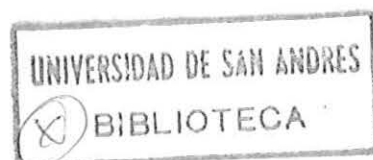


CICLO DE SEMINARIOS 1994
DEPARTAMENTO DE ECONOMIA

**Spanish monetary
experience
1848-1914**



Pablo Martín-Aceña



**Universidad de
San Andrés**

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Universidad de Alcalá

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1. Introduction.

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Prof. R. Cortés Cuadé

SPANISH MONETARY EXPERIENCE

1848 - 1914



Universidad de
San Andrés

Pablo Martín-Aceña

**University of Alcalá and
Public Enterprise Foundation
(Madrid - Spain)**

*Este es la nueva versión de mi trabajo sobre
historia monetaria para el libro de la
conferencia de Lisboa sobre el papel de
la moneda.*

1. Introduction.

This paper offers an account of the Spanish monetary history of the second part of the XIXth-century to 1914 in an international perspective. It dwells essentially in two issues. First, it present a chronicle of the basic monetary events, paying special attention to the currency and financial reforms which took place during the period; and second, it describes monetary policy, examining both the exchange rate regime and the evolution of the money stock and its main determinants.

During the three decades that span from 1850 to 1880, the Spanish monetary history ressembles very much the international record. Confronted with the decline in the price of gold, most European countries were forced to introduce changes in their monetary system in order to maintain a viable bimetallism and avoid inflation; besides, a number of countries led by France also agreed on certain common features for their coins, which facilitated the formation of a currency area known as the Latin Monetary Union (LMU). Between 1848 and 1883 the Spanish authorities also reformed their monetary system. They adopted a de iure bimetallic standard and introduced, in 1868, a new unit of account (the peseta) similar to the French franc; as elsewhere in the Continent, the gold and silver content of the different coins in circulation were altered in several instances, and the same happened with the legal ratio between the two metals; finally, there was a timid approach to the LMU, although a formal decision to sign the agreement never took place.

But after 1883 the Spanish case diverged and developed in striking contrast with the international experience; when the price of silver plummeted in world markets and European countries

abandoned bimetallism in favor of the gold standard, the Spanish authorities, on the contrary, suspended the convertibility of paper money into gold and, hence, the peseta was left to float on the exchange market. After the advent of inconvertibility, as Spanish prices fell less than European prices, the currency depreciated, first very mildly but later at a rapid pace. Monetary instability ended by 1900 when the government adopted fiscal restraint and took steps to control the creation of money; the exchange rate of the peseta stabilized and there were several failed attempts to introduce the gold standard and to resume specie payments.

In section 2 we examine the process by which Spain adopted a bimetallic standard; in particular we study the different mid-century reforms approved to modernize the financial and currency system. The following section deals with the creation of the "peseta" and the Spanish failed essay to join the Latin Monetary Union. Later in section 4 we study the Spanish monetary evolution under an inconvertibility regime and with a fluctuating exchange rate. Moreover, in all the three parts we look to the money supply process and study how monetary policy was actually conducted; we examine closely the behavior of the exchange rate and try to explain its fluctuations both in the short and in the long run. The paper finishes with a brief section which contains the main conclusions.

2. The adoption of bimetallic and the silver problem, 1848-1868.

2.1. Monetary reforms at work.

In the middle of the 19th century the monetary situation in Spain was rather complex. Its main features were: a) a large heterogeneity of coins in circulation, with an abundance of foreign money, especially French currency; b) an apparent lack of unity within the system, with partial autonomy in Catalonia, and c) an acute shortage of coinage due to an insufficient stock of silver, coupled with a very low level of fiduciary circulation as a result of the virtual non-existence of national credit institutions ⁽¹⁾. In addition, the Spanish system suffered from the secular problem of the continuous extraction of silver coins due to its high metallic content, which was even superior to the franc "germinal" created by the French revolutionary government after 1803 ⁽²⁾.

The unit of account of the system was the "real de vellón" (worth 0.25 pesetas), and the prevailing monetary regime allowed for the free minting of silver and gold on private account, as well as for the unrestricted importation and exportation of precious metals. The Money Houses were the property of the State and they took in unwrought gold and silver at prices which were determined by law. Furthermore, the coinage of copper money -

¹. Sardá (1948), p. 99 et seq; Fernández Pulgar and Anes (1970), p. 151.

². A French law of 1803 created a bimetallic standard in which one franc was defined as a 90 percent fine silver coin weighting 5 grams, and a 20 franc coin containing 6.45 grams of 90 percent fine silver gold was also established, making the relative value of gold to silver in the French coins 15.5.

whose nominal value was above its intrinsic value- was carried out exclusively by the State. At the time the so called "metallist" school clearly held sway over the "nominalist" school; this meant that the public as well as the authorities entertained the conviction that it was necessary and desirable to maintain a strong currency, with a large metal content. Table A in the appendix shows the annual volume of specie coined by the Spanish mints after 1848. As can be seen, until 1868 there was a far greater quantity of gold minted than either silver or copper.

Between 1848 and 1868, the year in which the peseta was created, successive governments implemented a series of monetary reforms, all aimed at achieving the same objectives: to nationalize the metallic circulation as far as possible and create a silver coin whose intrinsic value, at the very highest, would be equal to that of the French coin, or perhaps lower, in an effort to put an end to the extraction of silver. With such reforms, the authorities attempted to bring the Spanish coinage system close to that of France, their main trading partner.

During those years the problems and difficulties faced by the Spanish monetary system were in no way different from those that plagued the 'international monetary order' ⁽³⁾. It may be of interest to remember that for a quarter of a century after Waterloo the ratio of the prices of silver and gold on the London bullion market remained remarkably steady, but from the late

³. Excellent accounts of the problems of the international monetary order during these years can be found in the standard work by De Cecco (1974), in Cottrell (1982 and 1992) and in chapter 4 in Kindleberger (1984); we also count with a good, albeit unpublished, paper by Roccas (1987).

1840s silver began to appreciate relative to gold (see figure 1). In 1849 a number of causes interacted -the discoveries of gold in California and Australia, an increase in the use of silver in the Asian trade- to generate a fall in the price of gold, which remained below 15.5 times that of silver until 1866. Gold therefore became the "bad" money and tended to drive silver out of circulation (⁴).

This mild mid-century appreciation of silver resulted not only in academic debate throughout Europe, but it also led to a number of currency reforms in countries with a silver standard or a fixed-ratio bimetallic system (⁵). The period also characterized by rather intense arbitrage transactions involving silver coins usually being exported to France from Belgium, Italy and Spain; in turn, French coins were exported to the East taking advantage of their longstanding bimetallic ratio (1:15.5) of the French mint, but after 1850 out of line with market prices; hence gold was shipped to France, exchanged for silver, which in turn was exported to the Orient (⁶). In short, in bimetallic countries, the metal that was appreciating, silver, tended to disappear from circulation (being either exported or hoarded), and since it was the only one that could be used for the bulk of current payments, serious problems in European monetary circulation arose.

⁴. See Martin (1977), pp. 641-58.

⁵. This included all European countries except Great Britain which had adhered to the gold standard early in the century, and Portugal also on the gold standard since 1854.

⁶. De Cocco (1974), p. 42; Cottrell (1992), p. 223.

Until the Convention of 1865 which led to the establishment of the Latin Monetary Union, the responses of individual countries (France, Belgium, Italy, The Netherlands, Spain and Switzerland) to the fall in the price of silver were uncoordinated but relatively similar: they raised the (official) mint price of silver, authorized the reduction in the fineness of silver coins, demonetized and suspended the minting of gold and limited the legal tender of silver pieces of small denominations. Furthermore, Switzerland in 1860 and Italy in 1862 passed reforms to adopt the French-style bimetallism with a fixed 1:15.5 ratio; and the same system was also introduced in Belgium and The Netherlands. Therefore, it came into existence a de facto monetary union among the five countries, with gold and silver coins of each marketed in the other four.

In April 1848 took place the first modern reform of the Spanish coinage system, with the de iure adoption of a bimetallic regime. As pointed out before, one of the objectives of this reform was to nationalize the monetary circulation since at that time more than half of the numeraire in the hands of the public was of foreign -mostly French- origin; the measures also attempted to stop the exportation of silver, which had accelerated after 1847 when its price rose once again on international markets (7). Since the official price offered by the Money Houses remained unmoved and given that the silver content of Spanish coins was higher than that of French pieces, the traditional problem of the extraction of silver worsened,

7. On this reform, Sardá (1948), pp. 104-9; Fernández Pulgar and Anes (1970), pp. 155-56.

leading to a quick replacement of the overvalued Spanish coins by the French Napoleon of five francs. In an effort to attract metal to the mints and in order to bring the legal price into line with the market value, the reform increased the buying price of silver and reduced the weight and fineness of silver coins as well as the seignorage. As a result of these manipulations, the gold-silver ratio was established at 1:15.777 (table 1), below the previous, and more traditional Spanish ratio of 1:16, though still above the French relation of 1:15.5. The "real de vellón" was maintained as the unit of account, but the government decreed the minting of new gold, silver and copper coins; however, as they did not order a general recoining, the old currency remained in circulation⁸).

The reform did not succeed in solving the problem of the extraction of silver, since the devaluation came too late and at an insufficient rate, while simultaneously the price of silver kept on rising steadily on international markets. Sardá points out that if, prior to 1848, Spanish silver coins were exported because they contained more metal than French coins, after 1848 they were also exported because the price of the metal had increased and it was now worth more than its legal value in gold. This situation did not improve in 1849 when, although the official price of silver was increased, the seignorage rose as well, so that the value of silver for the public remained unchanged. However, the gold-silver ratio was slightly modified, down to 1:15.659, inching its way towards the French ratio (table 1).

⁸. Sardá (1948) pp. 106-07.

After 1850 the production of gold became apparent (the relative price of gold to silver fell to a minimum of 1:15.21), and as a consequence gold, not silver, was the only metal flowing to the mints. Faced with these circumstances, many countries decided to suspend the coinage of gold. The Spanish authorities did so in January 1851, a measure which implied a de facto adoption of silver monometallism, although gold coins stayed in circulation with full legal tender status⁹). The suspension lasted three years, until the monetary reform of 1854, when the minting of gold was resumed. At the same time, the Spanish authorities approved a new increase in the price of silver and a reduction in the weight of new minted coins. The gold-silver ratio was fixed at 1:15.4479 (table 1), eventually below the French ratio, but slightly above the British rate. This new relation, which meant certainly a marked improvement compared to the situation that had prevailed until then, was albeit not enough to prevent the exportation of silver since its market price continued its upward trend.

To deal with the persisting loss of metal a report made by the "Junta Consultiva de la Moneda" in 1856 recommended that the official buying price of silver should be increased up to the French level, but the authorities disregarded the suggestion. However, later in 1861 took place a revision of the legal price of both silver and gold and again their ratio was slightly

⁹. Sardá (1948), p. 110. Nevertheless, the circulation of all French, British and Latinoamerican gold coins was prohibited.

altered, to be finally fixed at 1:15.527 (table 1), practically identical to the unchanged 1:15.5 French ratio (¹⁰).

In 1864 the authorities implemented the last currency reform before the creation of the peseta. The major novelty consisted on the replacement of the "real de vellón" by the "escudo" (equal to 10 reales) as the new monetary unit (¹¹). At the same time the metallic content of silver coins underwent a new reduction, the seignorage for both gold and silver was eventually removed, and the government decreed a general reminting of all coins in circulation (gold, silver and copper); this order, however, was never carried out. After the 1864 reform, the gold-silver ratio stood at 1:15.476, still very close to the French relation.

In summary, at the end of this period several reforms had been attempted, but nearly all the problems which existed at the beginning remained unsolved. The complexity of the monetary system was far from being eliminated. Many contemporary writers pointed out that there existed still some twenty different types of gold and silver coins in circulation, of different weight, fineness and value, consequence of the continuous appearance of new currency without withdrawing the old one; foreign coins enjoyed a widespread circulation, and both the shortage of silver and the extraction of specie were features that still plagued the Spanish monetary order (¹²).

¹⁰. This change and other measures adopted at the time were the result of a report prepared by the "Dirección de Consumos"; See Sardá (1948), p. 11; Fernández Pulgar and Anes (1970), p. 169.

¹¹. The "escudo" was a silver coin weighting 12,98 grams of 90 per cent fineness.

¹². See, for example, the account of Aldamar (1861) and Vázquez Queipo (1861).

2.2. The quantity of money and the exchange rate.

The structure of the stock of money at the end of this period is shown in table 2. The predominance of specie is absolute, representing 90 per cent of the total amount, while banknotes and deposits hardly count for a minor fraction. The supremacy of gold over silver coins is also clear, and a consequence of the abundance of the former metal and of the shortage of the latter. Furthermore, these figures reflect the public's obvious preference for a monetary system based on metallic currency, as well as the backwardness of the banking system.

By mid-century the Spanish credit structure was composed by a few of banks of issues, which enjoyed monopoly privileges albeit restricted to a region or to a city, and a plurality of small financial institutions and private bankers. Before 1855 the three banks chartered to issue paper money were: the Banco Español San Fernando, the Banco of Barcelona and the Banco of Cádiz. After 1856, with the approval of new legislation, the number of institutions empowered to issue notes had risen steadily to 16 by 1874; but in this last year, all of them disappeared when the Bank of Spain, born out in 1856 from the Español de San Fernando, received the privilege of the monopoly of note printing in the entire country. The former private note-issuing institutions either merged with the Bank of Spain or transformed their status and continued as regular commercial banks. With regard to the non-issuing deposit banks, its number also increased rapidly after 1856, stimulated by booming business conditions and new legal facilities that allowed for the

free establishment of credit companies with limited liability. By 1865 there were as many as 25 banks, although a year later, when the financial sector experienced a serious crisis, the number of institutions dwindled. In 1874, the year the Bank of Spain was granted the monopoly of issue, there existed only a total of 13 joint-stock credit societies and commercial banks⁽¹³⁾.

Table 3 shows the evolution of the quantity of money between 1848 and 1868. Before 1856 we only have information for specie, but this is not a major problem since, as we know, in that year notes and current accounts represented barely a 15 percent of the total amount of money. The money supply grew by 2.9 per cent between 1848 and 1855, but in the period immediately following that (1856-68) its growth was considerably more rapid, at a rate of 5.7 per cent. Doubtless, the increase in the gold stock (from 454 million to 1,200 million pesetas) was the variable which most contributed to this currency expansion.

Since Spain was not a gold producer, the balance of payments emerges as the most qualified factor to explain the recorded movement in the money stock. The volume of specie minted during the period helps to understand the process of creation of metallic-based money. As far as gold is concerned, we know that between 1848 and 1855 the Spanish mints coined 79 million pesetas and this figure rose to 677 million pesetas in the years after that until 1868. These figures look rather similar to the increases recorded in the circulation of gold: 78 and 631 million pesetas respectively. With regard to silver, the evolution is

¹³. Still the best and more comprehensive study of Spanish banking for mid-XIX century is Tortella (1970), pp. 17-145.

more or less the same. The mints coined silver to the value of some 55 million pesetas in the first period and 141 million in the second, and again these figures are not far from the increases recorded in the circulation of silver coins. Obviously, the metals for minting, some 952 million pesetas, came out either from private hoarding or from a surplus in the country's international balance in specie transactions. Since Spain's balance of trade recorded a deficit of some 1,819 million pesetas in those years (1848-68) (table D in the appendix) it is clear that the acquisition of metals was made possible by a strong surplus in the balance on the capital account. In fact, we know that Spain received substantial amounts of foreign investment during this period, which allowed not only for the complete financing of the deficit on current account, but also for a net entry of gold and silver, which took the route to the mints for its monetization. The volume of capital imports might have been at least 2,650 million pesetas (the trade deficit plus the increase in the gold and silver stock in circulation) ⁽¹⁴⁾.

The evolution of bank's money (notes and current accounts) exhibits, on the contrary, a moderate increase. Its two main determinants (the public sector and the non-financial private sector) hardly exerted expansionary pressures. As observed in table 4, the assets of the Bank of Spain vis-a-vis the private sector barely increased (only by 20 million pesetas between 1856 and 1868), and public sector's assets rose from 74 million pesetas in 1856 to 141 million pesetas in 1864, and then fell sharply in the years after down to 96 million pesetas in 1868.

¹⁴. Sardá (1948), p. 121 and pp. 140-41.

The ascend in notes in circulation from 57 to 125 million pesetas between 1856 and 1854 may be explained by the expansion in the total credit outstanding, while the corresponding fall to 103 million pesetas in 1868 should be attributed to the decline in the volume of credit to the public sector, despite the existence of huge budget deficits⁽¹⁵⁾.

The evolution of the exchange rate of the peseta during these years can be followed in figure 2, which shows its quotation in terms of the pound sterling ⁽¹⁶⁾. In the twenty years that mainly concerns us, the price of the sterling bill on the Madrid Bourse moved between a high of 26.97 pesetas in 1848 and a low of 23.75 pesetas in 1860 ⁽¹⁷⁾. This relative stability is not surprising. In the first place the gold-silver ratio in Spain stayed, all in all, quite close to the ratio which prevailed on international markets. And secondly, Spanish prices also followed closely the evolution of world prices. In fact, while the Spanish rate of inflation between 1851 and 1968 was 1.3 per cent., the international rate as measured by the English index reached a 1.4 per cent.

Figure 3 shows annual averages of the rate of an unsophisticated purchasing-power parity index. The coefficient of correlation between the anual average exchange rate and the

¹⁵. The government deficit amounted to 1,419 million pesetas; for the evolution of the budget deficit and how it was financed, see Comín (1988), chapter

¹⁶. Appendix, table E.

¹⁷. During these years, the Spanish peseta was quite free of any stabilizing official intervention, a fact that seems clear since we have not found mention of any such intervention in contemporary writings and debates, from statements by the Bank of Spain that it did not intervene and from its balance sheets.

ratio of the two price indices for the whole period is 0.48, at a significant level of 1 per cent. The fluctuations of purchasing-power parity were on the whole wider than those of the actual exchange rate and were due to movements both in the English and in the Spanish price indices; hence, this result makes difficult to speculate about the direction of causality.

Finally, we must remember that if the balance of trade certainly closed with a global deficit, which probably means that the real exchange rate suffered from a persistent overvaluation, massive entries of foreign capital served to maintain the general equilibrium of the overall balance of payments. To a certain extent, the remarkable stability of the peseta during these years against other currencies reflected this situation. In theory, a balance of trade deficit tends to exert a downward pressure on the exchange market and bring about an export of specie, which in turn might generate a continuous reduction in the metallic base of the money supply; if unhampered, this mechanism would lead to a decline in domestic prices. But none of the above happened, since the entry of capital provided not only to cover the deficit, as we have seen, but also to allow a sustained, albeit moderate, increase in the money supply. In addition, the import of capital helped to maintain the stability, and sometimes even cause an appreciation, of the nominal rate of exchange of the peseta on international markets.

3. From bimetallism to inconvertibility: 1868-1883.

3.1. The creation of the peseta and the problems of the 1868 monetary system.

In December 1865 the Latin Monetary Convention was signed between France, Belgium, Switzerland and Italy. This agreement gave formal and legal coverage to the existence of what was a de facto monetary community among the countries which subscribed the accord. It ratified a bimetallic order with a gold-silver ratio of 1 to 15.5, stipulated by a French law of 7 Germinal year IX (28/3/1803), and established the free circulation of gold and silver among the member countries as well as the free minting of both metals. ⁽¹⁸⁾

Basically, the impetus for the agreement came from the adverse consequences of the fall in the relative price of gold, although, ironically, the price of gold rose shortly after the Convention; but the interest behind the formation of a currency union such as the LMU arose also from a mid-century concern: the need for an international coinage (universal money) in order to have a uniform numeraire and unit of account. In all leading nations there was growing support for the idea that in the monetary field, as in other realms, unification of different national standards was desirable ⁽¹⁹⁾.

¹⁸. The agreement allowed for and encouraged other nations to join, as Greece did in 1867; Romania joined in 1868 and bills were prepared both in the US and in Canada; Austria concluded a preliminary treaty with France, with partial adherence from 1871.

¹⁹. The account that follows is based on Martin (1977), Roccas (1987), Holtferich (1989), Redish (1991) and Cottrell (1992).

Although in the course of the negotiations leading to the treaty, the delegates voiced a general endorsement of the gold standard, the opposition of the French government forced the retention of bimetallism ⁽²⁰⁾. The agreement provided that all the "full-bodied" gold and silver coins of the four member states had to have the same characteristics and would circulate freely within the Union. In addition, each member could coin a limited volume of subsidiary units (the volume based on the country's population); these too had to be of uniform characteristics, and would be accepted by government agencies in the member states for payments up to a maximum of 100 francs.

Two years later, in 1867, and at the initiative of France, an International Monetary Conference was held in Paris. Again, the delegates resolved unanimously (save the Dutch delegate) that the gold standard should be adopted universally, despite that at the time it was only in effect in Britain and Portugal. The conference also agreed on the need for a unified system of currencies that would be legal tender in all countries, and further that this should be accomplished essentially by adopting the currency system already in use in the LMU ⁽²¹⁾. The main

²⁰. The French refusal can be explained first because the Bank of France preferred a bimetallic standard, and Napoleon's fiscal needs required him to accommodate the Bank's wishes; secondly, because Napoleon was planning an international monetary conference in 1867 after which he hoped that a world monetary standard would be adopted.

²¹. These resolutions were never applied, however, in part because it proved impossible to reach agreement on the specifics of the desired gold-standard coinage -the UK refusing to adopt the decimal system proposed by the majority of the conference- and in part because of the subsequent outbreak of the Franco-Prussian War. Perhaps the World came closest to establishing an international unit of account in 1867 when, at the conference in Paris, delegates from 22 countries voted to establish the gold standard and an international unit of account based on the 5 franc coin; however a British Commission considered that the adoption of the new unit argued that although

result of the meeting was the widening of the membership of the LMU, based upon the French bimetallic system. However what the conference showed was a definite swing in opinion among the community of nations in favor of gold; therefore, despite the continuing French commitment to bimetallism the conference strongly recommended the adoption of the gold standard by the late 1860s.

The tide towards gold as the anchor of the system became unquestioned after 1870. The discovery of new silver deposits and new techniques in silver refining began to bring enormous amounts of the metal to Europe, driving its price down (figure 4). At the same time the pressure exerted by the swollen supply of silver was intensified by a decrease in silver imports by India and by sales of Germany. The fall in the price of silver reversed the conditions that had prevailed at the founding of the LMU and raised both the problem of gold being driven out of circulation in the member countries and of massive quantities of silver flowing to the mints for coining. In January 1870 the Italian mint lowered its mint price of silver; in September 1873 the French government imposed a limit to silver coinage and in October 1873 the Belgian government suspended the free coinage of silver.

Before, in 1871 Germany had moved towards the introduction of the gold standard with immediate repercussions in northern Europe amongst its main trading neighbours; the Netherlands adopted the gold standard in 1873 and also the Scandinavian

the benefits of uniformity were significant, they were outweighed by the high costs of establishing a new numeraire and adjusting all contrast to the new unit.

countries moved soon to gold. The restriction in all these countries of the coinage of silver plus the demonetisation of the German silver stock in 1873 gave a severe blow to the bimetallic system and it was regarded by many as one of the major forces behind the fall in the price of silver; a further factor was what silver protagonists called the "crime of 1873"; the US Coinage Act of 1873 which suspended the free coinage of silver and put the American monetary system on the gold standard ⁽²²⁾. As it becomes apparent from figure 4, after 1873 the (gold) price of silver plummeted in international markets.

At a new conference of the LMU members held in 1874 the French and the Italian delegates pressed to maintain the status quo, although they agreed to limit the minting of silver to strict quotas, to be allotted among member countries on a year-by-year basis. This accord led in the following years to convene annual meetings to negotiate the setting of the quotas. Eventually at the convention of november 1878 came the suspension of the coinage of the 5 franc silver coin which in fact marked the beginning of a sort of "limping gold standard" ⁽²³⁾. Moreover, the decision to close the mints of the Union to the free coinage of silver meant the final break of the LMU.

The Spanish authorities watched closely these international developments and considered whether it was convenient to adhere to the Monetary Convention of 1865. According to Sardá, special negotiations were carried out in order to join the newly formed

²². Friedman (1990a), pp. 85-104; and Friedman (1990b), pp. 1159-94.

²³. Nonetheless, although only gold was freely minted, the existing 5 francs silver coins retained its unlimited legal tender status.

currency area, and also delegates were sent to the International Monetary Conference held in Paris in 1867; the Spanish delegation was in favour of a swift entry into the LMU, but the government never took any decision on the issue. Sardá contends that budgetary problems might have been a possible obstacle to adherence since integration in the Union implied reminting all coins in circulation, which would have brought important losses for the Treasury⁽²⁴⁾. Furthermore, a vociferous opposition to adherence emerged; it was argued, for instance, that it would cause a continual drainage of silver coins, thereby making them even more scarce. Critics also held that adherence to the Union would mean an excessive dependence from France and would bind the Spanish monetary situation to the outside world, which was regarded detrimental to the domestic economy, and it also meant an unacceptable loss of national sovereignty.

However, although Spain never became part of the LMU, some years later, the liberal government that emerged from the political revolution of 1868, approved a monetary reform which brought the Spanish system into line with the prevailing in the Union⁽²⁵⁾. The monetary reform of 1868 introduced the present monetary unit, the peseta, divided in 100 cents, and with a value equal to the French franc; it also established a gold-silver parity identical to that ruling in the LMU. The 1868 decree also allowed for the free minting of gold and silver, and made legal tender the circulation of foreign pieces belonging to the member

²⁴. Sardá (1948), p. 154

²⁵. For a detail account of the reform, Fernández Pulgar and Anes (1970), pp. 181-86

countries of the Union, provided they had a similar weight and value than the Spanish pieces; it also stipulated a general remitting to be made in 1871; finally it raised the official purchasing price of gold and silver to the level of that fixed by the Union. Sardá argues that the government of the time might have been driven to introduce the reform of 1868 not only for doctrinal reasons but also because it believed that adapting to the LMU system and devaluing the Spanish currency would facilitate the import of foreign capital, which was particularly needed after the financial crisis of 1866, which had brought about a sharp reduction in the volume of investment⁽²⁶⁾.

The reform of 1868 had the virtue to bring the national currency system closer to the European one and to put certain order to the rather chaotic Spanish system. But it soon had to face serious difficulties, similar to those experienced by other bimetallic regimes throughout Europe. The first of such problems was of external origin: the rise in the price of gold.

To confront this problem, the first measure adopted was the suspension, albeit provisionally, of the coinage of silver in May 1870; then the authorities decided to wait and see which policies would be followed by the LMU countries. The suspension lasted until March 1871 and during this period only gold was minted. However, after that date it became increasingly difficult to attract gold to the mints, as its price climbed in international markets; on the contrary, silver, increasingly overvalued, flowed in great abundance. The situation worsened after 1873 when the United States abandoned bimetallism and opted for gold, which

²⁶. Sardá (1948), p. 159.

certainly contributed to accelerate the fall in the price of silver on international markets. The Spanish authorities reduced the official price of silver, but decided at the same time to suspend gold minting⁽²⁷⁾. This measure meant, as Sardá so rightly observes, the establishment of a de facto silver standard, although de iure the bimetallic system remained in existence⁽²⁸⁾.

The second problem derived from the monetary system introduced in 1868 was of internal origin. In spite of the decree of 1868 which ordered a general reminting, the measure never took place. This effectively meant that coins, old and new, of different metallic value, remained mixed in circulation. The new peseta of 1868, equivalent to the French franc, was, however, worth only 0.96 of a peseta of the 1864 system; or in other words, a peseta under the 1864 system had a value of 1.04 pesetas under the new system. And under the old system, an escudo which, given its metallic content was worth 2.5 pesetas, was now valued at 2.59 new pesetas. In short, the reform had introduced a diminution of 3.99 per cent in the gold coins and of 3.84 in silver coins. The Ministry of Finance sought to resolve this question through a decree in 1869 which maintained the legal parity: 4 reales (the old peseta) for a new peseta, and a escudo of the 1864 system equal to 10 reales, or 2.5 new pesetas. But the Bank of Spain and the public as a whole refused to admit the new coins as equivalents of the old ones. Eventually, this situation forced the government to give in and ordered in 1871

27. The suspension lasted from de 1873 to 1876.

28. Sardá (9148), pp. 158-59.

that gold should be coined based on the 1864 system, a measure which effectively implied to set a lower price for gold, while silver became overvalued at a ratio of 1 to 14.9.⁽²⁹⁾

Around 1876 the rapid rise in the volume of silver minting compelled the monetary authorities to reconsider the situation⁽³⁰⁾; by then bimetallism had been abandoned by the USA, Germany and the Scandinavian countries, and practically shelved by most of the members of the LMU, which had decided, after 1873, to enact measures restricting the minting of silver. Therefore it was decreed that the coinage of silver should be carried out exclusively by the State, and again the "Junta Consultiva de la Moneda" was asked to elaborate a report on the policy that should be adopted. The Junta recommended to renounce to bimetallism and to gradually move towards the adoption of the gold standard; it also proposed to mint gold coins, following the weight and fineness of the 1864 system. It was further suggested to restrict the coinage of silver which should be used only as subsidiary currency⁽³¹⁾. The government accepted only part of these recommendations. Although gold minting was resumed, minting was not limited and silver coins remained with full legal tender status. Although the authorities tried to attract gold to the mints, the maintenance of an unfavorable ratio and the continuous fall in the price of silver meant that hardly any gold was available, while silver imports rose.

²⁹. Sardá (1948), pp. 156-57.

³⁰. Between 1874 and 1875 the quantity of silver coined was 60 and 70 million pesetas respectively, compared to an average of 30 million pesetas the previous five-year period.

³¹. Sardá (1948), p. 168-69.

At the same time, the Spanish stock of gold became gradually drained. As shown in table B (Appendix) between 1871 and 1876 the gold stock was reduced by 234 million pesetas and between 1876 and 1883 by 273 million pesetas. The Bank of Spain's gold reserves also fell significantly, reaching a minimum in 1881. As a consequence the composition of the money supply experienced a substantial change. Between 1873 and 1883 the disappearance of gold implied that specie fell from 90 to 65 percent of the total stock of money, while banknotes plus deposits rose to represent more than one third of the total.

The disappearance of gold from circulation, together with the reduction of the reserves of the Bank of Spain aroused suspicion about the capacity of the institution to guarantee the redemption of its notes into gold. However, convertibility was maintained until the middle of 1883 thanks to successive trade surpluses and a constant stream of capital imports ⁽³²⁾. But eventually, the suspension took place in the summer of 1883 and the decision came, in the opinion of Sardá, after a contraction in foreign investment associated with the Paris stock-market crash of January 1882 ⁽³³⁾. According to Bank and Ministry officials, the measure was taken to defend the metallic reserves of the Bank of Spain and to check the disappearance of gold from circulation and the export of gold ⁽³⁴⁾.

32. Sardá (1948), pp. 266-67. See Appendix for figures on the trade balance.

33. Sardá (1948), pp. 183-84.

34. For a detail account, see Martín Aceña (1992) and also Tortella (1974a), pp. 475-81.

3.2. Money and the exchange rate.

Between 1868 and 1882 the quantity of money rose from 1,623 million pesetas to 2,076 million pesetas, which represented an increase of about 28 percent, or an annual rate of growth of 1.9 percent⁽³⁵⁾. In the first period, 1868-73, before the Bank of Spain was granted the monopoly of issue, the money supply hardly grew; while on the contrary in the period immediately after, 1874 to 1882, the average annual rate reached 2.2 percent. As figures gathered in table 3 show, the behavior of the money supply between 1868 and 1873 can once again be explained by referring to the evolution of the stock of gold and silver; the former rose from 1,208 million pesetas to 1,323 million pesetas by 1870, but then fell to 1,206 million pesetas by 1873. With regard to silver, it rose from 313 to 462 million pesetas. Together they made an addition of approximately 137 million pesetas to the stock of money. To a certain extent the balance of payments also allows us to explain the movements in this component of the stock of money. With regard to the balance of trade, years of deficit followed years of superavit, although with predominance of the former, with the result of an overall a deficit of about 30 million pesetas (Appendix: table D). To this figure a considerable volume of payments for invisibles, particularly the servicing of the foreign debt, have to be added. But on the other hand, capital imports were still very substancial, mainly as a

³⁵. The data come from two different sources and there are certain discontinuities before and after 1873.

result of new loans from abroad (³⁶), which brought in a new flow of specie, gold as well as silver. Evidence of this can be found in the series which exhibit the coinage of both metals until 1882. Therefore, capital imports encouraged in part by the monetary reform of 1868, made up for the current account deficit and allowed for the importation of specie. Insofar as the volume of credit outstanding, table 4 shows that while the Treasury exerted a relative expansionary impact on the stock of money, the private sector' assets in the balance sheet of the Bank of Spain suffered a noticeable reduction. The combined action of both forces made for the stagnation in the volume of money.

In the following period the stock of gold fell by almost 400 million pesetas, while the stock of silver rose substantially, but not sufficiently to make up for the decline in gold coins (³⁷). However, the money supply increased thanks to the fact that both Bank of Spain notes as well as commercial banks deposits rose significantly, by 279 and 222 million pesetas respectively. In this case, the increase in the amount of credit outstanding to both the private and the public sector are was the explanatory variables. According to the figures in table 5, the total credit outstanding to the public sector rose from 181 million pesetas in 1874 to 360 million in 1882, while in the case of the private sector it rose from 21 to 199 million pesetas over the same period.

³⁶. Se produce según Sardá (pp. 160-61) un incremento de la Deuda exterior en este período de cerca de 3,000 millones de pesetas, ingreso que pudo saldar el déficit comercial y permitir la importación de pastas metálicas.

³⁷. Gold flowed out because of its persisting undervaluation at the mints.

With regard to the exchange rate, it can be observed, (figure 5) that until 1873, when the USA abandoned bimetallism, the peseta rate hovered around 24.5 to the pound sterling. Fluctuations were minor and in part mirrored the stability and fluctuations in the gold-silver ratio. Furthermore, to the stability of the exchange rate contributed both the continuous flow of capital imports which certainly compensated the current account deficit and the fact that Spanish prices fell by nearly 10 per cent, following the trend in British prices.

But when international prices trended definitely downward after about 1873 in the gold-standard world, and the gold-silver ratio moved in favour of the former as the world silver price began its secular long-term decline, the Spanish peseta began its sustained devaluation. At first it depreciated mildly but steadily from 24.54 in 1873 to 24.99 in 1876 and to 25.65 in 1882, the year before the suspension of gold convertibility. Most likely, a succession of trade surplus, the continuation of capital imports and the relatively moderate growth of the money supply prevented a more pronounced decline of the exchange rate.

4. Monetary policy under the inconvertibility regime: 1883-1914

4.1. Financial policy and the evolution of the exchange rate⁽³⁸⁾.

After the suspension of convertibility, the authorities allowed the Spanish currency to float freely on the exchange market but, contrary to what one would have expected, there was not an immediate decline in its international value. As figure 6 exhibits, the price of the peseta in terms of the pound hardly varied and for a few years remained at the rate that it had reached at the beginning of the decade. Various factors may explain this stability. Firstly, because of a positive balance of trade which might have eased pressure on the market. Secondly, the public deficit remained within reasonable limits (at an average of about 43 million pesetas, a mere 0.7 per cent of national income) and the capital market did not receive large issues of short-term Treasury bills ⁽³⁹⁾. Between 1883 and 1887 the monetary base hardly increased, and neither did the money supply, as shown in figure 7. In addition, Spanish interest rates were consistently higher than international interest rates. Finally, it can be argued that speculators, who witnessed the quick recovery of Bank of Spain reserves, expected a swift resumption of specie payments at par. Accordingly, they sold gold against pesetas hoping to make profits once the exchange rate would appreciate.

³⁸. This section is based on Martín Aceña (1993).

³⁹. For a fully and comprehensive study of Spanish Public Finance during these years, Comín (1988), pp. 575-644.

At the end of the decade, especially after 1890, the situation changed. The value of the peseta fell mildly but continuously between 1890 and 1896. The decline started in 1888. At first it was slow and then it accelerated, with the result that between 1888 and 1895 there was a depreciation of the exchange rate from 25.6 to 28.9 pesetas to the pound. After 1895 the exchange rate rose sharply till it attained a maximum in 1898, when the pound was valued at almost 40 pesetas, which represented a 50 per cent depreciation relative to parity. There can be no doubt that the non-adoption of the gold standard caused speculators to change their expectations and begin to lose faith in the Spanish currency, reselling their stocks of pesetas. Furthermore, barring 1894 and 1895, years of surplus, the public budget deficit persisted, and the fact that Spanish prices and international prices evolved differently also contributed to the rise in foreign rates ⁽⁴⁰⁾. Likely, the slight negative growth in the money supply in this same period prevented a more pronounced depreciation of the peseta. But after 1896, public spending increased rapidly and the budget deficit widened, especially in 1898 and 1899, when large extraordinary expenditures were approved to finance the war in Cuba. To cover the deficit the Treasury was forced to borrow heavily from the public and the Bank. Approximately, 2,000 million pesetas of short-term bills were floated; part of this amount was taken by the private non-banking sector, part by the financial system which increased its liquidity considerably and part was placed

⁴⁰. While international prices fell by 15 per cent between 1885 and 1895, Spanish prices did not decline at all. For English prices we have taken the index of Sauerbeck, as reproduced in Mitchel (1962).

in the portfolio of the central bank; furthermore, the Treasury also asked for advances from the Bank of Spain (⁴¹). The result was a substantial increase in the money supply which experienced an unprecedented rate of growth of almost 7.9 per cent. Furthermore, the Treasury secured a significant reduction in the Bank of Spain's discount rate, from 5 to 3.5 per cent, a measure which was aimed at reducing the cost of the debt. Domestic prices increased quickly and sharply, widening the gap relative to foreign prices. Simultaneously interest rates fell and the peseta depreciated rapidly in relation to the pound, to such an extent that at the turn of the century the Spanish currency had lost about 30 per cent its value in 1880.

The end of the Spanish American War, in which Spain lost its last overseas colonies, permitted the return to financial orthodoxy and monetary stability and signalled a marked downward tendency in the exchange rate. At first there was a quick fall, followed by a temporary rise and eventually, between 1900 and 1914, a constant appreciation. In those thirteen years the peseta managed to recover almost all of its previous value, reaching by 1914 a rate of 26.1 pesetas to the pound, a mere 4.6 per cent below of its value in 1880.

After 1900 the authorities introduced a deflationary financial policy aimed at stabilising the exchange rate (⁴²). During the following five years and until 1905, the stock of

⁴¹. Tallada (1946), p. 118; Solé Villalonga (1967), p.38; Anes and Tedde (1976), p. 46 *et seq* ; Martín Aceña (1985), p. 270 *et seq*.

⁴². Tallada (1946), pp. 144-66; Sardá (1948), p. 235; Solé Villalonga (1967); Anes (1974a), pp. 172-82.

money contracted and 275 million pesetas were withdrawn from circulation, while the Ministry of Finance carried out a massive policy of conversion of 1,900 million pesetas of Treasury bonds outstanding. Besides, a fiscal reform approved in 1900 allowed for successive budget surpluses until 1909 (⁴³). Prices were stabilised and within a few years there was a process of conversion towards international levels; thereby the difference between Spanish domestic prices and international prices narrowed quite appreciably.

At the same time, the end of the war and the consequent independence of the colonies brought about a substantial repatriation of capital, which reached its maximum level in the first years of the new century. The Bank of Spain also bought up important quantities of gold in order to strengthen foreign reserves. Parallel to this, imports of foreign capital resumed after 1906. Presumably after this year foreign investors looked at the Spanish currency with more confidence and they might again have anticipated a speedy reestablishment of the convertibility of the peseta. Therefore they reconsidered their investment plans in Spanish assets and, after two decades of retreat, they channelled resources to newly developed sector such as the chemical and the electrical industries as well as public utilities. The exchange rate mirrored immediately the impact of the reestablishment of the old pattern of the balance of payments equilibrium. Its appreciation was as quick and as spectacular as had been its previous decline. The revaluation and subsequent stabilization of the exchange rate (and prices) brought about a

⁴³. Comín (1988), pp. 580-87 and pp. 645-68.

fall in interest rates, pushing them closer to European levels. All these developments led the authorities to reconsider the adoption of the gold standard, although no definite decision was taken.

4.2. The adoption of the gold standard: attempts and failures.

Between 1902 and 1912 the government and parliament discussed a string of projects aimed, in one way or another, at introducing the gold standard, with full redemption of Bank of Spain's notes (⁴⁴).

The first attempt came from the minister of Finance, Urzáiz, who presented a project in January 1902. On the one hand he sought to create an independent issuing department within the Bank of Spain, and on the other he wanted to gradually repay the public debt in circulation, as well as to effect a correlative reduction of banknotes in the hands of the public. At the same time Urzáiz introduced several measures which made obligatory the settlement of custom duties in gold or foreign currency, in a effort to strengthen metal reserves. But this project was hindered by the opposition of the Bank of Spain which disliked the idea of any increase in the coefficient of metallic coverage of banknotes, as well as to carry on a reduction in the quantity of notes in circulation(⁴⁵).

The second attempt was also made in 1902, when Rodríguez took charge of the Ministry of Finance. He formulated his plan in two important laws. The first was of May 1902 and it aimed at

⁴⁴. Fernández Pulgar and Anes (1970).

⁴⁵. Sardá (1948), pp. 199-200

reorganising the issue system; it also tried to modify the composition of the assets of Bank of Spain and limit the fiduciary circulation. To carry this policy out, the Treasury accepted the compromise to return to the Bank, in a period of ten years, the total amount of the outstanding floating debt in its portfolio; besides, the rules regarding specie reserves were once again modified, strengthening the gold guarantee of banknotes in circulation. The other measure was the law of November 1902 which banned once and for all silver purchases by the State, which also put an end to the policy of silver coinage; this was a clearly anti-inflationary policy since it did away with one of the means by which the government created money ⁽⁴⁶⁾. As Sardá points out, the ultimate objective of all these measures was the reduction of the quantity of money, and in doing so to improve the exchange rate of the peseta on the international market. However, Sardá also argues that these actions were not fully carried out because of opposition from the Bank of Spain, which resisted always against any deflationary policy. In addition there were other important differences of opinion between the Bank and the Ministry with regard to the application of the laws prepared by Rodríguez ⁽⁴⁷⁾.

The following attempt at reform came from Fernández Villaverde, who, in 1903, sought to put a law through parliament aimed directly at stabilising the peseta. It involved creating an exchange office at the Bank of Spain, - with close supervision

⁴⁶. Entre 1868 y 1902 el total del beneficio obtenido por el Estado en la acuñación de plata había ascendido a 236,2 millones de pesetas, o sea, a un promedio de 6,9 millones de pesetas anuales.

⁴⁷. Sardá (1948), p. 201

by the Ministry of Finance-, whose task would be to buy and sell foreign currencies on behalf of the Treasury. It was initially endowed with 400 million pesetas, plus whatever funds that would come from a foreign loan, yet to be negotiated. In this case Villaverde's project crashed after the fall of the government that supported his plan.

In the decade that ensued, four more projects were discussed, all designed at the implantation of the gold standard. The first by Navarro Reverter on October 1906, then by González Besada, on November 1908, then another one by Rodríguez on January 1912, and finally a second one by Navaro Reverter in December 1912. The first three sought to completely redeem the floating debt held by the Bank of Spain, to replace silver with gold as part of the specie guarantee of bank notes and set fix limits to future increases in fiduciary circulation. The project by Navarro Reverter proposed the creation of a gold fund whose objective would be to intervene in the foreign exchange market to stabilize and defend the value of the peseta, which, ultimately, would lead to the introduction of the gold standard. But again none of these projects materialized.

In summary, as Sardá explains, the monetary policy pursued between 1902 and 1912 was clearly oriented towards the implantation of the gold standard. However, all the projects failed, partly because they never won the support of the Bank of Spain, and partly because of the fragility of the governments of the time. At any rate, the failure to adopt the gold standard made Spain a startling exception within the international economy.

4.3. The money supply process.

In figure 7 we can follow the evolution of both the money supply and high-powered money during the inconvertibility period⁽⁴⁸⁾. The money stock increased secularly, although it exhibited substantial cyclical fluctuations. Between 1883 and 1914 the money supply multiplied by 1.8, which means that it grew at an annual rate of 1.9 per cent. Until the end of the first decade the growth rate was nearly 2.5 per cent; afterwards the money supply followed two opposite cycles: from 1890 to 1894 it hardly increased, but later, from 1895 to 1900, its growth accelerated notably. Finally two other cycles can be distinguished between 1900 and 1914: from 1901 to 1909 the quantity of money declined at a average rate of -0.4 per cent, while in the second cycle, from 1909 to 1914, it increased at a rate of nearly 2.7 per cent.

The contributions of the three proximate determinants to the secular growth rate of the Spanish money stock for the whole period and two subperiods are displayed in table 6. We confirm the large contribution of the monetary base, which in absolute terms contributed 1.6 per cent to the growth of the money stock, while the deposit-currency and the deposit-reserve ratios combined contributed a 0.3 per cent. The relative share of the monetary base was thus 85 per cent, while the base money multiplier accounted for the remaining 15 per cent. Basically, it was the secular rise in the deposit-currency ratio what produced the positive contribution of the asset ratio (see

⁴⁸. The evolution of the stock of money has been studied by Tortella (1974a), and more recently by Martín Aceña (1990).

Appendix). Thus, while the deposit-currency ratio increased from 0.26 in 1883 to 0.66 in 1914, the corresponding figures for the deposit-reserve ratio are 1.66 and 1.50, respectively. However, if we break the period into two, the results are slightly different. For the years 1883-1900, the growth of the money supply should be entirely attributed to the expansion of the monetary base, while the contribution of the money multiplier was nil; on the contrary, for the years 1901-14, the major factor affecting the expansion of the money supply is the multiplier, with a relative share of 60 per cent as against 40 per cent for the monetary base.

Insofar as the determinants affecting changes in the volume of base money are concerned, we find two basic components: the foreign and the domestic source component. The former is the sum of the volume of specie, primarily gold and silver, plus other foreign assets, and the latter is the volume of net domestic assets (total credit outstanding). Table 7 displays the contributions of both the net foreign assets and the net domestic assets to the growth of the monetary base during the period 1883-1914, as well as during a number of subperiods. According to this table, specie (gold and silver) exerted a strong expansionary impulses to the growth of high-powered money throughout the whole period; but since the Bank's holdings of silver hardly increased, it implies that gold purchases accounted for a large percentage of the growth of the Spanish money stock during these three decades. The association between the long run growth of the money stock and the secular increase in gold is seen in figure 8.

But gold was not the sole factor behind the increase in the money stock; another considerable part should be attributed to the expansion in gross domestic assets, particularly until 1890 and during 1895-1900. We observe that before 1890 both the private and the public sector contributed equally towards the increase in the monetary base. The expansion recorded in the foreign sector, basically the specie reserves, also had an expansionary effect, although certainly moderate. In the five year period after that, 1890-95, the evolution appears rather different. We observe a notable increase in gold and silver reserves by more than 250 million pesetas, which, along with the 100 million peseta increase in the Bank's credit to the Treasury, generated a substantial impulse to the monetary base. However, this only grew by 140 million pesetas since the Bank's private assets fell by some 174 million pesetas. In the following five year, 1895 to 1900, high-powered money grew in a spectacular fashion, by some 1,200 million pesetas, thanks to the remarkable expansion of Bank's public sector assets and new advances to the Treasury; furthermore the amount of gold and silver in the reserves of the Bank also increased. Between 1900 and 1910 the trend is very clear: the monetary base contracted, a phenomenon which can be explained by the great reduction of public sector assets on the Bank balance sheet. It can be noticed however that both, reserves and private sector assets increased, partly compensated for the contraction in the volume of credit to the public sector. Finally, between 1910 and 1915 the monetary base increased as the combined result of the expansion in

international reserves and in public and private sector assets on the Bank of Spain 's balance sheet.

5. Conclusion.

Spain followed closely the international monetary experience until 1883; thereafter, instead of adopting the gold standard, the convertibility of the peseta was suspended and the exchange rate left to float in international markets.

From 1848 to 1874, when the Bank of Spain received the monopoly of issue of banknotes, the two main objectives of the Spanish authorities were the unification and the nationalization of the currency system; they introduced several reforms to stop the exportation of silver to France and introduced new coins with a silver content similar to that of the franc germinal. Although, the official Spanish gold-silver ratio remained quite stable, it was moved in several steps towards the French bimetallic ratio of 1:15.5 . Eventually, in 1868 a new unit of account, the peseta, was adopted and defined with an equal silver content of the French franc; Spain also adopted the same bimetallic regime which characterized the Latin Monetary Union.

The turbulences that hit the bimetallic regimes after the discoveries of new silver mines also affected the peseta. When the USA, Germany and other European countries abandoned bimetallism, in a move to avoid both inflation and monetary instability, silver, the depreciating metal, flowed to that other countries which retained silver convertibility. Hence, between 1873 and 1883 Spain lost large quantities of gold, and, as a consequence, the gold backing of its banknotes was put into

jeopardy. Finally, gold convertibility was suspended and Spain joined the peculiar club of silver countries while the rest of the world moved unrelentingly towards the gold standard. The peseta depreciated heavily until 1900, due basically to financial heterodoxy. With the turn of the century, when the government was able to balance the budget and reduce the public debt outstanding, the peseta recovered part of its external value. At the same time, the authorities attempted to restore convertibility and adopt the gold standard; but all plans failed as a result of endless confrontation between the Bank of Spain and the Ministry of Finance.

On the other hand, between 1850 and 1914 the composition of the Spanish stock of money underwent a substantial modification. First, gold was substituted by silver and later banknotes reached a dominant position; deposits also increased rapidly, but never surpassed the amount of fiduciary bills. Essentially until 1883 balance of payment movements determined the volume of base money; until the mid-1870's capital imports increased the stock of gold, which in turn served to expand the amount of money. In later periods, the influence of the balance of payments diminished and central bank's accommodation of the deficit of the Treasury became the main determinant of high-powered money.

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Table 1. The Legal Gold-Silver Ratio in Spain

Year of Change	Ratio
b. 1848	1:16
1848	1:15.771
1849	1:15.659
1850	1:15.886
1854	1:15.479
1861	1:15.527
1864	1:15.476
1868	1:15.500

Source: Piffiot (1917) and Gardá (1948), chap. V and VI



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Table 2. The composition of the stock of money in 1865 and 1868.

In million pesetas

	1865	1868
Gold	1,100	1,208
Silver	250	313
Banknotes	100	103
Current Accounts	60	58
Total	1,510	1,682

Source:

1865: Tortella (1981), p. 24.
1868: Apendix.



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Table 3. The stock of money, 1848-1873

In million pesetas

	Gold Stock	Silver Stock	Banknote	Deposits	Gold and Silver in vaults	Money Supply
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	57	56	48	820
1857	608	181	72	51	45	867
1858	616	191	86	63	51	905
1859	667	196	112	82	65	992
1860	724	202	118	69	53	1,060
1861	819	211	100	54	48	1,136
1862	889	220	100	72	52	1,229
1863	937	224	118	76	55	1,279
1864	1,038	239	125	38	45	1,395
1865	1,100	250	115	43	55	1,453
1866	1,141	266	90	47	64	1,480
1867	1,190	289	95	81	70	1,585
1868	1,208	313	103	58	59	1,623
1869	1,266	323	96	77	79	1,683
1870	1,341	353	99	120	139	1,756
1871	1,386	391	122	127	162	1,762
1872	1,449	424	115	113	127	1,770
1873	1,537	462	97	79	74	1,770

Source: *Estadísticas Históricas de España* (table 9.1); *Ensayos sobre la economía española a mediados del siglo XIX*, (Appendix).

Table 4. Bank of Spain's assets by sectors, 1856-1873

In million pesetas

Year	Total credit outstanding	
	Treasury (1)	Private sector (2)
1856	74	-3
1857	68	9
1858	72	22
1859	90	21
1860	73	31
1861	65	32
1862	49	59
1863	84	41
1864	141	11
1865	106	19
1866	95	11
1867	101	21
1868	96	22
1869	100	18
1870	105	19
1871	98	13
1872	122	17
1873	114	7

Source: Anas (1974a), table III-2

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Table 5. Bank of Spain's assets by sectors, 1874-1883

In million pesetas

Years	Gold and Silver (1)	Total credit outstanding	
		Treasury (2)	Private sector (3)
1874	52	181	21
1875	128	170	37
1876	104	214	46
1877	126	214	38
1878	142	267	80
1879	218	166	99
1880	236	231	203
1881	226	261	175
1882	123	341	211
1883	111	360	199

Sources: Anas (1974b), Dt V-1



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Table 6. The money supply process, 1883-1914

Periods	Absolute Rate of Growth Percentages			Relative Contribution Percentages		
	M	MB	m	M	MB	m
1883-1914	1.9	1.6	0.3	-	85.0	15.0
1883-1900	2.8	2.8	0.0	-	100.0	0.0
1900-1914	1.0	0.4	0.6	-	40.0	60.0

Notes: M = money supply
 MB = monetary base
 m = money multiplier

Source: Appendix



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Table 7. High-powered money and its main determinants, 1880-1915

In million pesetas

Periods	Foreign assets (1)	Foreign assets (2)	Credit outstanding		Other items (5)
			Treasury (3)	Private sector (4)	
1880-1885	+285	-84	+287	+133	-219
1885-1890	+190	+96	+172	+173	-251
1890-1895	+140	+253	+99	-174	-38
1895-1900	+1,131	+306	+646	+53	+126
1900-1905	-277	+42	-602	+363	--
1905-1910	-66	+68	-314	+219	-39
1910-1915	+700	+467	+218	+21	-6

Source: Martín Aceña (1985), table 7.



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Figure 1. The Relative Price of Gold to Silver



Figure 2. Peseta-pound sterling nominal exchange rate, 1848-68

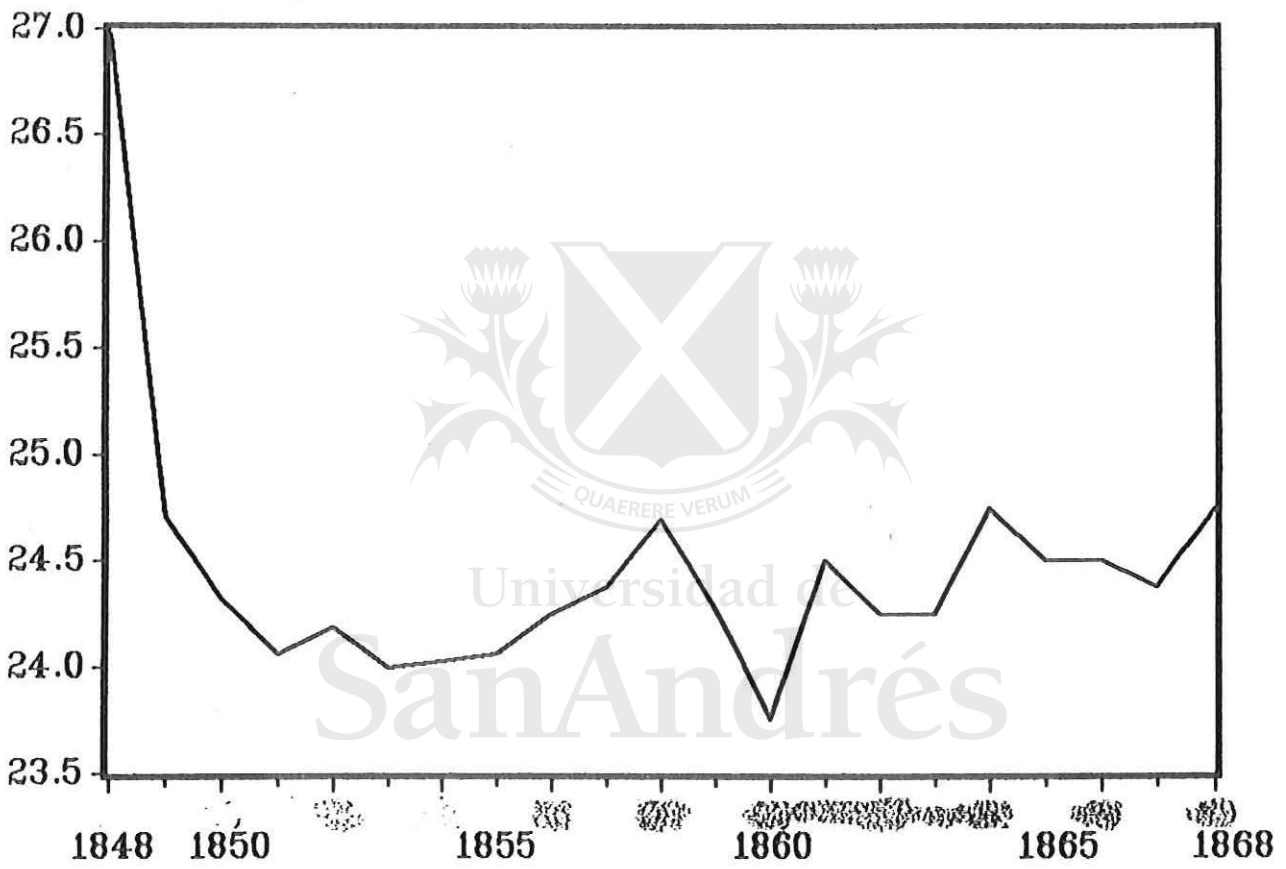


Figure 3. The peseta-pound sterling real exchange rate and the purchasing-power parity, 1848-1868

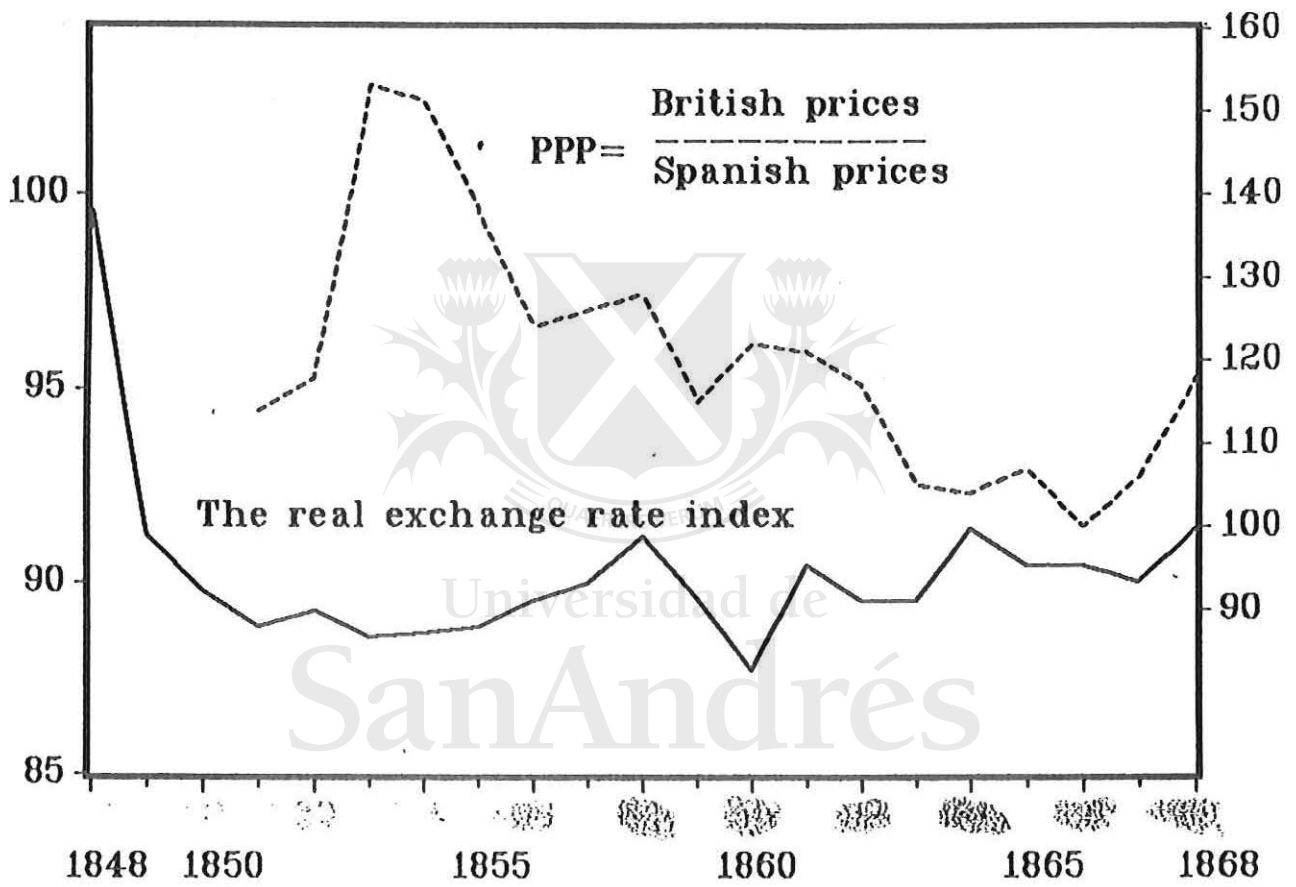


Figure 4. Ratio of price of gold to price of silver, 1800-1914

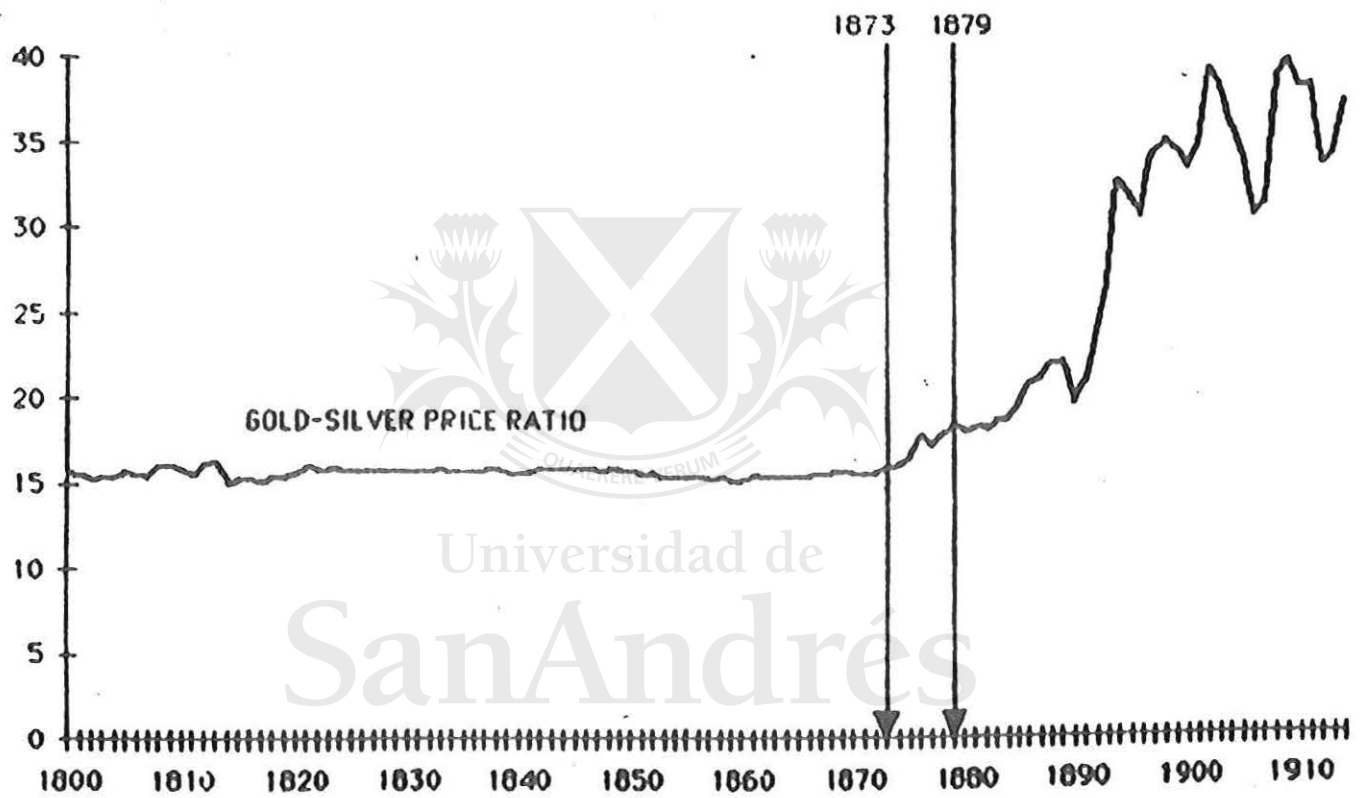


Figure 5. The peseta nominal exchange rate, 1868–1883

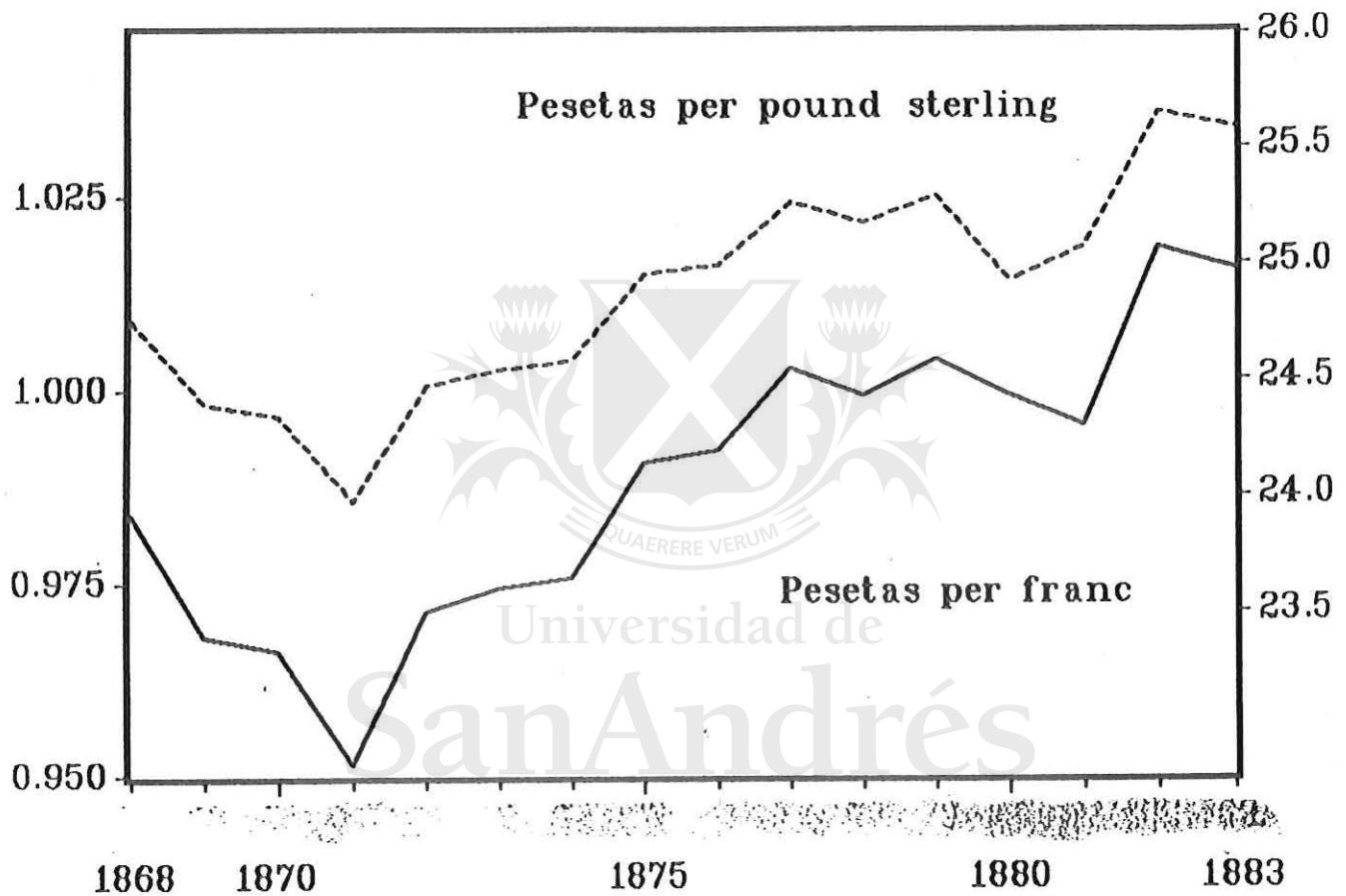


Figure 6. The peseta nominal exchange rate, 1883-1914

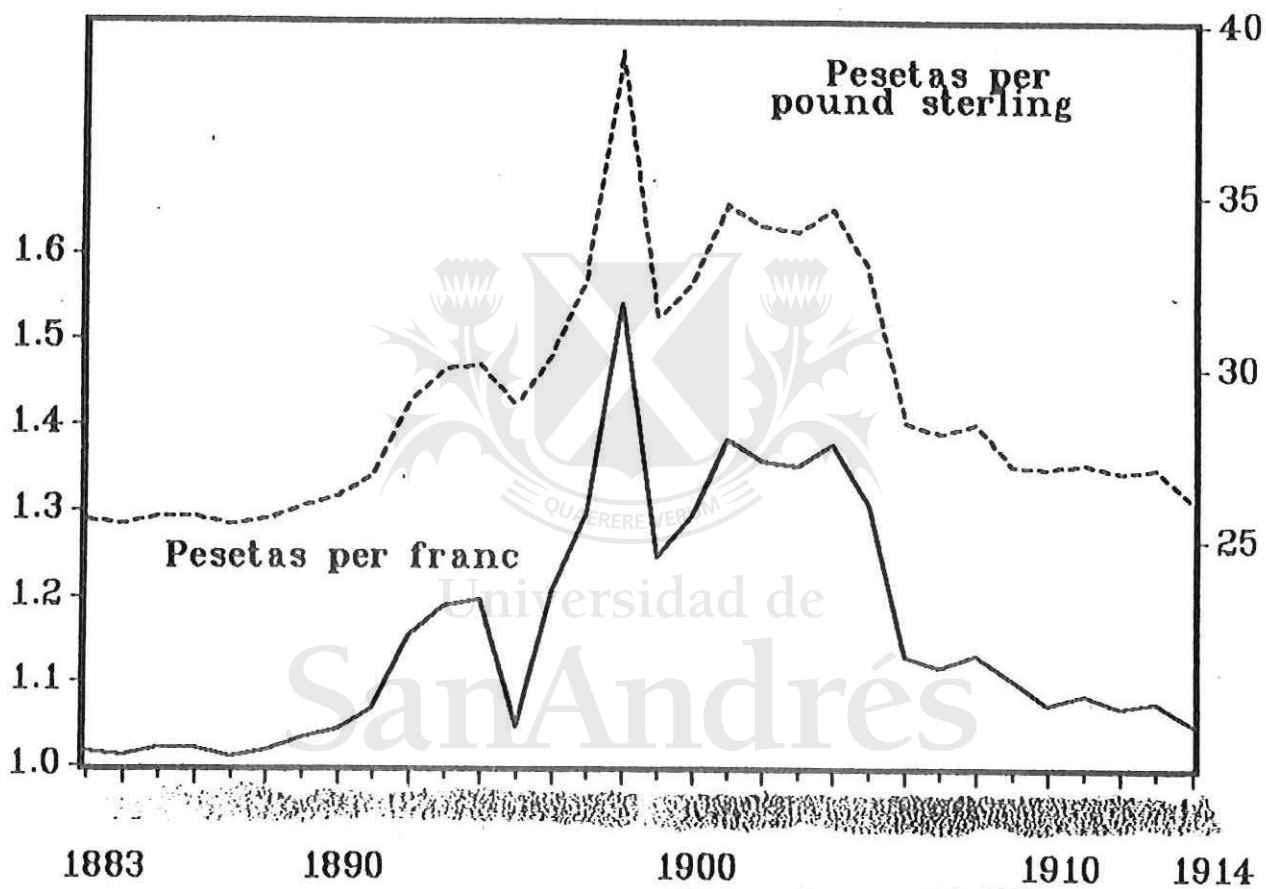


Figure 7. The quantity of money, 1883-1914.
In million pesetas

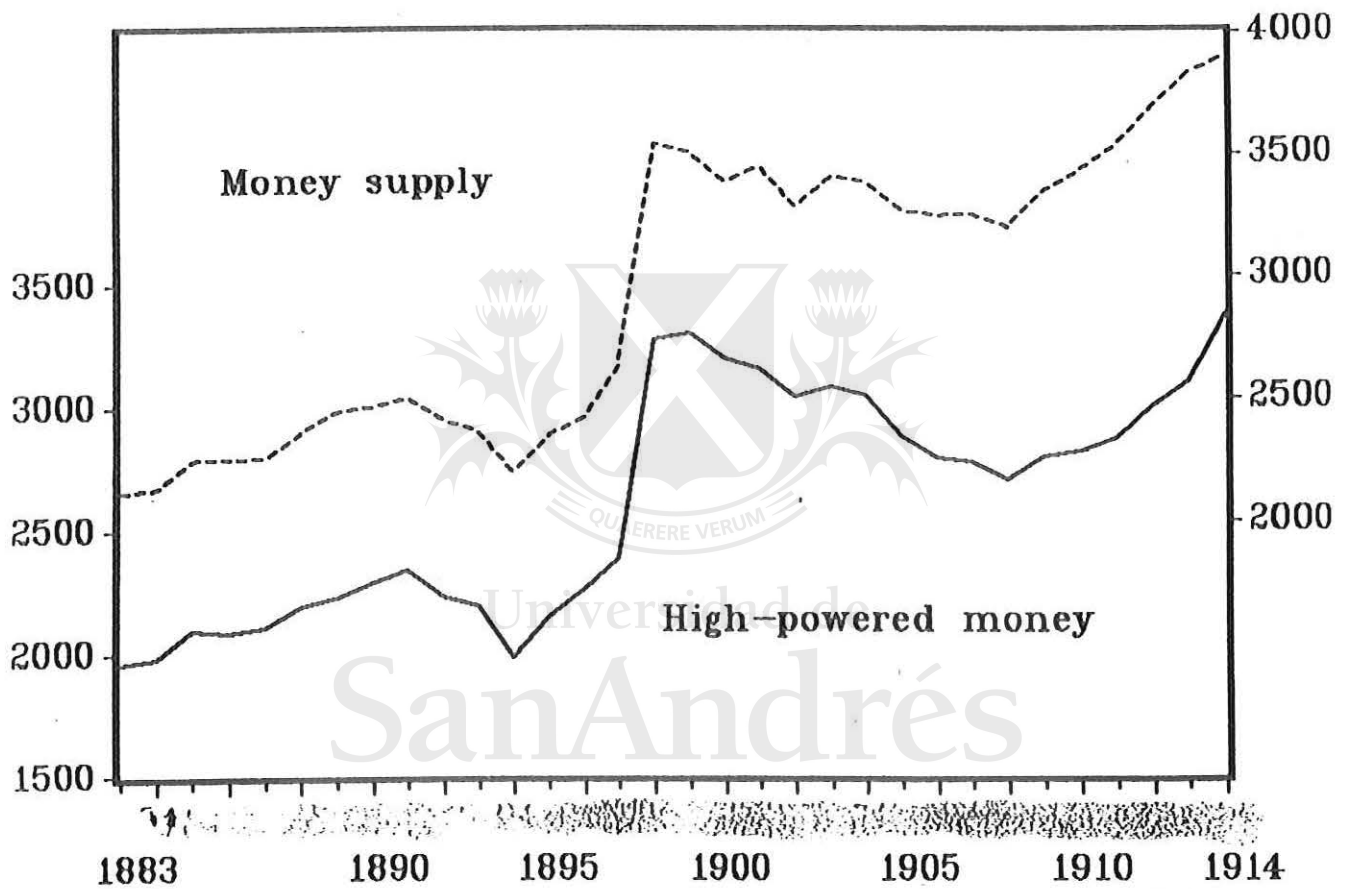
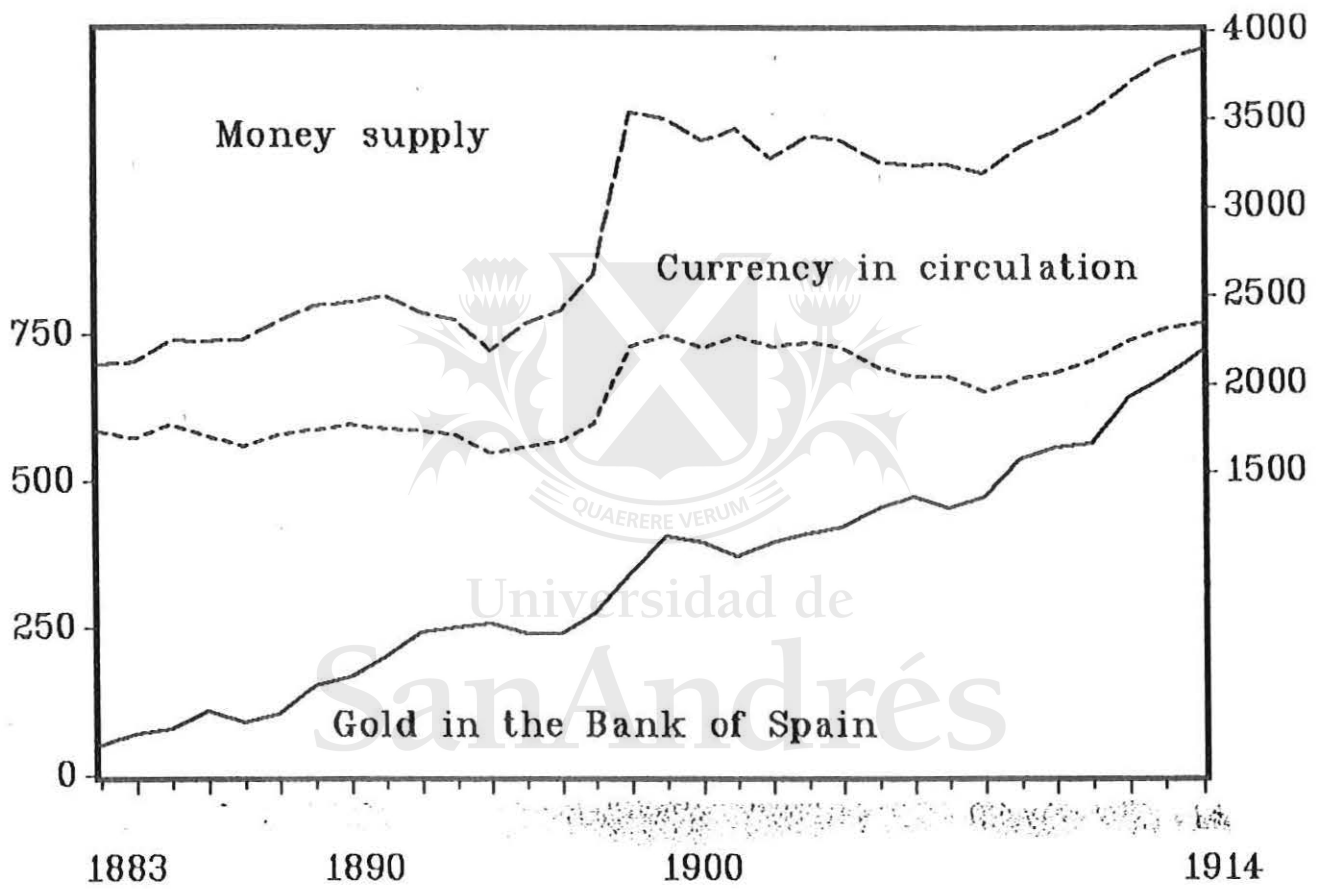


Figure 8. Gold, currency in circulation and the money supply, 1883-1914. In million pesetas.



APPENDIX



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Table A. Coinage: Gold, Silver and Copper, 1848-1907

In Thousand Pesetas

	Gold (1)	Silver (2)	Copper (3)	Total (4)
1848	996	3,204	1,169	5,369
1849	555	3,635	1	4,191
1850	16,224	6,945	168	23,331
1851	3,030	6,136	65	9,231
1852	211	8,066	95	8,371
1853	--	9,176	151	9,328
1854	21,117	10,468	173	31,758
1855	36,629	7,645	526	44,801
1856	44,874	6,346	325	51,546
1857	30,716	3,384	465	34,564
1858	9,412	9,488	444	19,345
1859	50,104	4,965	538	55,607
1860	57,013	6,369	558	63,999
1861	95,006	9,004	520	104,530
1862	69,773	8,407	522	78,702
1863-64	148,819	19,460	762	169,041
1864-65	62,357	10,895	536	73,788
1865-66	40,839	16,4963	190	57,525
1866-67	49,292	22,220	2,423	73,935
1867-68	18,361	24,712	11,470	54,543
1868-69	57,162	9,987	18,248	85,397
1869-70	75,554	29,323	1,848	106,725
1870-71	44,444	38,178	4,836	87,458
1871-72	63,736	33,211	13,683	109,629
1872-73	87,546	37,839	9,190	134,575
1873-74	--	45,943	4,168	50,111
1874-75	--	60,469	--	60,469
1875-76	--	72,974	3,517	76,419
1876-77	174,827	26,503	--	201,330
1877-78	230,743	43,351	4,675	509,512
1878-79	112,819	39,514	10,272	162,604
1879-80	124,328	3,736	8,381	136,445
1880-81	156,211	9,054	--	165,264
1881-82	57,279	31,145	--	88,424
1882-83	10,344	52,021	--	62,365
1883-84	33,270	38,044	--	71,314

1884-85	21,835	27,731	--	49,566
1885-86	--	17,437	--	17,437
1886-87	12,279	28,779	--	41,058
1887-88	--	61,993	--	61,993
1888-89	13,755	45,264	--	59,019
1889-90	30,608	21,778	--	52,385
1890-91	20,033	38,124	--	58,156
1891	--	63,433	--	63,433
1892	48,607	46,207	--	94,813
1893	--	17,050	--	17,059
1894	--	20,447	--	20,447
1895	--	1,066	--	1,066
1896	--	27,919	--	27,919
1897	14,977	33,663	--	48,639
1898	--	199,887	--	199,887
1899	25,200	77,121	--	102,321
1900	16,518	19,714	--	36,233
1901	--	8,449	--	8,449
1902	--	2,599	--	2,599
1903	--	10,602	--	10,602
1904	76	7,720	200,000	207,796
1905	--	8,321	62,270	70,591
1906	--	--	112,730	112,730
1907	--	--	--	--

Source: Anes (1974b), table Dt. III-2; Tortella (1974b), table Dt. IV-1; Ministerio de Hacienda. Cuentas del Estado Español.

Table C. The stock of money, 1874-1914.

In million pesetas

Year	Currency in circulation (1)	Deposits (2)	Money supply (3)	High-powered money (4)	Deposit-currency ratio (5)	Deposit-reserve ratio (6)
1874	1,605	164	1,769	1,722	0.10	1.40
1875	1,598	210	1,808	1,731	0.13	1.58

Table B. The Spanish stock of gold, 1870-1914.

In million pesetas

Years	Total stock of gold (1)	Gold in circulation (2)	Gold in the Bank of Spain (3)
1870	1,323		
1871	1,284		
1872	1,245		
1873	1,206		
1874	1,167	1,131	18
1875	1,128	1,057	36
1876	1,089	1,002	46
1877	1,050	966	45
1878	1,011	915	53
1879	972	793	101
1880	933	753	105
1881	894	685	125
1882	885	774	50
1883	816	736	51
1884	777	670	70
1885	737	619	80
1886	698	541	110
1887	659	534	91
1888	620	480	105
1889	581	384	153
1890	542	333	168
1891	503	263	201
1892	464	186	243
1893	425	151	250
1894	386	117	257
1895	347	106	241
1896	308	67	241
1897	279	-	274
1898	342	-	342
1899	406	-	406
1900	395	-	395
1901	370	-	370
1902	395	-	395
1903	410	-	410
1904	419	-	419
1905	453	-	453
1906	471	-	471
1907	453	-	453
1908	472	-	472
1909	535	-	535
1910	554	-	554

Table D. The trade balance and the budget deficit, 1848-1914.

In million pesetas

	Trade balance	Budget deficit
1848	-40.6	
1849	-15.6	
1850	-9.8	+4
1851	-24.3	-27
1852	-48.5	-10
1853	-4.1	-11
1854	-83.6	-27
1855	+65.5	-52
1856	-8.3	-66
1857	-39.9	-54
1858	-176.2	-42
1859	-69.8	+6
1860	-102.1	-65
1861	-149.5	-131
1862	-217.7	-130
1863	-269.3	-121
1864	-247.8	-186
1865	-211.0	-139
1866	-130.0	-101
1867	+21.2	-118
1868	-57.9	-149
1869	+48.7	-270
1870	-57.7	-331
1871	-16.2	-238
1872	-105.9	-219
1873	+170.9	-227
1874	-20.3	-10
1875	+62.7	-111
1876	-76.9	-6
1877	+73.4	-13
1878	+53.2	-30
1879	+22.0	-78
1880	+112.9	-58
1881	+184.7	-1
1882	+60.5	-31
1883	0.0	-45

1884	+20.4	-28
1885	+70.6	-82
1886	+97.5	-15
1887	+70.5	-73
1888	+141.1	-122
1889	+23.8	-67
1890	+31.5	-50
1891	+220.4	-54
1892	+354.6	-19
1893	+291.2	+75
1894	+149.9	+6
1895	+207.7	-26
1896	+437.7	+40
1897	+447.3	-54
1898	+488.1	+8
1899	+63.5	+134
1900	+133.2	+52
1901	+15.3	+38
1902	+52.8	+71
1903	+16.0	+23
1904	+73.6	+54
1905	+73.3	+72
1906	+296.7	+103
1907	+297.6	+65
1908	+151.0	+56
1909	+178.1	-51
1910	+163.1	-6
1911	+176.7	+6
1912	+160.1	-62
1913	-28.3	-71
1914	-213.3	-166

Notes: Superavit (+); Déficit (-)

Source: Estadísticas Históricas de España,
table 8.3 and table 10.25.