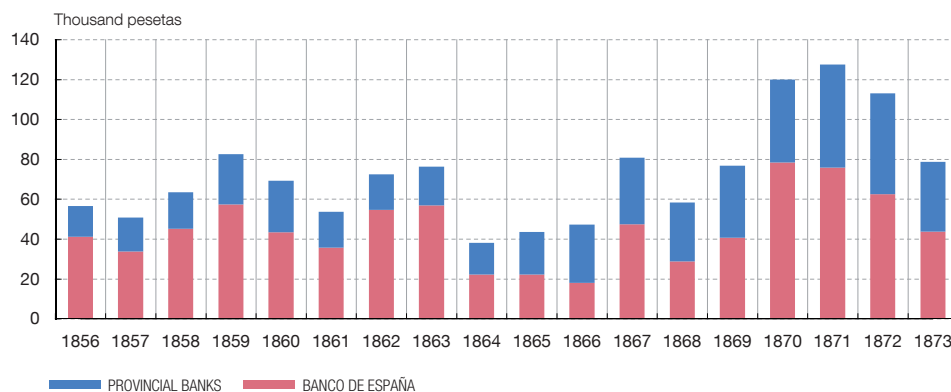
**2 COINS (SILVER AND GOLD) AND BANKNOTES AS A PROPORTION OF CURRENCY IN CIRCULATION, 1874-1899**



SOURCE: Statistical Annex.

## BANKNOTES IN CIRCULATION, 1856-1873

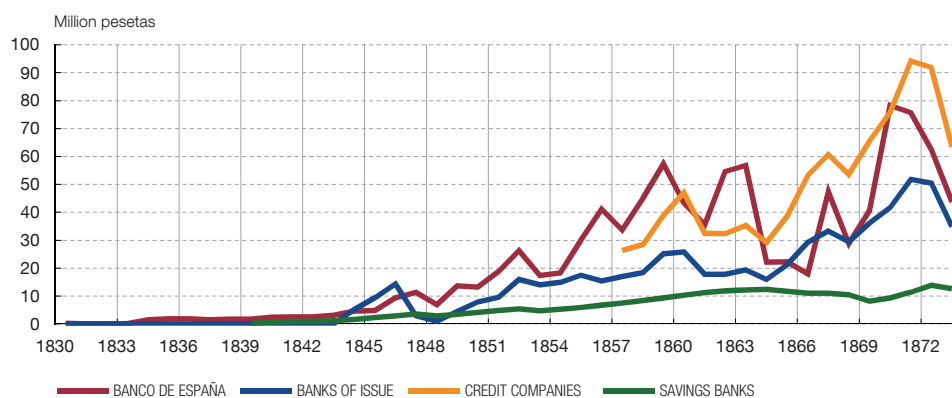
CHART 3



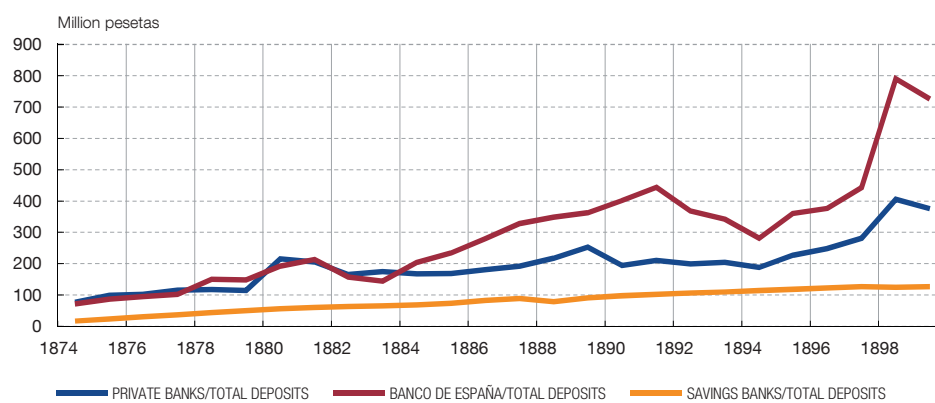
SOURCE: Ensayos sobre la economía española mediados del siglo XIX, Appendix 1.

CHART 4

## 1 DEPOSITS BY INSTITUTION, 1830-1873

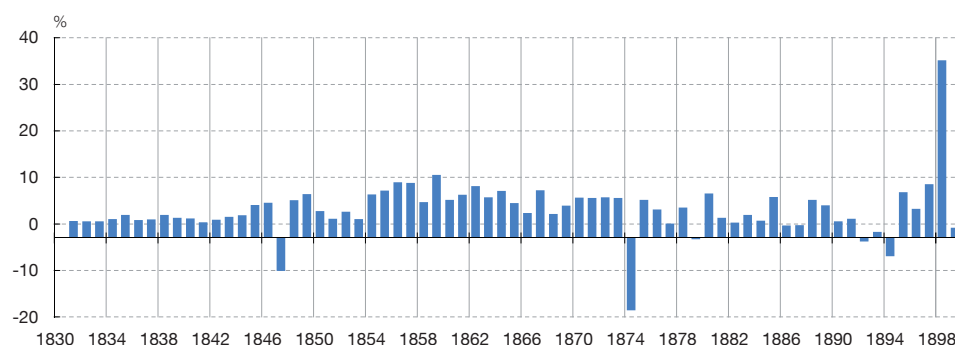


## 2 DEPOSITS BY INSTITUTION, 1874-1899

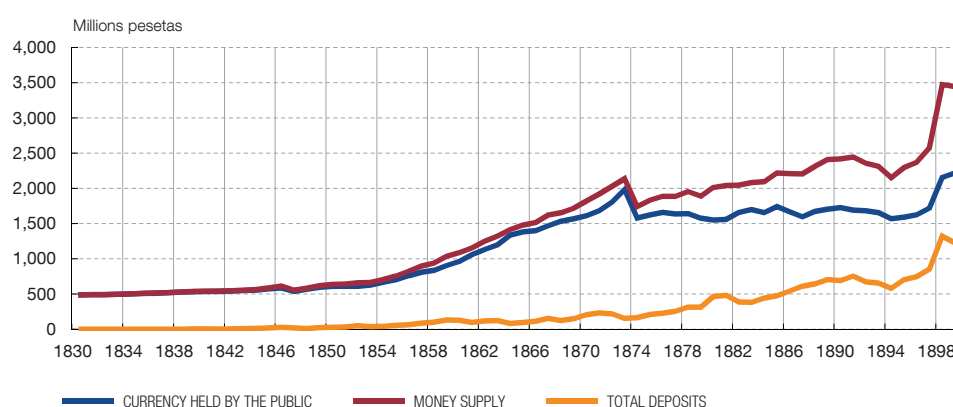


SOURCE: Statistical Annex.

### 1 MONEY SUPPLY, ANNUAL CHANGE, 1830-1899



### 2 MONEY SUPPLY AND COMPONENTS, 1830-1899



SOURCE: Statistical Annex.

### 3.2 The transition from currency to bank money: 1900-35

Chart 6 illustrates how the money stock evolved in the first third of the 20th century. During the first decade, the money stock fell moderately but continuously, from 3,371 million pesetas in 1900 to 3,340 million in 1909. It then recovered, up to the start of the First World War in 1914. Throughout the war years and until 1920 the money stock expanded rapidly; over that period the money supply expanded by a factor of 2.5. In 1921 the growth halted, only to be resumed again in 1922-23. Thereafter, and until 1926, the series, albeit with annual variations, shows that the Spanish economy underwent a period of relative monetary stability, with a moderate decrease in the money stock in some years. By contrast, the following four years (1927-30) witnessed significant monetary expansion, from 11,942 million to 14,528 million pesetas. At the start of the 1930s the money stock contracted moderately, but this was short-lived as by around 1935 it had regained the lost ground and totalled 15,617 million pesetas.

If we compare the rate of growth of the money supply in this period and in the two previous periods, we find as follows. Between 1830 and 1873, when there was plurality of issue, the money stock expanded at an average rate of 3.4%. After the monopoly of issue was granted, the rate of growth slackened to around 2.7% between 1874 and 1899, and then

accelerated again, reaching 4.4% between 1900 and 1935. These are not high figures, and are much lower, as will be seen, than those recorded in later periods.

The annual changes, shown in Chart 7, are quite disparate, with negative figures in the first decade owing to the 2-year financial and monetary stabilisation programme (1899-1900) and the attempts to implement the gold standard, followed by positive albeit moderate increases up to 1913. The First World War years saw exceptionally high growth, especially in 1917 (21%) and 1918 (37%). Over the next two decades the annual rates of change declined, with negative rates of change in four years, the most significant (2.5%) in 1931 coinciding with the international financial crisis.

During this 35-year period, as shown in Charts 6 and 8, the structure of the money supply changed enormously. Currency in circulation grew by a factor of 2.2 while bank deposits grew by a factor of 9.3 and this higher rate of growth of the latter brought about a major change in the structure of the money stock. In 1900, of the two components of the money supply, coins and banknotes held by the public were the largest component, but by 1935 the situation had changed and bank money had overtaken coins and banknotes to become the leading component. Excluding the Banco de España's current accounts, at the turn of the century deposits and savings accounts made up 15% of the money supply. By 1914 this figure had risen to 25%. The definitive change came about in the period 1920-25, in the wake of the extraordinary growth of the financial system during the First World War.<sup>56</sup> By 1925, deposits and savings accounts together made up almost 50% of the money stock, outstripping banknotes and coins. Ten years later this figure had risen to 65% (70% including the Banco de España's current accounts). Thus, in the first third of the 20th century and, in particular, in the mid-1920s, a further step was taken in the transition from what could be classed as an antiquated monetary system to a modern one in which bank money plays a predominant role. This change in the composition of the money supply was hugely important from the monetary control standpoint, since it resulted in the monetary authorities losing much of the direct control they had previously held over the money stock. Thereafter, when those responsible for monetary policy wished to regulate the money market, they had not only to monitor the consolidated balance sheet but also to exert much closer control over the monetary liabilities of the financial institutions.

The composition of deposits (see Chart 9) changed substantially as a result, as indicated, of the development of the private financial system, both in the case of commercial banks, with the emergence of new banks and new business and the first wave of branch office expansion, and savings banks, whose number and business also expanded.<sup>57</sup> By 1935, the current accounts of the Banco de España, which had previously been the majority component (57% of the total in 1900) accounted for barely 6% of the total. It may be said, therefore, that by that date the Banco de España had ceased to be a private credit institution and its relationship with the public had shrunk considerably, even though its capital was still in private hands. By contrast, deposits of commercial banks and savings banks had increased rapidly. In 1900, commercial banks'

<sup>56</sup> Martín-Aceña (2012a).

<sup>57</sup> Martín-Aceña (2012a) and Comín (2012).

sight and term deposits totalled 374 million pesetas, 32% of the total, whereas by 1935 they amounted to 7,262 million, 67% of total bank money. Similarly, savings banks' deposits, which made up 11% of the total at the turn of the century, had risen to 27% by 1935.

The level of financial intermediation rose significantly. According to Raymond Goldsmith's financial intermediation ratio, defined as the ratio of total assets issued by credit institutions to the market value of national wealth (or where appropriate GDP), the degree of development of the Spanish banking system in 1900 was well below the European average (39 compared with 104). By 1935, the Spanish ratio had doubled to around 75,<sup>58</sup> but it was still below the European level and also below the 100 mark which is the minimum level indicative of an advanced financial sector.

The Spanish Civil War years (1936-39) present special features. First, the data available are limited and less reliable, and second, the political division of the country was reflected in the financial and monetary situation.<sup>59</sup> It is possible, however, to make an at least provisional reconstruction of a narrow money supply (currency plus current accounts) for some of the months between July 1936 and March 1939; the results of this exercise are set out in Table 1. The figure for July 1936 is quite plausible when compared with that for December 1935. The figure for March 1939 may also be plausible bearing in mind that once the Civil War was over there was a huge reduction in the money stock: banknotes issued by the Republican Banco de España were declared not to be legal tender and bank deposits in the areas that had been controlled by the Republican authorities were reduced by applying a conversion scale.<sup>60</sup> Accordingly, if these data are admitted, the average rate of growth for the 3-year period was 52%, which is much higher even than that estimated for the Great War years (18.5%).

#### MONEY SUPPLY (M1), 1936-1939

TABLE 1

Million pesetas

Date	Currency + current accounts
1936, July	8,894
1936, December	11,461
1937, June	15,634
1937, December	22,219
1938, June	27,900
1938, December	35,852
1939, March	42,900
Memorandum item	
1935, December	9,027
1941, December	27,759

SOURCE: Martín-Aceña, Martínez Ruiz and Pons (2012).

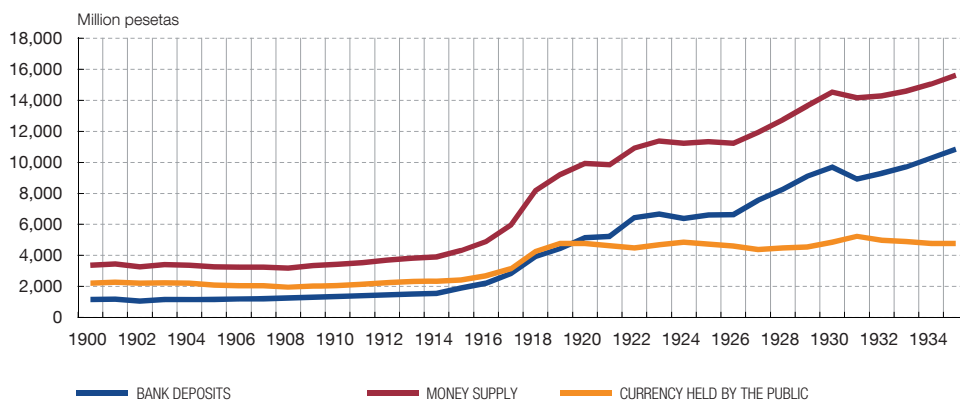
<sup>58</sup> Martín-Aceña (1987).

<sup>59</sup> Martín-Aceña, (2012b).

<sup>60</sup> Martín-Aceña (1994).

MONEY SUPPLY, 1900-1935

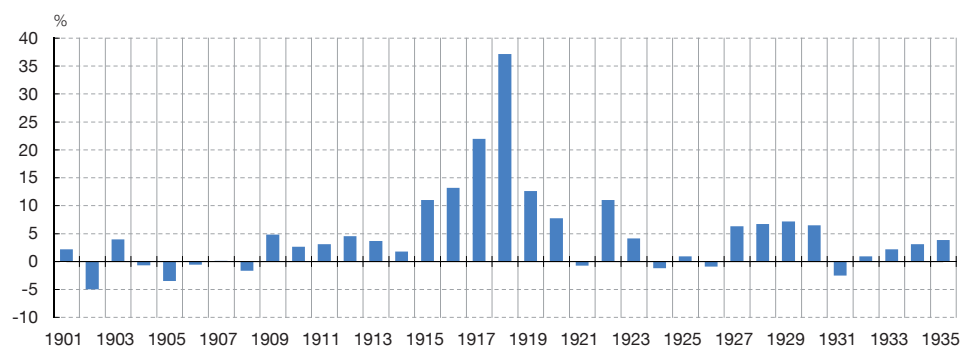
CHART 6



SOURCE: Statistical Annex.

MONEY SUPPLY, ANNUAL CHANGE, 1900-1935

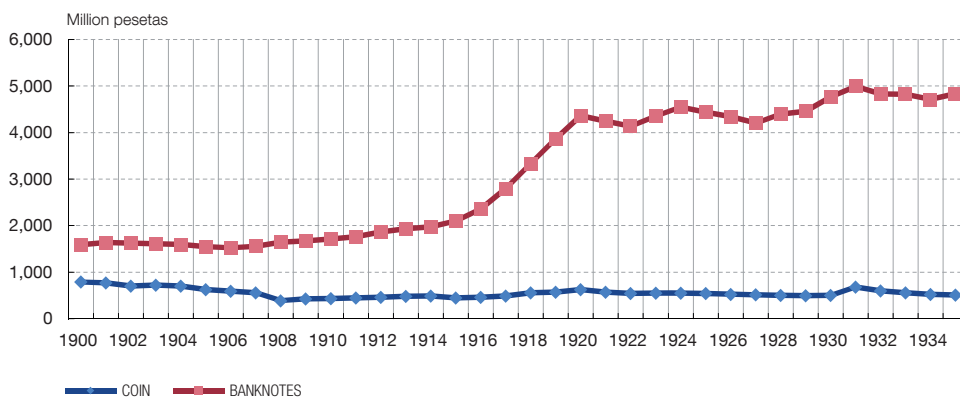
CHART 7



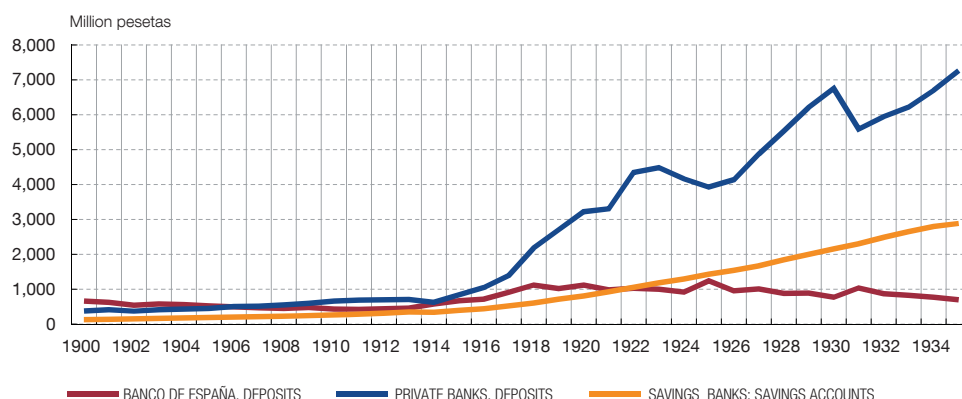
SOURCE: Statistical Annex.

CURRENCY IN CIRCULATION, COMPONENTS, 1900-1935

CHART 8



SOURCE: Statistical Annex.



SOURCE: Statistical Annex.

### 3.3 The end of an era: the money between 1940-98

The history of the second half of the 20th century, up to the disappearance of the peseta, despite being a continuation of the patterns observed in the earlier periods, also offers some contrasts. As Chart 10 clearly shows, the two decades between 1941 and 1961 were characterised by an unprecedented rate of monetary expansion. The money stock grew from 35,599 million pesetas to 457,230 million, i.e., at an average rate of growth of 12.8%. The rate was very similar in both decades, although slightly higher in the second (13.4% compared with 12.1%). The year-on-year changes show double-digit growth in half of the years, and growth of more than 5% in all the others.

Both currency and deposits contributed to money supply growth, although not to the same extent: currency grew by a factor of 6.4 and deposits by a factor of 16.5. The declining importance of coins and notes, already apparent earlier, was confirmed in this period: by 1961 they accounted for just 18.0% of all the money held by the public, while deposits had become economic agents' preferred means of payment. Although the status quo in the banking system, imposed by decree at the end of the Civil War, undoubtedly slowed the opening of new credit institutions, existing banks nevertheless rapidly expanded their balance sheets. All product types, whether sight or term deposits or savings accounts, followed an unbroken upward path. Only the Banco de España's current accounts bucked this trend; their sluggish growth was an unequivocal sign of its declining importance as a credit institution, even though its capital remained in private hands.

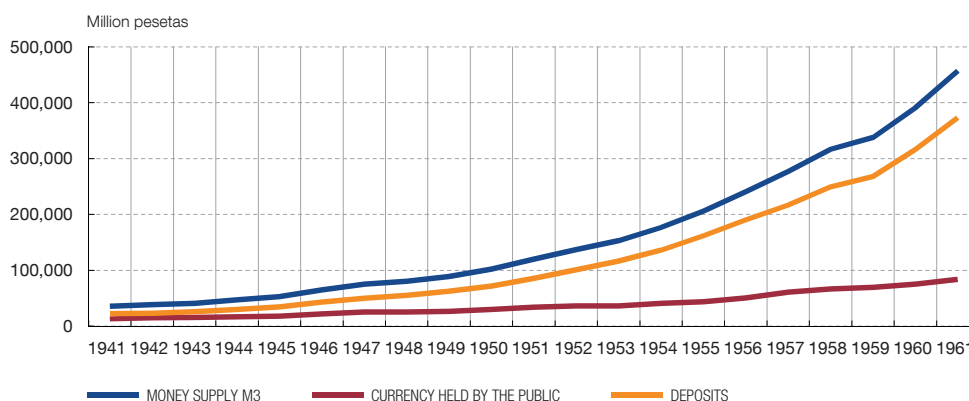
Underlying this decline in cash and increased use of deposits were a variety of factors, with differing degrees of importance. The main factor was the growth of the Spanish economy: as elsewhere, rising GDP led to a substitution of coins and notes, accompanied also by an expansion of banks' branch networks both in rural and urban areas. The strong interventionism of the State in the financial sector also gave stability to credit institutions as a whole, with few banking failures or bankruptcies, which may have helped convince the public to hold their liquid funds in the form of deposits rather than cash.

Chart 11 plots the trajectory of the money stock over the subsequent period, between 1962, when the Banco de España was nationalised, and 1998, the final year in the peseta data series. Over this period the money stock, as defined in the preceding section, jumped from 541,927 million pesetas to 75,756 billion pesetas, i.e., it expanded by a factor of 140. The average rate of growth over these thirty-six years was therefore 13.7%, which, interestingly, is identical to that of the preceding twenty years.

The growth of the money supply was driven by the growth of bank deposits, while currency held by the public grew more moderately and its share of the total dropped from 18% to 11%. Also, as is entirely to be expected, banknotes accounted for the bulk of currency in circulation (96%). The two types of deposits considered, current accounts and sight deposits, accounted for 30% in 1962 and for 29% in 1998, confirming a trend that had begun much earlier.

**MONEY STOCK, 1941-1961**

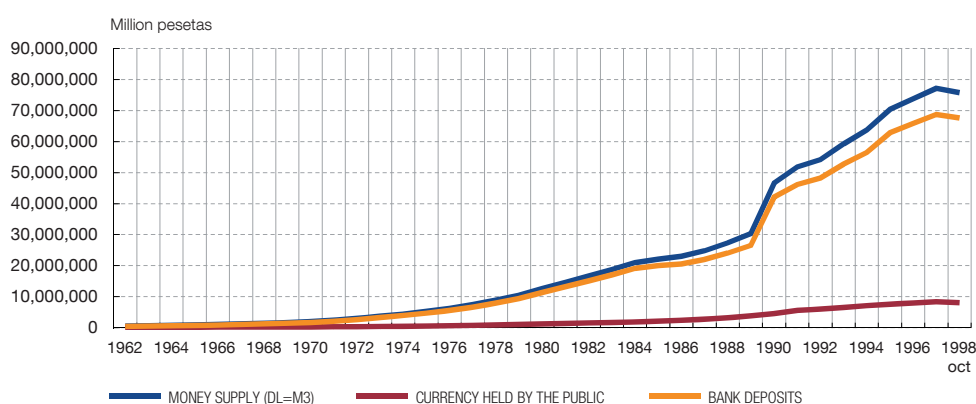
**CHART 10**



SOURCE: Statistical Annex.

**MONEY SUPPLY AND COMPONENTS, 1962-1998**

**CHART 11**



SOURCE: Statistical Annex.

### 3.4 Money, income and prices: a graphical representation

This short section provides a simple graphical representation of the long-term relationships between gross domestic product and money supply (using M3, the broadest definition) and between money supply and prices. The starting point for the comparison between these variables is 1850, the first year for which solid and reliable estimates are available.<sup>61</sup> The monetary data are those presented in this paper, with the figures for each of the periods linked together to construct a complete series.

#### Money and income

Chart 12 shows the continuous and growing monetisation of the economy since the mid-19th century, identifying the periods in which it was fastest. The liberalisation of the banking system in 1856 underlies the acceleration of the process as from that year. This growth phase was brought to a halt by the profound crisis of 1866, which led to the failure of half of the institutions created in the preceding decade. There followed a phase of sluggish growth, which picked up speed towards the close of the century as a result of the monetary expansion associated with the colonial wars at the end of the century. The financial stabilisation programme in the early 20th century set the M3/GDP ratio on a downward course, despite the wave of new bank openings that marked the early years of the new century. In the inter-war period (1914-35), the monetisation of Spain's economy picked up speed again and made further headway. After the Civil War and two decades of autarky, which were marked by scant economic and financial progress, the monetisation of the Spanish economy regained momentum and the ratio of money to national income reached a peak in the mid-1970s. The subsequent decline in the M3/GDP ratio is explained, first by the fight against inflation, second by the adoption of a monetary policy characterised by monetary stability after Spain joined the European Communities, and lastly by the preparations to join the euro from its inception. Financial innovation also contributed, with new payment instruments not included in M3. Overall, the ratio rose from 15% in 1850 to 42% in 1935. After peaking at 93% in 1973, the Spanish economy's degree of monetisation, measured in terms of M3, had fallen back to 65% by the end of the 20th century.

Chart 13 shows the annual changes in GDP and the money supply, allowing several – albeit provisional – conclusions to be drawn. The swings in GDP and money stock in the 19th century and the first third of the 20th century were just as sharp as in subsequent decades: in the first case, from 1850 to 1935, between 10% and –5%, and in the second, in this case always positive, between 10% and 20%. The periods that stand out were the First World War, with annual rates of change in the money supply much higher than in earlier or later years, and also the post-war years (1940s-1970s) – with some exceptions – that were characterised by high rates of change, exceeding those estimated for the period 1980-98.

A simple calculation of the correlation coefficients shows the value of the coefficient to be 0.44 in the period 1850-1935 and 0.60 in the period 1940-98. This reveals the degree of association or coincidence between the two variables to be significant and even high in the second period.

<sup>61</sup> For GDP, Prados de la Escosura (2003). For prices, the recent estimates by Maluquer de Motes (2013).

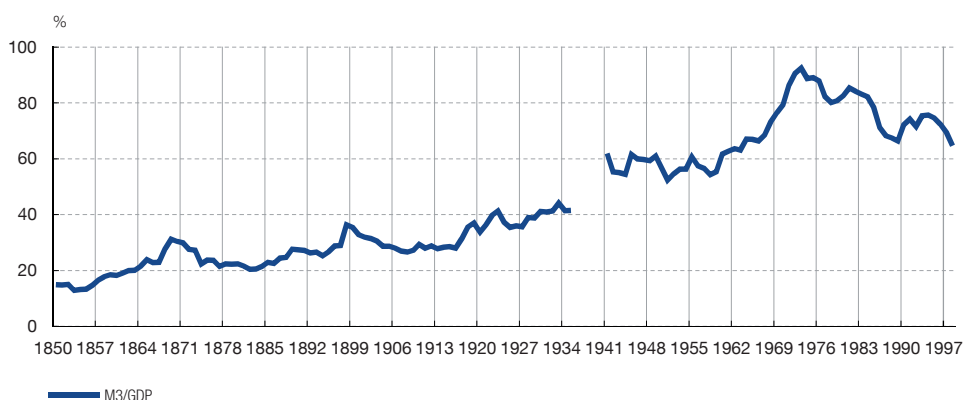
## Money and prices

As Chart 14 shows, over the long term these two variables have followed remarkably similar paths. The relatively sluggish increase in the money stock up until the mid-20th century was accompanied by clear price stability, interrupted only during the First World War. The picture changed after 1940, with faster money supply growth and a much higher inflation rate than in the preceding period. In both cases, the rapid increases registered between 1940 and 1980 came to a halt in the last decade and a half.

Lastly, Chart 15 shows the annual change in M3 and prices. The differences are more visible in the first 100 years than in the following years where the match seems to be closer. However, the simple correlation coefficients show them to be very close: 0.48 for the period 1850-1935 and 0.46 for the period 1942-1998.

MONEY SUPPLY TO GDP RATIO, 1850-1998

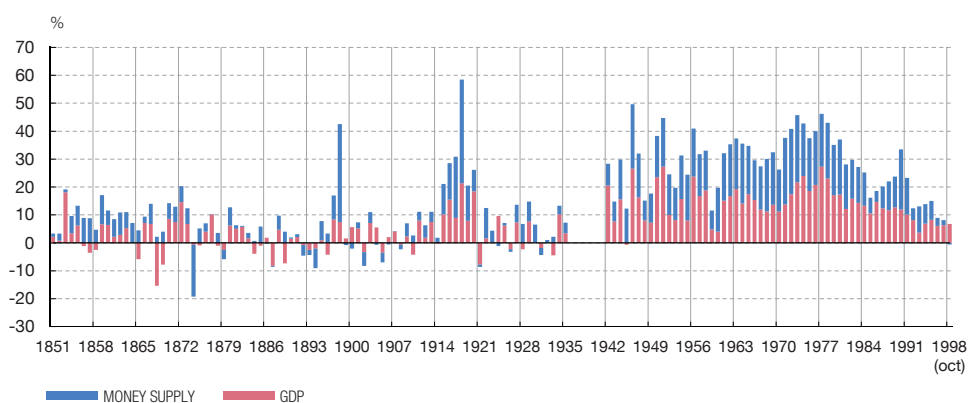
CHART 12



SOURCES: Statistical Annex and Prados de la Escosura (2003).

ANNUAL CHANGE IN GDP AND MONEY SUPPLY, 1850-1998

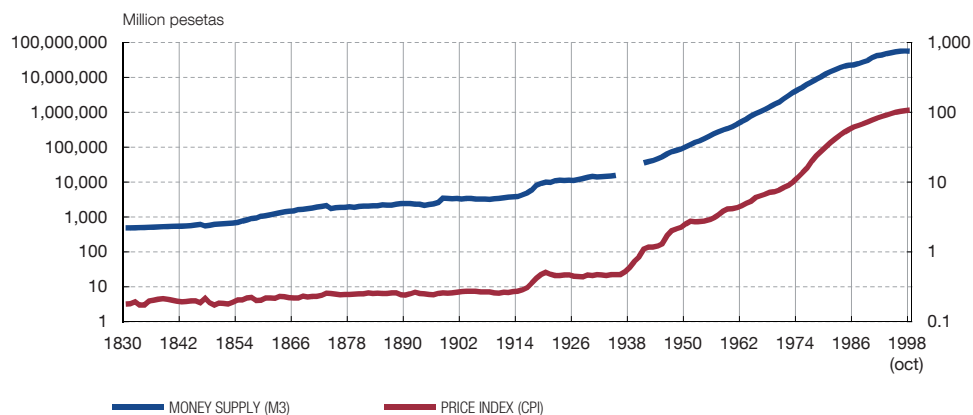
CHART 13



SOURCES: Statistical Annex and Prados de la Escosura (2003).

MONEY SUPPLY (M3), PRICE INDEX (CPI), 1830-1998

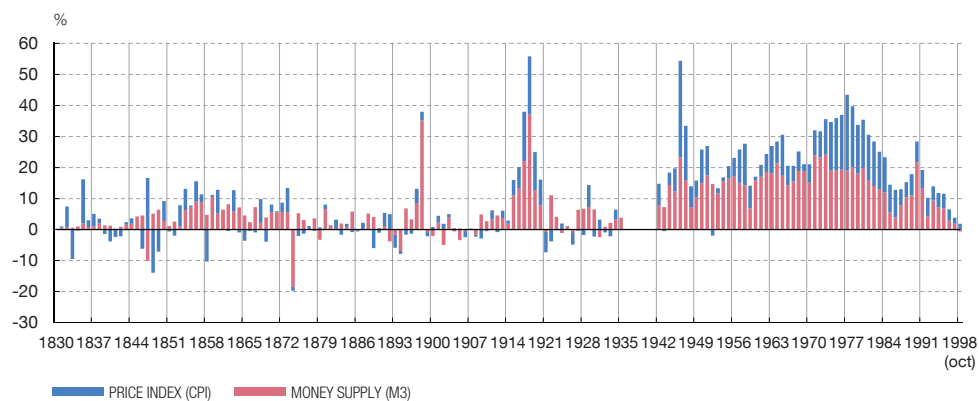
CHART 14



SOURCES: Statistical Annex and Maluquer de Motes (2013).

ANNUAL CHANGE IN MONEY SUPPLY (M3) AND PRICES, 1830-1998

CHART 15



SOURCES: Statistical Annex and Maluquer de Motes (2013).

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## STATISTICAL ANNEX: I. 1830-1873

METALLIC COINS IN CIRCULATION, 1830-1873

TABLE I-1

Million pesetas

Years	Gold 1	Silver 2	Gold and silver 3 (1 + 2)
1830	392	100	492
1831	393	101	494
1832	394	101	495
1833	395	102	497
1834	398	102	500
1835	404	104	508
1836	405	105	510
1837	407	107	514
1838	411	111	522
1839	417	112	529
1840	423	113	536
1841	427	114	541
1842	430	115	545
1843	434	116	550
1844	438	116	554
1845	446	116	562
1846	450	116	566
1847	453	116	569
1848	454	120	574
1849	454	123	577
1850	471	130	601
1851	474	136	610
1852	474	144	618
1853	474	154	628
1854	495	164	659
1855	532	172	704
1856	577	178	755
1857	608	181	789
1858	616	191	807
1859	667	196	863
1860	724	202	926
1861	819	211	1,030
1862	889	220	1,109
1863	937	224	1,161
1864	1,038	239	1,277
1865	1,100	250	1,350
1866	1,141	266	1,407
1867	1,190	289	1,479
1868	1,208	313	1,521
1869	1,266	323	1,589
1870	1,341	353	1,694
1871	1,386	391	1,777
1872	1,449	424	1,873
1873	1,537	462	1,999

SOURCES: Years 1830-1855: Tortella, "El circulante metálico"; years 1856-1873: Banco de España, *Ensayos sobre la economía española a mediados del siglo XIX* (1970).

## BANKNOTES IN CIRCULATION, 1830-1873

TABLE I-2

Million pesetas

Years	Banco de España	Provincial banks of issue	Total
	1	2	3 (1 + 2)
1830	1.0	0.0	1.0
1831	2.0	0.0	2.0
1832	3.0	0.0	3.0
1833	3.0	0.0	3.0
1834	3.0	0.0	3.0
1835	4.5	0.0	4.5
1836	4.5	0.0	4.5
1837	4.5	0.0	4.5
1838	4.5	0.0	4.5
1839	4.5	0.0	4.5
1840	4.4	0.0	4.4
1841	4.3	0.0	4.3
1842	4.2	0.0	4.2
1843	6.1	0.0	6.1
1844	15.0	3.8	18.8
1845	15.1	14.4	29.4
1846	20.0	31.6	51.6
1847	35.6	7.4	43.0
1848	45.1	8.1	53.2
1849	25.0	6.1	31.1
1850	25.0	5.0	30.0
1851	25.0	4.0	29.0
1852	30.0	3.4	33.4
1853	30.0	3.6	33.6
1854	30.0	3.8	33.8
1855	30.0	5.6	35.6
1856	39.7	17.3	57.0
1857	45.7	25.8	71.6
1858	52.0	34.0	86.0
1859	66.9	45.4	112.3
1860	63.5	54.7	118.2
1861	44.9	55.1	100.0
1862	52.1	47.9	100.0
1863	68.3	49.5	117.8
1864	71.8	53.0	124.8
1865	61.9	52.8	114.7
1866	44.6	45.2	89.8
1867	49.4	46.0	95.4
1868	55.1	47.8	102.9
1869	53.1	42.9	96.0
1870	61.1	38.0	99.1
1871	79.6	42.6	122.2
1872	68.2	46.6	114.8
1873	55.0	42.3	97.3

SOURCES: Banco de España, *Ensayos sobre la economía española a mediados del siglo XIX* (1970), Blasco y Sudrià, *El Banco de Barcelona, 1844-1874* (2010), Ruiz Vélez-Frías, *Los bancos de emisión en Cádiz en el siglo XIX* (1977), Santillán, *Memoria histórica sobre los bancos nacionales* (1865 y 1982) and Tedde de Lorca, *El Banco de San Carlos* (1988).

## CURRENCY IN CIRCULATION AND CURRENCY HELD BY THE PUBLIC, 1830-1873

TABLE I-3

Million pesetas

Years	Gold and silver	Banknotes	Currency in circulation	Bank reserves (vault cash)	Currency held by the public
	1	2	3	4	5
			(1 + 2)	4	(3 - 4)
1830	492	1.0	493.0	6.8	486.2
1831	494	2.0	496.0	6.6	489.4
1832	495	3.0	498.0	6.1	491.9
1833	497	3.0	500.0	5.5	494.5
1834	500	3.0	503.0	5.1	497.9
1835	508	4.5	512.5	5.5	507.0
1836	510	4.5	514.5	3.6	510.9
1837	514	4.5	518.5	2.4	516.1
1838	522	4.5	526.5	0.9	525.6
1839	529	4.5	533.5	1.4	532.1
1840	536	4.4	540.4	3.1	537.3
1841	541	4.3	545.3	6.8	538.5
1842	545	4.2	549.2	6.1	543.1
1843	550	6.1	556.1	5.5	550.6
1844	554	18.8	572.8	19.2	553.6
1845	562	29.4	591.4	20.1	571.3
1846	566	51.6	617.6	29.7	587.9
1847	569	43.0	612.0	77.7	534.3
1848	574	53.2	627.2	57.8	569.4
1849	577	31.1	608.1	12.5	595.6
1850	601	30.0	631.0	22.3	608.7
1851	610	29.0	639.0	31.2	607.8
1852	618	33.4	651.4	41.7	609.7
1853	628	33.6	661.6	33.5	628.1
1854	659	33.8	692.8	25.6	667.2
1855	704	35.6	739.6	36.9	702.7
1856	755	57.0	812.0	51.9	760.1
1857	789	71.6	860.6	49.3	811.2
1858	807	86.0	893.0	55.9	837.1
1859	863	112.3	975.3	70.4	904.9
1860	926	118.2	1,044.2	82.2	962.0
1861	1,030	100.0	1,130.0	70.4	1,059.6
1862	1,109	100.0	1,209.0	75.0	1,133.9
1863	1,161	117.8	1,278.8	80.8	1,198.1
1864	1,277	124.8	1,401.8	66.7	1,335.0
1865	1,350	114.7	1,464.7	80.7	1,384.0
1866	1,407	89.8	1,496.8	96.2	1,400.6
1867	1,479	95.4	1,574.4	105.8	1,468.5
1868	1,521	102.9	1,623.9	91.0	1,532.9
1869	1,589	96.0	1,685.0	115.8	1,569.2
1870	1,694	99.1	1,793.1	181.5	1,611.6
1871	1,777	122.2	1,899.2	215.0	1,684.2
1872	1,873	114.8	1,987.8	180.6	1,807.2
1873	1,999	97.3	2,096.3	112.5	1,983.8

SOURCES: Tables I-1 and Table I-2.

## BANK DEPOSITS, 1830-1873

TABLE I-4

Million pesetas

Years	Banco de España	Provincial banks of issue	Subtotal	Credit companies	Savings banks	Total
	1	2	3	4	5	6
			(1 + 2)	4	5	3 + 4 + 5
1830	0.3	0.0	0.3			0.3
1831	0.0	0.0	0.0			0.0
1832	0.1	0.0	0.1			0.1
1833	0.1	0.0	0.1			0.1
1834	1.6	0.0	1.6			1.6
1835	1.9	0.0	1.9			1.9
1836	1.9	0.0	1.9			1.9
1837	1.6	0.0	1.6			1.6
1838	1.8	0.0	1.8			1.8
1839	1.8	0.0	1.8		0.3	2.1
1840	2.4	0.0	2.4		0.8	3.2
1841	2.6	0.0	2.6		1.0	3.6
1842	2.6	0.0	2.6		1.0	3.6
1843	3.1	0.0	3.1		1.2	4.3
1844	4.7	5.2	9.8		1.7	11.5
1845	4.9	9.5	14.4		2.3	16.7
1846	9.4	14.3	23.7		3.0	26.7
1847	11.4	3.1	14.4		3.6	18.0
1848	7.0	1.0	8.0		2.9	10.9
1849	13.7	4.5	18.2		3.5	21.8
1850	13.3	8.0	21.3		4.2	25.5
1851	18.9	9.5	28.4		4.8	33.2
1852	26.3	16.0	42.3		5.4	47.8
1853	17.3	14.0	31.3		4.7	36.0
1854	18.3	15.0	33.3		5.3	38.6
1855	30.0	17.5	47.5		5.9	53.4
1856	41.1	15.4	56.5		6.8	63.3
1857	33.8	17.0	50.7	26.3	7.5	84.6
1858	45.1	18.3	63.5	28.4	8.5	100.4
1859	57.3	25.1	82.5	38.9	9.3	130.7
1860	43.3	25.9	69.2	47.1	10.3	126.6
1861	35.7	17.8	53.6	32.5	11.2	97.3
1862	54.6	17.8	72.4	32.4	11.9	116.6
1863	56.8	19.4	76.3	35.4	12.2	123.8
1864	22.1	16.0	38.1	29.1	12.5	79.7
1865	22.2	21.2	43.4	38.6	11.7	93.7
1866	18.0	29.3	47.3	53.3	11.1	111.6
1867	47.4	33.3	80.7	60.7	11.1	152.5
1868	28.8	29.5	58.2	53.6	10.5	122.3
1869	40.6	36.1	76.7	65.7	8.2	150.6
1870	78.3	41.7	120.0	75.9	9.3	205.2
1871	75.7	51.8	127.5	94.2	11.4	233.1
1872	62.5	50.5	113.0	91.9	13.9	218.7
1873	43.7	34.9	78.6	63.5	12.6	154.7

SOURCES: Banco de España, *Ensayos sobre la economía española a mediados del siglo XIX* (1970), *Estadísticas Históricas de España*, vol. II, table 9.13 (2005), Blasco y Sudrià, *El Banco de Barcelona, 1844-1874* (2010), Santillán, *Memoria histórica sobre los bancos nacionales* (1865 y 1982), Tedde de Lorca, *El Banco de San Carlos* (1988) and Títos Martínez, "Las Cajas de Ahorros, 1853-1962" (1999).

## HIGH-POWERED MONEY, 1830-1873

TABLE I-5

Million pesetas

Years	Coins in circulation	Banknotes in circulation	High-powered money
	1	2	3 (1 + 2)
1830	492	1.0	493.0
1831	494	2.0	496.0
1832	495	3.0	498.0
1833	497	3.0	500.0
1834	500	3.0	503.0
1835	508	4.5	512.5
1836	510	4.5	514.5
1837	514	4.5	518.5
1838	522	4.5	526.5
1839	529	4.5	533.5
1840	536	4.4	540.4
1841	541	4.3	545.3
1842	545	4.2	549.2
1843	550	6.1	556.1
1844	554	18.8	572.8
1845	562	29.4	591.4
1846	566	51.6	617.6
1847	569	43.0	612.0
1848	574	53.2	627.2
1849	577	31.1	608.1
1850	601	30.0	631.0
1851	610	29.0	639.0
1852	618	33.4	651.4
1853	628	33.6	661.6
1854	659	33.8	692.8
1855	704	35.6	739.6
1856	755	57.0	812.0
1857	789	71.6	860.6
1858	807	86.0	893.0
1859	863	112.3	975.3
1860	926	118.2	1,044.2
1861	1,030	100.0	1,130.0
1862	1,109	100.0	1,209.0
1863	1,161	117.8	1,278.8
1864	1,277	124.8	1,401.8
1865	1,350	114.7	1,464.7
1866	1,407	89.8	1,496.8
1867	1,479	95.4	1,574.4
1868	1,521	102.9	1,623.9
1869	1,589	96.0	1,685.0
1870	1,694	99.1	1,793.1
1871	1,777	122.2	1,899.2
1872	1,873	114.8	1,987.8
1873	1,999	97.3	2,096.3

SOURCE: Table I-3.

# MONEY SUPPLY, 1830-1873

TABLE I-6

Million pesetas

Years	Currency held by the public	Bank deposits	Money supply	Money supply
	1	2	3 (1 + 2)	4
1830	486.2	0.3	486.5	
1831	489.4	0.0	489.5	
1832	491.9	0.1	492.0	
1833	494.5	0.1	494.6	
1834	497.9	1.6	499.5	
1835	507.0	1.9	508.9	
1836	510.9	1.9	512.8	
1837	516.1	1.6	517.7	
1838	525.6	1.8	527.4	
1839	532.1	2.1	534.2	
1840	537.3	3.2	540.5	
1841	538.5	3.6	542.0	
1842	543.1	3.6	546.7	
1843	550.6	4.3	555.0	
1844	553.6	11.5	565.0	
1845	571.3	16.7	588.0	
1846	587.9	26.7	614.6	
1847	534.3	18.0	552.3	
1848	569.4	10.9	580.3	
1849	595.6	21.8	617.3	
1850	608.7	25.5	634.1	
1851	607.8	33.2	641.0	
1852	609.7	47.8	657.4	
1853	628.1	36.0	664.1	
1854	667.2	38.6	705.8	
1855	702.7	53.4	756.1	
1856	760.1	63.3	823.4	2,129
1857	811.2	84.6	895.8	2,117
1858	837.1	100.4	937.5	1,973
1859	904.9	130.7	1,035.6	1,993
1860	962.0	126.6	1,088.6	1,991
1861	1,059.6	97.3	1,156.8	1,928
1862	1,133.9	116.6	1,250.6	1,848
1863	1,198.1	123.8	1,321.9	1,707
1864	1,335.0	79.7	1,414.8	1,544
1865	1,384.0	93.7	1,477.7	1,330
1866	1,400.6	111.6	1,512.2	1,170
1867	1,468.5	152.5	1,621.0	1,218
1868	1,532.9	122.3	1,655.2	1,173
1869	1,569.2	150.6	1,719.8	1,388
1870	1,611.6	205.2	1,816.8	1,532
1871	1,684.2	233.1	1,917.3	1,621
1872	1,807.2	218.7	2,026.0	1,781
1873	1,983.8	154.7	2,138.5	1,868

SOURCES: Tables I-3 and I-4. Col. 4: Nuño, Tedde and Moro, *Money dynamics with multiple banks of issue: evidence from Spain* (2011).

## STATISTICAL ANNEX: II. 1874-1899

### METALLIC COINS IN CIRCULATION, 1874-1899

TABLE II-1

Million pesetas

Years	Gold stock	Gold in the Banco de España	Gold coins in circulation	Silver stock	Silver in the Banco de España	Silver coins in circulation
	1	2	3	4	5	6
			(1 – 2)			(4 – 5)
1874	1,167	18.2	1,148.8	464.4	51.1	413.3
1875	1,128	36.3	1,091.7	516.0	56.8	459.2
1876	1,089	45.9	1,043.1	562.5	61.9	500.6
1877	1,050	45.2	1,004.8	595.7	65.5	530.2
1878	1,011	52.9	958.1	639.6	70.4	569.2
1879	972	101.4	870.6	657.4	72.3	585.1
1880	933	104.7	828.3	656.9	72.3	584.6
1881	894	125.2	768.8	660.1	100.7	559.4
1882	855	49.9	805.1	707.2	74.8	632.4
1883	816	51.1	764.9	744.7	59.9	684.8
1884	777	70.2	706.8	772.9	97.7	675.2
1885	737	79.9	657.1	785.0	72.1	712.9
1886	698	109.5	588.5	793.8	128.7	665.1
1887	659	90.6	568.4	786.8	219.3	567.5
1888	620	105.2	514.8	798.0	218.9	579.1
1889	581	152.8	428.2	791.9	122.6	669.3
1890	542	168.4	373.6	819.9	79.1	740.8
1891	503	201.1	301.9	852.8	119.5	733.3
1892	464	243.3	220.7	859.1	132.8	726.3
1893	425	249.8	175.2	878.2	176.7	701.5
1894	386	256.7	129.3	912.3	279.2	633.1
1895	347	240.5	106.5	898.7	259.9	638.8
1896	308	240.8	67.2	930.1	253.7	676.4
1897	279	278.9	0.1	949.3	259.0	690.3
1898	342	341.6	0.4	1178.1	197.4	980.7
1899	406	405.7	0.3	1275.6	363.4	912.2

SOURCES: Anes, "Estimación de la moneda de plata existente en España entre 1874 y 191915" (1974) and Tortella, "Estimación del stock de oro en España, 1874-1914" (1974).

## CURRENCY IN CIRCULATION AND CURRENCY HELD BY THE PUBLIC, 1874-1899

TABLE II-2

Million pesetas

Years	Metallic coins in circulation	Banknotes in circulation	Currency in in circulation	Bank reserves (vault cash)	Currency held by the public
	1	2	3	4	5
			(1 + 2)		(3 - 4)
1874	1,562.1	71.1	1,633.2	56.0	1,577.2
1875	1,550.9	127.8	1,678.7	57.2	1,621.6
1876	1,543.7	158.5	1,702.2	42.5	1,659.7
1877	1,535.0	156.6	1,691.6	56.1	1,635.5
1878	1,527.3	174.4	1,701.7	58.2	1,643.5
1879	1,455.7	192.2	1,647.9	69.4	1,578.5
1880	1,412.9	243.1	1,656.0	106.3	1,549.8
1881	1,328.2	346.2	1,674.4	113.9	1,560.5
1882	1,437.5	333.6	1,771.1	111.7	1,659.4
1883	1,449.7	350.9	1,800.6	100.0	1,700.6
1884	1,382.0	383.3	1,765.3	108.1	1,657.2
1885	1,370.0	469.0	1,839.0	96.0	1,743.0
1886	1,253.6	526.6	1,780.2	113.3	1,666.9
1887	1,135.9	612.1	1,748.0	153.7	1,594.3
1888	1,093.9	719.7	1,813.6	140.9	1,672.7
1889	1,097.5	735.5	1,833.0	130.3	1,702.7
1890	1,114.4	734.1	1,848.5	120.8	1,727.7
1891	1,035.2	811.7	1,846.9	155.4	1,691.5
1892	947.0	884.1	1,831.1	150.7	1,680.4
1893	876.7	927.7	1,804.4	148.6	1,655.8
1894	762.4	909.7	1,672.1	105.4	1,566.7
1895	745.3	994.4	1,739.7	149.8	1,589.9
1896	743.6	1,031.4	1,775.0	152.3	1,622.7
1897	690.4	1,206.3	1,896.7	175.9	1,720.8
1898	981.1	1,444.0	2,425.1	269.9	2,155.2
1899	912.5	1,517.9	2,430.4	211.7	2,218.7

SOURCES: Table II-1; Anes, "Balances sectorizados del Banco de España" (1974) and Tedde de Lorca, "El dinero legal en la caja de los bancos" (1974).

## BANK DEPOSITS, 1874-1899

TABLE II-3

Million pesetas

Years	Banco de España Current accounts	Banks demand deposits	Banks time deposits	Banks savings accounts	Banks total deposits	Savings banks	Deposits total
	1	2	3	4	5	6	7
					(2 + 3 + 4)		(5 + 6)
1874	71.1	62.3	13.4	0.8	76.5	16.5	164.1
1875	87.1	80.6	17.2	1.1	98.9	23.5	209.5
1876	95.3	80.3	20.6	1.4	102.3	30.0	227.6
1877	101.6	92.1	20.8	2.0	114.9	36.7	253.2
1878	150.4	92.0	23.0	2.6	117.6	43.5	311.5
1879	148.2	87.1	23.2	3.5	113.8	49.6	311.6
1880	192.4	174.8	36.2	4.6	215.6	55.9	463.9
1881	213.8	160.4	39.7	5.7	205.8	59.9	479.5
1882	156.8	121.0	37.4	7.4	165.8	62.9	385.5
1883	143.6	125.1	40.5	8.9	174.5	65.6	383.7
1884	204.1	116.1	42.3	9.3	167.7	68.4	440.2
1885	234.1	111.8	45.5	10.7	168.0	73.0	475.1
1886	280.2	118.8	50.2	11.6	180.6	82.1	542.9
1887	328.0	124.7	53.7	13.9	192.3	89.2	609.5
1888	348.2	140.8	59.7	16.9	217.4	78.2	643.8
1889	362.8	172.7	61.1	18.8	252.6	90.5	705.9
1890	401.6	116.6	57.2	19.8	193.6	97.6	692.8
1891	443.3	131.8	55.5	22.7	210.0	102.3	755.6
1892	367.7	120.9	52.8	25.5	199.2	105.9	672.8
1893	342.8	128.2	47.6	28.9	204.7	108.9	656.4
1894	280.8	106.8	46.8	34.5	188.1	114.7	583.6
1895	360.8	136.4	47.8	42.7	226.9	118.2	705.9
1896	376.2	150.6	50.0	47.5	248.1	122.7	747.0
1897	442.9	177.4	51.4	52.6	281.4	126.6	850.9
1898	790.3	277.8	62.9	64.7	405.4	124.2	1,319.9
1899	726.1	243.7	66.2	64.7	374.6	126.1	1,226.8

SOURCES: Anes, "Balances sectorizados del Banco de España" (1974), Tedde and Tortella, "Censo y balances normalizados de los bancos privados españoles" (1974) and Titos Martínez, "Las Cajas de Ahorros, 1853-1962" (1999).

## HIGH-POWERED MONEY: COMPOSITION, 1874-1899

TABLE II-4

Million pesetas

Years	Currency held by the public	Bank reserves (vault cash)	Bank reserves (deposits at Banco de España)	Bank reserves (credit account available at Banco de España)	Bank reserves (total)	High-powered money
	1	2	3	4	5 (2 + 3 + 4)	6 (1 + 5)
1874	1,577.2	56.0	71.1	0.0	127.1	1,704.3
1875	1,621.6	57.2	87.1	0.0	144.3	1,765.8
1876	1,659.7	42.5	95.3	0.0	137.8	1,797.5
1877	1,635.5	56.1	101.6	0.0	157.7	1,793.2
1878	1,643.5	58.2	150.4	3.4	212.0	1,855.5
1879	1,578.5	69.4	148.2	11.5	229.1	1,807.6
1880	1,549.8	106.3	192.4	18.4	317.1	1,866.8
1881	1,560.5	113.9	213.8	20.8	348.5	1,909.0
1882	1,659.4	111.7	156.8	13.5	282.0	1,941.4
1883	1,700.6	100.0	143.6	15.2	258.8	1,959.4
1884	1,657.2	108.1	204.1	11.8	324.0	1,981.2
1885	1,743.0	96.0	234.1	19.4	349.5	2,092.5
1886	1,666.9	113.3	280.2	19.1	412.6	2,079.5
1887	1,594.3	153.7	328.0	26.9	508.6	2,102.9
1888	1,672.7	140.9	348.2	23.5	512.6	2,185.3
1889	1,702.7	130.3	362.8	26.3	519.4	2,222.1
1890	1,727.7	120.8	401.6	33.2	555.6	2,283.3
1891	1,691.5	155.4	443.3	44.1	642.8	2,334.3
1892	1,680.4	150.7	367.7	28.4	546.8	2,227.2
1893	1,655.8	148.6	342.8	42.2	533.6	2,189.4
1894	1,566.7	105.4	280.8	33.9	420.1	1,986.8
1895	1,589.9	149.8	360.8	42.0	552.6	2,142.5
1896	1,622.7	152.3	376.2	107.9	636.4	2,259.1
1897	1,720.8	175.9	442.9	44.9	663.7	2,384.5
1898	2,155.2	269.9	790.3	56.3	1,116.5	3,271.7
1899	2,218.7	211.7	726.1	142.4	1,080.2	3,298.9

SOURCES: Tables II-2 and II-3 and Anes, "Una serie de base monetaria" (1974).

# MONEY SUPPLY, 1874-1899

TABLE II-5

Million pesetas

Years	Currency held by the public	Bank deposits	Money supply
	1	2	3
			(1 + 2)
1874	1,577.2	164.1	1,741.3
1875	1,621.6	209.5	1,831.1
1876	1,659.7	227.6	1,887.3
1877	1,635.5	253.2	1,888.7
1878	1,643.5	311.5	1,955.0
1879	1,578.5	311.6	1,890.1
1880	1,549.8	463.9	2,013.7
1881	1,560.5	479.5	2,040.0
1882	1,659.4	385.5	2,044.9
1883	1,700.6	383.7	2,084.3
1884	1,657.2	440.2	2,097.4
1885	1,743.0	475.1	2,218.1
1886	1,666.9	542.9	2,209.8
1887	1,594.3	609.5	2,203.8
1888	1,672.7	643.8	2,316.5
1889	1,702.7	705.9	2,408.6
1890	1,727.7	692.8	2,420.5
1891	1,691.5	755.6	2,447.1
1892	1,680.4	672.8	2,353.2
1893	1,655.8	656.4	2,312.2
1894	1,566.7	583.6	2,150.3
1895	1,589.9	705.9	2,295.8
1896	1,622.7	747.0	2,369.7
1897	1,720.8	850.9	2,571.7
1898	2,155.2	1,319.9	3,475.1
1899	2,218.7	1,226.8	3,445.5

SOURCES: Tables II-2 and II-3.

# STATISTICAL ANNEX: III. 1900-1935

## CURRENCY IN CIRCULATION AND CURRENCY HELD BY THE PUBLIC

TABLE III-1

Million pesetas

Years	Metallic coins in circulation	Banknotes in circulation	Currency in circulation	Bank reserves	Currency held by the public
	1	2	3	4	5
	1 + 2				
1900	789.1	1,591.6	2,380.7	176.5	2,204.2
1901	768.5	1,638.8	2,407.3	133.6	2,273.7
1902	705.5	1,623.3	2,328.8	117.7	2,211.1
1903	722.2	1,608.7	2,330.9	91.3	2,239.6
1904	702.3	1,599.4	2,301.7	90.5	2,211.2
1905	629.1	1,550.1	2,179.2	82.1	2,097.1
1906	595.3	1,524.8	2,120.1	80.9	2,039.2
1907	558.0	1,557.1	2,115.1	69.7	2,045.4
1908	389.4	1,642.8	2,032.2	78.1	1,954.1
1909	430.1	1,671.0	2,101.1	73.4	2,027.7
1910	432.4	1,715.2	2,147.6	80.0	2,067.6
1911	446.2	1,762.8	2,209.0	77.7	2,131.3
1912	462.7	1,862.8	2,325.5	81.4	2,244.1
1913	483.7	1,931.3	2,415.0	104.7	2,310.3
1914	491.1	1,973.6	2,464.7	120.5	2,344.2
1915	447.1	2,100.2	2,547.3	131.0	2,416.3
1916	459.0	2,360.1	2,819.1	141.0	2,678.1
1917	490.8	2,798.6	3,289.4	151.6	3,137.8
1918	558.6	3,334.3	3,892.9	162.3	3,730.6
1919	570.1	3,866.9	4,437.0	173.1	4,263.9
1920	626.4	4,362.2	4,988.6	184.1	4,804.5
1921	575.1	4,244.0	4,819.1	194.9	4,624.2
1922	544.4	4,137.0	4,681.4	206.3	4,475.1
1923	551.3	4,352.7	4,904.0	212.0	4,692.0
1924	548.8	4,546.7	5,095.5	238.0	4,857.5
1925	547.6	4,439.6	4,987.2	254.6	4,732.6
1926	524.9	4,339.2	4,864.1	265.4	4,598.7
1927	514.9	4,202.4	4,717.3	328.5	4,388.8
1928	502.0	4,397.4	4,899.4	408.6	4,490.8
1929	496.1	4,457.7	4,953.8	406.4	4,547.4
1930	501.0	4,766.6	5,267.6	422.2	4,845.4
1931	685.0	4,992.9	5,677.9	443.3	5,234.6
1932	598.8	4,833.5	5,432.3	445.7	4,986.6
1933	555.9	4,824.6	5,380.5	487.1	4,893.4
1934	522.5	4,710.7	5,233.2	461.4	4,771.8
1935	511.6	4,836.6	5,348.2	579.4	4,768.8

SOURCE: Martín-Aceña: *La cantidad de dinero en España* (1985).

## BANK DEPOSITS, 1900-1935

TABLE III-2

Million pesetas

Years	Banco de España	Banks demand deposits	Banks time deposits	Saving banks saving accounts	Deposits total
	1	2	3	4	5
	1 + 2 + 3 + 4				
1900	661.8	246.2	128.1	131.0	1,167.1
1901	620.8	278.9	134.1	136.7	1,170.5
1902	539.0	224.9	148.6	148.7	1,061.2
1903	582.9	238.9	174.4	165.3	1,161.5
1904	558.7	241.7	190.9	174.6	1,165.9
1905	523.1	238.3	208.9	191.1	1,161.4
1906	494.2	274.9	228.4	201.9	1,199.4
1907	473.8	275.8	239.1	208.2	1,196.9
1908	446.8	300.0	252.7	234.0	1,233.5
1909	474.6	325.4	268.0	244.3	1,312.3
1910	437.2	371.6	286.9	263.5	1,359.2
1911	427.2	387.5	303.0	284.0	1,401.7
1912	438.6	383.9	314.5	311.3	1,448.3
1913	460.9	380.7	326.7	348.8	1,517.1
1914	581.4	346.0	282.3	341.9	1,551.6
1915	668.8	481.9	355.5	400.5	1,906.7
1916	717.8	650.3	399.9	445.9	2,213.9
1917	909.8	950.4	443.2	523.4	2,826.8
1918	1,124.3	1,595.1	589.7	606.1	3,915.2
1919	1,023.0	1,951.2	753.5	714.5	4,442.2
1920	1,120.7	2,273.1	950.1	807.9	5,151.8
1921	987.4	2,310.7	996.2	923.8	5,218.1
1922	1,028.4	2,641.1	1,708.9	1,058.4	6,436.8
1923	1,005.7	2,616.4	1,871.9	1,185.0	6,679.0
1924	915.4	2,290.1	1,878.5	1,294.1	6,378.1
1925	1,240.8	2,238.8	1,688.6	1,436.9	6,605.1
1926	958.6	2,375.7	1,759.1	1,540.4	6,633.8
1927	1,009.2	2,876.2	1,997.3	1,670.3	7,553.0
1928	878.0	3,232.1	2,298.4	1,840.8	8,249.3
1929	894.4	3,240.2	2,968.2	1,997.9	9,100.7
1930	773.6	3,470.4	3,278.4	2,159.8	9,682.2
1931	1,039.0	2,763.7	2,823.6	2,299.9	8,926.2
1932	868.7	2,962.7	2,979.3	2,488.6	9,299.3
1933	827.8	3,025.5	3,191.5	2,654.4	9,699.2
1934	776.5	3,289.5	3,409.6	2,797.4	10,273.0
1935	699.8	3,588.1	3,674.0	2,886.0	10,847.9

SOURCE: Martín-Aceña: *La cantidad de dinero en España* (1985).

## HIGH-POWERED MONEY: COMPOSITION, 1900-1935

TABLE III-3

Million pesetas

Years	Currency in circulation	Banks' deposits at Banco de España	Banks' credit on current account at Banco de España	High-powered money
	1	2	3	4
	1 + 2 + 3			
1900	2,380.7	697.0	117.7	3,195.4
1901	2,407.3	647.9	98.5	3,153.7
1902	2,328.8	563.2	149.7	3,041.7
1903	2,330.9	602.3	149.7	3,082.9
1904	2,301.7	578.1	165.3	3,045.1
1905	2,179.2	541.1	164.0	2,884.3
1906	2,120.1	512.0	163.4	2,795.5
1907	2,115.1	489.6	172.1	2,776.8
1908	2,032.2	464.5	208.6	2,705.3
1909	2,101.1	491.6	207.0	2,799.7
1910	2,147.6	455.9	214.1	2,817.6
1911	2,209.0	445.5	216.4	2,870.9
1912	2,325.5	457.9	223.1	3,006.5
1913	2,415.0	485.1	205.0	3,105.1
1914	2,464.7	608.5	304.6	3,377.8
1915	2,547.3	697.8	272.7	3,517.8
1916	2,819.1	748.2	268.0	3,835.3
1917	3,289.4	942.4	360.5	4,592.3
1918	3,892.9	1,158.8	420.6	5,472.3
1919	4,437.0	1,059.9	502.8	5,999.7
1920	4,988.6	1,159.7	589.8	6,738.1
1921	4,819.1	1,028.8	672.4	6,520.3
1922	4,681.4	1,072.6	771.9	6,525.9
1923	4,904.0	1,052.7	710.0	6,666.7
1924	5,095.5	967.3	934.0	6,996.8
1925	4,987.2	1,297.0	884.9	7,169.1
1926	4,864.1	1,017.6	929.9	6,811.6
1927	4,717.3	1,079.4	1,177.7	6,974.4
1928	4,899.4	962.2	1,348.7	7,210.3
1929	4,953.8	980.5	1,400.4	7,334.7
1930	5,267.6	863.8	1,411.1	7,542.5
1931	5,677.9	1,134.7	1,520.1	8,332.7
1932	5,432.3	966.4	1,576.5	7,975.2
1933	5,380.5	934.0	1,608.1	7,922.6
1934	5,233.2	880.2	1,537.5	7,650.9
1935	5,348.2	1,322.6	1,411.5	8,082.3

SOURCE: Martín-Aceña: *La cantidad de dinero* (1985).

# MONEY SUPPLY, 1900-1935

TABLE III-4

Million pesetas

Years	Currency held by the public	Banco de España deposits	Banks demand deposits	Banks time deposits	Saving Banks saving accounts	Money supply
	1	2	3	4	5	1 + 2 + 3 + 4 + 5
1900	2,204.2	661.8	246.2	128.1	131.0	3,371.3
1901	2,273.7	620.8	278.9	134.1	136.7	3,444.2
1902	2,211.1	539.0	224.9	148.6	148.7	3,272.3
1903	2,239.6	582.9	238.9	174.4	165.3	3,401.1
1904	2,211.1	558.7	241.7	190.9	174.6	3,377.0
1905	2,097.1	523.1	238.3	208.9	191.1	3,258.5
1906	2,039.2	494.2	274.9	228.4	201.9	3,238.6
1907	2,045.4	473.8	275.8	239.1	208.2	3,242.3
1908	1,954.1	446.8	300.0	252.7	234.0	3,187.6
1909	2,027.7	474.6	325.4	268.0	244.3	3,340.0
1910	2,067.6	437.2	371.6	286.9	263.5	3,426.8
1911	2,131.3	427.2	387.5	303.0	284.0	3,533.0
1912	2,244.1	438.6	383.9	314.5	311.3	3,692.4
1913	2,310.3	460.9	380.7	326.7	348.8	3,827.4
1914	2,344.2	581.4	346.0	282.3	341.9	3,895.8
1915	2,416.3	668.8	481.9	355.5	400.5	4,323.0
1916	2,678.1	717.8	650.3	399.9	445.9	4,892.0
1917	3,137.8	909.8	950.4	443.2	523.4	5,964.6
1918	4,263.9	1,124.3	1,595.1	589.7	606.1	8,179.1
1919	4,768.5	1,023.0	1,951.2	753.5	714.5	9,210.7
1920	4,768.5	1,120.7	2,273.1	950.1	807.9	9,920.3
1921	4,624.2	987.4	2,310.7	996.2	923.8	9,842.3
1922	4,485.1	1,028.4	2,641.1	1,708.9	1,058.4	10,921.9
1923	4,692.0	1,005.7	2,616.4	1,871.9	1,185.0	11,371.0
1924	4,857.5	915.4	2,290.1	1,878.5	1,294.1	11,235.6
1925	4,732.6	1,240.8	2,238.8	1,688.6	1,436.9	11,337.7
1926	4,598.7	958.6	2,375.7	1,759.1	1,540.4	11,232.5
1927	4,388.8	1,009.2	2,876.2	1,997.3	1,670.3	11,941.8
1928	4,491.0	878.0	3,232.1	2,298.4	1,840.8	12,740.3
1929	4,547.4	894.4	3,240.2	2,968.2	1,997.9	13,648.1
1930	4,845.4	773.6	3,470.4	3,278.4	2,159.8	14,527.6
1931	5,234.6	1,039.0	2,763.7	2,823.6	2,299.9	14,160.8
1932	4,986.6	868.7	2,962.7	2,979.3	2,488.6	14,285.9
1933	4,893.4	827.8	3,025.5	3,191.5	2,654.4	14,592.6
1934	4,771.8	776.5	3,289.5	3,409.6	2,797.4	15,044.8
1935	4,768.8	699.8	3,588.1	3,674.0	2,886.0	15,616.7

SOURCE: Martín-Aceña, *La cantidad de dinero en España* (1985).

## STATISTICAL ANNEX: IV. 1940-1961

### CURRENCY IN CIRCULATION AND CURRENCY HELD BY THE PUBLIC

TABLE IV-1

Million pesetas

Years	Metallic coins	Banknotes	Currency in circulation	Bank reserves	Currency held by the public
	1	2	3 (1 + 2)	4	5 (3 - 4)
1940	nd	nd	nd	nd	nd
1941	45	13,536	13,581	552	13,029
1942	45	15,738	15,783	738	15,045
1943	45	16,381	16,426	951	15,475
1944	45	17,729	17,774	1,024	16,750
1945	45	18,961	19,006	977	18,029
1946	82	22,777	22,859	1,124	21,735
1947	164	26,014	26,178	1,082	25,096
1948	183	26,472	26,655	1,282	25,373
1949	215	27,645	27,860	1,425	26,435
1950	251	31,661	31,912	2,025	29,887
1951	308	36,239	36,547	2,680	33,867
1952	335	38,493	38,828	2,895	35,933
1953	373	38,758	39,131	2,816	36,315
1954	428	42,954	43,382	2,404	40,978
1955	485	47,045	47,530	3,678	43,852
1956	620	55,821	56,441	5,659	50,782
1957	669	66,653	67,322	6,711	60,611
1958	807	72,519	73,326	6,594	66,732
1959	2,014	74,116	76,130	6,528	69,602
1960	3,181	78,926	82,107	7,144	74,963
1961	3,834	88,593	92,427	8,557	83,870

SOURCE: Martín-Aceña, *Una estimación de los principales agregados monetarios en España* (1988).

## BANK DEPOSITS, 1940-1961

TABLE IV-2

Million pesetas

Years	Banco de España (non-bank deposits)	Banks demand deposits	Savings banks demand deposits	Demand deposits total	Banks time deposits	Savings banks time deposits	Time deposits total	Deposits total
	1	2	3	4	5	6	7	8
1940	nd	nd	nd	nd	nd	nd	nd	nd
1941	5,067	9,367	296	14,730	4,431	3,409	7,840	11,249
1942	3,474	10,966	306	14,746	5,042	3,515	8,557	12,072
1943	2,795	12,306	364	15,465	5,953	4,188	10,141	14,329
1944	3,078	14,513	431	18,022	7,213	4,951	12,164	17,115
1945	2,438	17,024	516	19,978	8,735	5,935	14,670	20,605
1946	2,836	22,249	611	25,696	10,401	7,023	17,424	24,447
1947	2,509	25,420	732	28,661	12,883	8,412	21,295	29,707
1948	2,325	26,585	875	29,785	15,180	10,057	25,237	35,294
1949	2,454	29,879	1,017	33,350	17,254	11,701	28,955	40,656
1950	2,593	33,920	1,201	37,714	20,489	13,807	34,296	48,103
1951	2,604	40,838	1,449	44,891	24,239	16,661	40,900	57,561
1952	2,758	47,258	1,644	51,660	28,754	20,728	49,482	70,210
1953	2,594	53,166	1,927	57,687	34,591	24,422	59,013	83,435
1954	2,541	60,202	2,109	64,852	42,051	28,893	70,944	99,837
1955	3,979	70,611	2,940	77,530	50,779	33,543	84,322	117,865
1956	3,266	85,954	3,626	92,846	58,008	39,418	97,426	136,844
1957	3,849	98,588	4,509	106,946	63,012	46,554	109,566	156,120
1958	3,701	116,415	5,305	125,421	69,750	54,480	124,230	178,710
1959	3,596	122,774	5,621	131,991	75,283	60,774	136,057	196,831
1960	5,196	118,942	6,447	130,585	111,286	74,041	185,327	259,368
1961	3,237	138,032	7,641	148,910	134,938	89,512	224,450	313,962

SOURCE: Martín-Aceña, *Una estimación de los principales agregados monetarios en España* (1988).

## HIGH-POWERED MONEY, 1940-1961

TABLE IV-3

Million pesetas

Years	Currency held by the public 1	Bank reserves 2	High-powered money 3 (1 + 2)
1940	nd	nd	nd
1941	13,029	2,165	15,194
1942	15,045	2,907	17,952
1943	15,475	3,765	19,240
1944	16,750	4,054	20,804
1945	18,029	3,799	21,828
1946	21,735	4,454	26,189
1947	25,096	4,214	29,310
1948	25,373	5,420	30,793
1949	26,435	6,637	33,072
1950	29,887	6,048	35,935
1951	33,867	7,827	41,694
1952	35,933	8,174	44,107
1953	36,315	10,563	46,878
1954	40,978	12,190	53,168
1955	43,852	12,714	56,566
1956	50,782	15,158	65,940
1957	60,611	18,837	79,448
1958	66,761	19,825	86,586
1959	69,602	24,403	94,005
1960	74,963	29,399	104,362
1961	83,870	34,683	118,553

SOURCE: Martín-Aceña, *Una estimación de los principales agregados monetarios en España* (1988).

# MONEY SUPPLY, 1940-1961

TABLE IV-4

Million pesetas

Years	Currency held by the public	Deposits	Money supply M3
	1	2	3
1940	nd	nd	nd
1941	13,029	22,570	35,599
1942	15,045	23,303	38,348
1943	15,475	25,606	41,081
1944	16,750	30,186	46,936
1945	18,029	34,648	52,677
1946	21,735	43,120	64,855
1947	25,096	49,956	75,052
1948	25,373	55,022	80,395
1949	26,435	62,305	88,740
1950	29,887	72,010	101,897
1951	33,867	85,791	119,658
1952	35,933	101,142	137,075
1953	36,315	116,700	153,015
1954	40,978	135,796	176,774
1955	43,852	161,852	205,704
1956	50,782	190,272	241,054
1957	60,611	216,512	277,123
1958	66,761	249,651	316,412
1959	69,602	268,048	337,650
1960	74,963	315,912	390,875
1961	83,870	373,360	457,230

SOURCE: Martín-Aceña, *Una estimación de los principales agregados monetarios en España* (1988).

# STATISTICAL ANNEX: V. 1962-1998

## CURRENCY IN CIRCULATION AND CURRENCY HELD BY THE PUBLIC

TABLE V-1

Million pesetas

Years	Metallic coins	Banknotes	Currency in circulation	Vault cash	Currency held by the public
	1	2	3 = 1 + 2	4	5 = 3 - 4
1962	4,363	103,822	108,185	10,246	97,939
1963	5,207	119,852	125,059	12,272	112,787
1964	5,923	141,563	147,486	15,879	131,607
1965	6,605	164,847	171,452	20,460	150,992
1966	7,498	187,017	194,515	19,791	174,724
1967	9,736	209,195	218,931	20,419	198,512
1968	11,161	226,558	237,719	19,933	217,786
1969	12,212	253,190	265,402	22,846	242,556
1970	12,942	273,880	286,822	23,738	263,084
1971	13,334	308,772	322,106	27,873	294,233
1972	14,374	356,286	370,660	35,940	334,720
1973	15,720	418,167	433,887	46,787	387,100
1974	17,089	487,991	505,080	57,808	447,272
1975	18,815	580,014	598,829	74,208	524,621
1976	19,196	680,995	700,191	84,765	615,426
1977	22,759	855,689	878,448	100,598	777,850
1978	28,445	1,048,069	1,076,514	129,807	946,707
1979	36,568	1,160,745	1,197,313	157,482	1,039,831
1980	43,088	1,322,166	1,365,254	179,446	1,185,808
1981	51,993	1,469,519	1,521,512	186,578	1,334,934
1982	67,761	1,671,655	1,739,416	216,515	1,522,901
1983	98,689	1,841,182	1,939,871	253,643	1,686,228
1984	116,446	2,037,780	2,154,226	291,819	1,862,407
1985	131,200	2,260,600	2,391,900	311,200	2,080,700
1986	141,000	2,603,900	2,744,800	342,900	2,402,000
1987	163,900	2,973,300	3,137,200	401,500	2,735,700
1988	214,000	3,413,500	3,627,500	386,400	3,241,200
1989	249,800	4,003,200	4,253,000	417,400	3,835,200
1990	265,700	4,717,300	4,983,000	449,000	4,533,000
1991	281,000	5,791,000	6,072,000	464,000	5,608,000
1992	297,000	6,210,000	6,507,000	482,000	6,025,000
1993	306,000	6,683,000	6,989,000	480,000	6,509,000
1994	333,000	7,324,000	7,657,000	493,000	7,164,000
1995	360,000	7,708,000	8,067,000	532,000	7,535,000
1996	371,000	8,147,000	8,518,000	577,000	7,941,000
1997	354,000	8,638,000	8,992,000	613,000	837,800
1998 (Oct)	379,000	8,288,000	8,667,000	552,000	8,115,000

SOURCES: 1962-1981: Banco de España. *Boletín Estadístico*. Series históricas, I: Banco de España, 1962-1981 (Junio, 1982), 1982-1984: Banco de España. *Boletín Estadístico* (Diciembre, 1985), 1985-1989: Banco de España. *Boletín Estadístico* (Diciembre, 1990), 1990-1994: Banco de España. *Boletín Estadístico* (Diciembre 1995) and 1995-1998: Banco de España. *Boletín Estadístico* (Diciembre, 1998).

## DEPOSITS

TABLE V-2

Million pesetas

Years	Deposits demand 1	Deposits time 2	Deposits total 3
1962	168,783	275,205	443,988
1963	200,254	327,000	527,254
1964	240,666	404,418	645,084
1965	275,932	484,100	760,032
1966	303,247	562,779	866,026
1967	344,527	658,449	1,002,976
1968	391,553	818,015	1,209,568
1969	456,196	996,874	1,453,070
1970	477,322	1,211,032	1,688,354
1971	618,871	1,503,908	2,122,779
1972	804,447	1,841,166	2,645,613
1973	1,024,662	2,287,517	3,312,179
1974	1,211,054	2,739,495	3,950,549
1975	1,451,528	3,252,959	4,704,487
1976	1,769,252	3,850,767	5,620,019
1977	2,070,123	4,565,252	6,635,375
1978	2,368,272	5,574,628	7,942,900
1979	2,571,381	6,877,302	9,448,683
1980	2,911,100	8,461,800	11,372,900
1981	3,274,700	9,955,100	13,229,800
1982	3,394,600	11,676,700	15,071,300
1983	3,561,700	13,485,800	17,047,500
1984	3,798,600	15,308,800	19,107,400
1985	4,246,300	15,808,500	20,054,800
1986	4,749,900	15,849,100	20,599,000
1987	5,502,500	16,542,500	22,045,000
1988	6,465,400	17,636,700	24,102,100
1989	7,319,100	19,189,600	26,508,700
1990	9,630,000	22,742,000	32,372,000
1991	10,292,000	25,869,000	36,161,000
1992	9,607,000	27,888,000	37,495,000
1993	9,672,000	31,406,000	41,078,000
1994	10,173,000	33,597,000	43,770,000
1995	10,353,000	36,499,000	46,852,000
1996	11,175,000	36,828,000	48,003,000
1997	13,457,000	35,129,000	48,586,000
1998 (Oct)	14,219,000	34,245,000	48,464,000

SOURCES: 1962-1978: Banco de España. *Boletín Estadístico*, 1973-1979: Banco de España. *Boletín Estadístico* (Diciembre 1980), 1980-1984: Banco de España. *Boletín Estadístico* (Diciembre, 1985), 1985-1989: Banco de España. *Boletín Estadístico* (Diciembre, 1990) and 1990-1998: Banco de España. *Boletín Estadístico* (Diciembre 1995 y Diciembre, 1998).

## HIGH-POWERED MONEY AND COMPONENTS

TABLE V-3

Million pesetas

Years	Currency held by the public	Vault cash	Bank's deposits and credit available on current account at the Banco de España	Bank reserves	High-powered money
	1	2	3	4 (2 + 3)	5
1962	97,939	10,246	24,254	34,500	132,439
1963	112,787	12,272	31,299	43,571	156,358
1964	131,607	15,879	35,975	51,854	183,461
1965	131,607	15,879	35,975	51,854	183,461
1966	174,724	19,791	35,195	54,986	229,710
1967	198,512	20,419	38,730	59,149	257,661
1968	217,786	19,933	44,597	64,530	282,316
1969	242,556	22,846	43,816	66,662	309,218
1970	263,084	23,738	71,580	95,318	358,402
1971	294,243	27,873	111,912	139,785	434,028
1972	334,720	35,940	142,576	178,516	513,236
1973	387,100	46,787	152,645	199,432	586,532
1974	447,272	57,808	209,722	267,530	714,802
1975	524,621	74,208	225,955	300,163	824,784
1976	615,426	84,765	230,029	314,794	930,220
1977	777,850	100,598	253,985	354,583	1,132,433
1978	946,707	129,807	310,962	440,769	1,387,476
1979	1,039,831	157,482	394,052	551,534	1,591,365
1980	1,185,808	179,446	439,532	618,978	1,804,786
1981	1,334,934	186,578	515,322	701,900	2,036,834
1982	1,522,901	216,515	693,025	909,540	2,432,441
1983	1,686,228	253,643	975,964	1,229,607	2,915,835
1984	1,862,407	291,819	2,951,385	3,243,204	5,105,611
1985	2,080,700	311,200	3,247,300	3,555,800	5,639,200
1986	2,402,000	342,900	3,455,000	3,794,000	6,199,900
1987	2,735,700	401,500	3,810,800	4,207,300	6,948,000
1988	3,241,200	386,400	3,925,700	3,925,800	7,553,300
1989	3,835,500	417,400	5,075,000	5,074,900	9,327,900
1990	4,533,300	449,200	1,343,200	1,343,200	6,325,700
1991	5,607,200	464,200	1,646,000	1,646,000	7,717,400
1992	6,024,600	481,900	1,246,100	1,246,100	7,752,600
1993	6,508,900	480,200	802,300	802,300	7,791,400
1994	7,164,400	492,600	936,900	936,800	8,593,900
1995	7,535,000	532,000	862,000	862,000	8,929,000
1996	7,941,000	577,000	734,000	734,000	9,252,000
1997	8,378,000	613,000	871,000	871,000	9,862,000
1998 oct	8,115,000	552,000	727,000	727,000	9,394,000

SOURCES: 1962-1981: Banco de España. *Boletín Estadístico*. Series históricas I: Banco de España, 1962-1981 (junio, 1982), 1982-1984: Banco de España. *Boletín Estadístico* (diciembre, 1985), 1985-1989: Banco de España. *Boletín Estadístico* (diciembre, 1990), 1990-1994: Banco de España. *Boletín Estadístico* (diciembre, 1995), 1995-1998: Banco de España. *Boletín Estadístico* (diciembre, 1998).

# MONEY SUPPLY, 1962-1998

TABLE V-4

Million pesetas

Years	Currency held by the public	Deposits	Other liquid assets	Money supply M3
	1	2	3	4
1962	97,939	443,988		541,927
1963	112,787	527,254		640,041
1964	131,607	645,084		776,691
1965	150,992	760,032		911,024
1966	174,724	866,026		1,040,750
1967	198,512	1,002,976		1,201,488
1968	217,786	1,209,568		1,427,354
1969	242,556	1,453,070		1,695,626
1970	263,084	1,688,354		1,951,438
1971	294,233	2,122,779		2,417,012
1972	334,720	2,645,613		2,980,333
1973	387,100	3,312,179		3,699,279
1974	447,272	3,950,549		4,397,821
1975	524,621	4,704,487		5,229,108
1976	615,426	5,620,019		6,235,445
1977	777,850	6,635,375		7,413,225
1978	946,707	7,942,900		8,889,607
1979	1,039,831	9,448,683		10,488,514
1980	1,185,808	11,372,900		12,558,708
1981	1,334,934	13,229,800		14,564,734
1982	1,522,901	15,071,300		16,594,201
1983	1,686,228	17,047,500		18,733,728
1984	1,862,407	19,107,400		20,969,807
1985	2,080,600	20,054,800		22,135,400
1986	2,402,000	20,598,900		23,000,900
1987	2,735,700	22,045,000		24,780,700
1988	3,244,100	24,099,100		27,343,200
1989	3,835,500	26,508,800		30,344,300
1990	4,533,300	32,371,600	9,781,100	46,686,000
1991	5,608,000	36,160,000	10,010,000	51,778,000
1992	6,025,000	37,494,700	10,718,300	54,238,000
1993	6,509,000	41,078,300	11,673,700	59,261,000
1994	7,164,400	43,770,600	12,741,000	63,676,000
1995	7,535,000	46,851,000	16,053,000	70,439,000
1996	7,941,000	48,004,000	17,875,000	73,820,000
1997	8,378,000	48,586,000	20,173,000	77,137,000
1998 oct	8,115,000	48,464,000	19,177,000	75,756,000

SOURCES: 1961-1969: Banco de España. *Boletín Estadístico* (Diciembre, 1970), cuadro V-3, 1970-1972: Banco de España. *Boletín Estadístico* (Diciembre, 1973), cuadro V-3. 1973-1979: Banco de España. *Boletín Estadístico* (Diciembre, 1980), cuadro V-3, 1982-1984: Banco de España. *Boletín Estadístico* (Diciembre, 1985). 1985-1989: Banco de España. *Boletín Estadístico* (Diciembre, 1990), 1990-1994: Banco de España. *Boletín Estadístico* (Diciembre, 1995) and 1995-1998: Banco de España. *Boletín Estadístico* (Diciembre, 1998)

NOTES: Col. 2: sum of demand deposits, saving deposits and time deposits. Col.3: according to the statistics of the Bank, the definition of M3 after 1990 includes some other liquid assets held by the public and the banking sector.

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