BANK OF GREECE
EUROSYSTEM

Working Paper

Banking and central banking in pre-WWII Greece: money and currency developments

Sophia Lazaretou

SEEMHN

86

JULY 2008

BANK OF GREECE
Economic Research Department – Special Studies Division
21, E. Venizelos Avenue
GR-102 50 Athens
Tel: +30210-320 3610
Fax: +30210-320 2432

www.bankofgreece.gr

Printed in Athens, Greece
at the Bank of Greece Printing Works.
All rights reserved. Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

ISSN 1109-6691

Editorial

The South-Eastern European Monetary History Network (SEEMHN) is a community of financial historians, economists and statisticians, established in April 2006 at the initiation of the Bulgarian National Bank and the Bank of Greece. Its objective is to spread knowledge on the economic history of the region in the context of European experience with a specific focus on financial, monetary and banking history. The First and the Second Annual Conferences were held in Sofia (BNB) in 2006 and in Vienna (OeNB) in 2007. Additionally, the SEEMHN Data Collection Task Force aims at establishing a historical data base with 19th and 20th century financial and monetary data for countries in the region. A set of data has already been published as an annex to the 2007 conference proceedings, released by the OeNB (2008, Workshops, no 13).

On 13-14 March 2008, the Third Annual Conference was held in Athens, hosted by the Bank of Greece. The conference was dedicated to *Banking and Finance in South-Eastern Europe: Lessons of Historical Experience*. It was attended by representatives of the Albanian, Austrian, Belgian, Bulgarian, German, Greek, Romanian, Russian, Serbian and Turkish central banks, as well as participants from a number of universities and research institutions. Professor Michael Bordo delivered the key note speech on *Growing up to Financial Stability*. The participants presented, reviewed and assessed the experience of SE Europe with financial development, banking and central banking from a comparative and historical perspective.

The 4th Annual SEEMHN Conference will be hosted by the National Serbian Bank on 27th March 2009 in Belgrade. The topic of the Conference will be *Economic and Financial Stability in SE Europe in a Historical and Comparative Perspective*.

The papers presented at the 2008 SEEMHN Conference are being made available to a wider audience in the Working Paper Series of the Bank of Greece. Here we present the twelfth paper, by Sophia Lazaretou.

July, 2008

Sophia Lazaretou
SEEMHN Coordinator
Member of the Scientific and Organizing Committee

BANKING AND CENTRAL BANKING IN PRE-WWII GREECE: MONEY AND CURRENCY DEVELOPMENTS

Sophia Lazaretou
Bank of Greece

ABSTRACT

This paper aims to trace the history of central banking in pre-WWII Greece. To this end, we first study the country's financial structure and its process of financial development. Several indices of financial development have been assessed and their evolvement has been studied. The country's financial development had passed through different stages. Financial depth had increased in the turn of the 19th century and expanded further in the 1920s. However, on the basis of behavioural indices, banks were shown to be poorly asset-liability managed. They were also suffered by capital adequacy and were highly leveraged. The analysis of the composition of money supply and its long run behaviour suggests that monetary base variations were the proximate determinants of money supply movements, whereas money multiplier had a minimum impact. Central banking in pre-WWII Greece is viewed with regard to the monetary policy strategy, the monetary policy implementation framework and state interventions. The balance sheet of the Bank of Greece reveals an excessive focus on the chosen monetary policy strategy of a currency peg. Domestic credit was controlled *via* liquidity-providing standing facilities, either discounts or advances. Moreover, Bank's considerable involvement in government re-financing might indicate that state interventions were considerable.

*Keywords***:** Central banking; Financial intermediation; Money
*JEL classification***:** E500; N230

Acknowledgments: I am grateful for thoughtful comments from Michael Bordo, Erik Buyst, Ivo Maes and Zarko Lazarevic. I also wish to thank Panayotis Kapopoulos and George Kostelenos for stimulating discussions. The views expressed in this paper are those of the author and do not necessarily reflect those of the Bank of Greece. Any errors remain my responsibility.

Correspondence:
Sophia Lazaretou
Bank of Greece, Economic Research Department
21 E. Venizelos Ave.
102 50 Athens, Greece
email:slazaretou@bankofgreece.gr

1. Introduction

According to the textbook view of the theory of central banking, 'a central bank can generally be defined as a financial institution responsible for overseeing the monetary system for a nation, or a group of nations, with the goal of fostering economic growth without inflation' (Casu *et al*. 2006, p.110). The core policy functions of a central bank is to control the note and coin issue; to administer the money supply of the economy; to supervise and regulate commercial banking so as to keep financial stability; to act as a lender of last resort in order to protect depositors and prevent banks' failure by granting credit to those banks being in serious liquidity difficulties and eventually protect the economy by preventing potential financial panics; to act as the government's banker and the official agent to the government in dealing with gold and foreign matters (Capie *et al*. 1994).[1]

Historically speaking, in the gold standard era central banks acted as the guardians of the gold standard, currency managers and providers of war finance. Usually, they were commercial banks to which the government had granted the monopoly of issue, while they were not independent from state intervention and commercial considerations. *Laissez-faire* rules secured monetary and financial stability. In the interwar years, however, the new orthodoxy of monetary policy implementation concerned the founding of 'real' central banks in each country, in order to effectively use monetary policy tools to protect economies from the heavy monetary and financial disorders followed the aftermath of the war. Near to this international movement, Greece created its own central bank in 1928 with a prime objective of safeguarding the international price of the domestic currency and keeping inflation at a low level.

This paper aims, for the first time, to trace the historical evolution of central banking in pre-WWII Greece. To this end, we study the country's financial structure and its process of financial development. In particular, we analyze the composition of the money supply in the domestic economy and its long run behaviour. Central

[1] Nowadays, the merits and demerits of central banks are yet a question under debate. 'Free-banking school' theorists object the need for a central bank and argue that regulation should be left to the market (Dowd 1996). On the other hand, in Goodhart's view (1989) central banks are needed for two reasons. First, banks operate the payment systems and undertake portfolio management services and hence, they need to be preserved and, second, a central bank aims to prevent the collapse of the banking sector arising from information problems, excessive risk taking and abuses by bankers.

banking is viewed with regard to the monetary policy strategy, the monetary policy implementation framework and independence from political influence.

The paper proceeds as follows. Section 2 briefly presents the development over time of selected macroeconomic indicators. Section 3 considers the country's financial surrounding. Specifically, several measures of the degree of financial development have been assessed and their trend behaviour has been studied. In Section 4 banks' behavioural indicators are discussed in an attempt to evaluate the soundness of the domestic banking system. Section 5 studies the composition of the money supply in the economy (that is, bank deposits and banknotes) and presents the determinant factors of the money supply movements. Section 6 deals with the country's central banking. It discusses its origin and its crucial monetary policy functions. Section 7 concludes.

2. Macroeconomic Indicators

Economic and monetary conditions in pre-WWII Greece were largely determined by the interplay between fiscal imbalances and monetary disturbances. Greece had a weak governmental financial system due not only to wartime emergencies but also to spendthrift governments and their inability to undertake a radical budget reform. As a result, the country suffered by frequent convertibility and confidence crises. However, the episodes of inconvertibility were interrupted by short periods of monetary stability and rapid economic growth. In the course of a 100-year period, the country experienced important demographic and territorial changes which raised consumption and aggregate demand but also threw a burden on the government budget. Sudden population increases were due to the country's territorial enlargements which were the outcome of its involvement in frequent hostilities with the Ottoman Empire, the Balkan Wars and WWI.

Table 1 presents the development over time of selected macroeconomic indicators. As seen, the first improvement of the domestic economy can be dated to after the middle of the 19th century. In the 1850s the average growth rate of real GDP was positive and high, even though excess volatile. Positive but lower rates prevailed in the next two decades. In the 1880s, the rate of growth rose sharply due to private investment inflows. It was the period of the country's economic restructure and

development. From the turn of the century afterwards output growth accelerated. The country enjoyed steadily high and less volatile output growth rates. Despite the significant increase in the size of the population owning to the gradual territorial enlargement of the country, the level of real per capita income exhibits a strong upward trend, mainly as the result of the increase in output.

Table 1: Selected Macroeconomic Indicators, pre-WWII Greece

Sub-periods	*Population (million)*	*Real GDP Growth Rate (%)*	*Real Per Capita Income (in LMU drs.)*
1840s	1.00*	-0.48** (-15.77)***	180.7**
1850s	1.08	3.89 (3.42)	207.5
1860s	1.44	2.04 (2.94)	219.0
1870s	1.68	1.88 (3.96)	208.3
1880s	2.19	4.12 (1.61)	246.1
1890s	2.49	0.49 (26.35)	231.2
1900s	2.67	2.33 (4.00)	256.6
1910s	4.81	4.19 (0.97)	265.8
1920s	6.31	4.72 (1.91)	263.4
1930s	7.12	3.96 (1.46)	326.5

Notes: annual data, real GDP and real per capita GDP at 1914 constant prices.
(*) end-of-period data. Important territorial enlargements followed by population increases occurred in 1881, 1913 and 1922-23.
(**) averages of the annual observations over selected dates.
(***) coefficient of variation; it measures the standard deviation to the series' mean.
Sources: The data for the level of real GDP and real per capita GDP are from Kostelenos *et al.* (2007). The data for the population are from the National Statistical Service of Greece, *Monthly Statistical Bulletin* (various issues).

During the gold standard period 1870-1913, Greece enjoyed an average annual per capita GDP growth rate of 1.4%, which lagged only 0.1 of a percentage point behind the combined rate of the most advanced countries (namely, the US, the UK, France and Germany).[2] In the interwar years (1918-1938) the difference was notably higher, 2.6% compared with 1.2%. The interwar period was marked by a de-globalisation since extensive controls had been imposed worldwide upon goods and money flows.

[2] Based on Maddison's (2003) estimates for Greece. However, according to more recent estimates (Kostelenos *et al*. 2007), the rolling (over a 5 year time span) average annual per capita income growth rate was lower (0.66%), which was 0.85 of a pp less the combined average of the most advanced countries. This favourable performance of the country is easily explained by the convergence hypothesis: a poor country, *ceteris paribus*, tends to grow faster than a rich country and hence the per capita income level of the former will catch up with the latter (see, Barro and Sala-i-Martin 1992, 2003).

Trade and mainly agricultural exports were reduced. A peripheral economy, like Greece of the time, should speed up the industrialization process in order to continue enjoying positive growth rates. Indeed, the 1920s were a period of rapid growth regarding the Greek industry. The heavy tariff protection and the sharp fall in real wages[3] were the driving forces of this developing process. From 1921 to 1927 the volume of industrial production increased by 7.2% yearly.[4]

However, Greece was part of the group of the less developed countries in Europe. As seen in Figure 1, throughout the whole sample period, Greek per capita income was less than half of the combined average of the most advanced economies. In 1870 per capita income corresponded to a mere 39%, relative to the G-4 average (G-4=100, in international US dollars). In the 1900s it was in the vicinity of 45-48%, reaching a peak of 56% and 52% in 1911 and 1912, respectively. However, the distance from the advanced economies rapidly increased to 31% in 1913 and 36% in 1923. This unfavorable development was mainly due to important demographic changes across these dates. In the 1930s, the distance became shorter; at the ending date of our sample period per capita income corresponded to 46%. Figure 2 also compares the output performance among some Balkan countries, G-4 and a European average. Compared with the 1870 picture, in 1913 Greece continued to be among the poorest European countries; only Portugal and Serbia were left behind.[5]

3. Financial Intermediation: Stylized Facts

We next consider the country's financial surrounding which is our main concern. Several measures of the degree of financial development have been proposed in the literature (see, for example, Beck *et al*. 1999, Beck and Levine 2004, Bordo and Rousseau 2006). The most widely used are: (i) the ratio of bank assets to GDP; it illustrates the importance of the financial services provided by banks relative to the

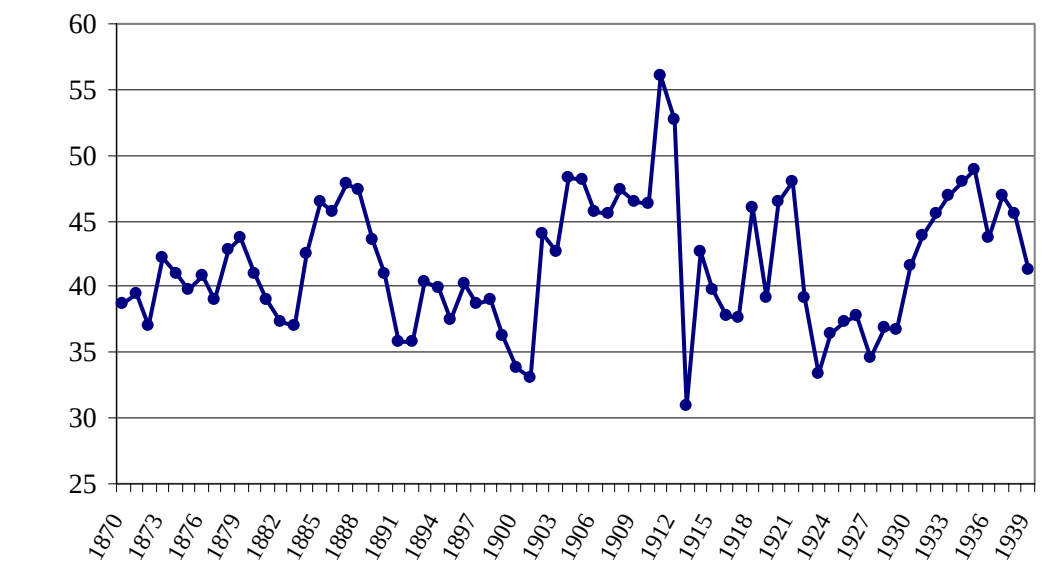
[3] Due both to the existence of an abundant labour force after the massive influx of refugees in 1922-23 (among whom there was a large part of industrial workers) and the high inflation rates. Consumer price inflation was 22.5% in 1915; it then climbed to 33.3% in 1918, reaching a peak of 66.4% in 1922. Inflation fell at moderate levels in 1924-26 and was eventually stabilized in 1928 at a level close to 1%. After averting the deflation waves of 1929 crash, prices began to rise again. From 1932 to 1939 the average annual inflation rate was 4.2%.

[4] Industry firms were labour oriented and in their majority produced consumer goods mainly for domestic consumption.

[5] For a comparison in a historical perspective of the output performance among the European countries, see Morys (2006).

size of the economy. (ii) The level of bank credit to the private sector as a share of GDP; it shows the importance of one of the main functions of financial intermediaries, namely channeling savings to investors. (iii) The ratio of private deposits to GDP; it reflects public confidence in the banking system, and (iv) broad money divided by GDP. The last two indices primarily reflect the size of a country's banking system. They will record high values for countries with more bank-based financial systems. Or, as a country's economy gradually relies more heavily on the banking activity than in the past, the ratio of deposits and money will exhibit a strong upward trend over time.

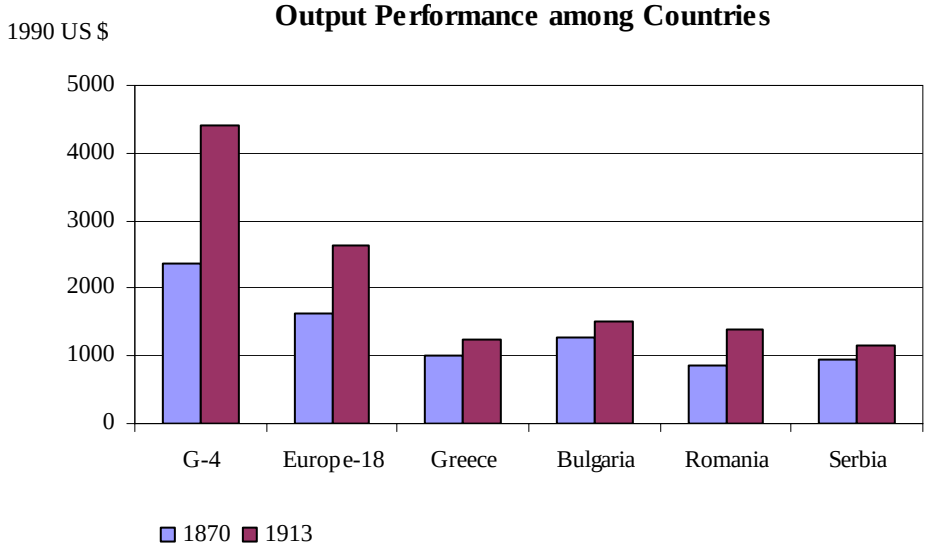
Figure 1
Real Per Capita Income, 1870-1939
Greece vs. G-4



Notes: in international 1990 US dollars. G-4 is the average of the annual levels of real per capita income of the UK, the US, France and Germany.
Sources: Kostelenos *et al*. (2007) and Maddison (2003).

Figure 3 depicts the development over time of the degree of financial depth measured by the above mentioned indices.[6] As seen, financial depth exhibits a positive long run trend, even though it is relatively weak and excess volatile. The rate of increase was rather slow in the first quarter of the time span; it then accelerated and reached its peak in the eve of the outbreak of WWI. However, during wartime and its aftermath all ratios moved downwards.

Figure 2
Output Performance among Countries

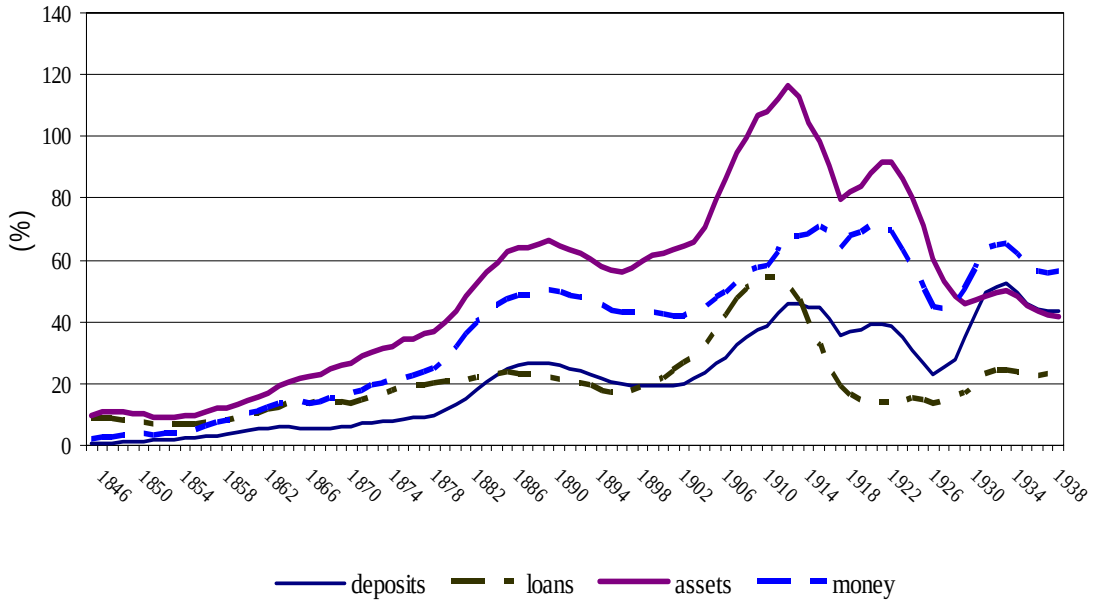


Notes: real per capita income in international 1990 US $. Europe-18: Belgium, France, Germany, the UK, the Netherlands, Denmark, Finland, Norway, Sweden, Austria, Italy, Spain, Portugal, Bulgaria, Greece, Hungary, Romania and Serbia.
Sources: Maddison (2003), Lains (2003), Martin-Acena (2007) and Kostelenos *et al.* (2007).

The recent literature on economic development and finance supports that a long run linkage exists between economic growth and financial development (see Bruno and Easterly 1998, Gylfason and Herbertsson 2001, Boyd *et al*. 2001). As per capita income rises, financial depth increases since the demand for money becomes higher. Thereby, by providing the economic system with the necessary liquidity, banking system accommodates economic growth.

[6] Computations are based on year averages using a five year rolling span. They remain unchanged when we use a longer (ten year) rolling time span. Using a rolling time span it helps us to minimize the resulting loss of information which is the principle drawback of averaging.

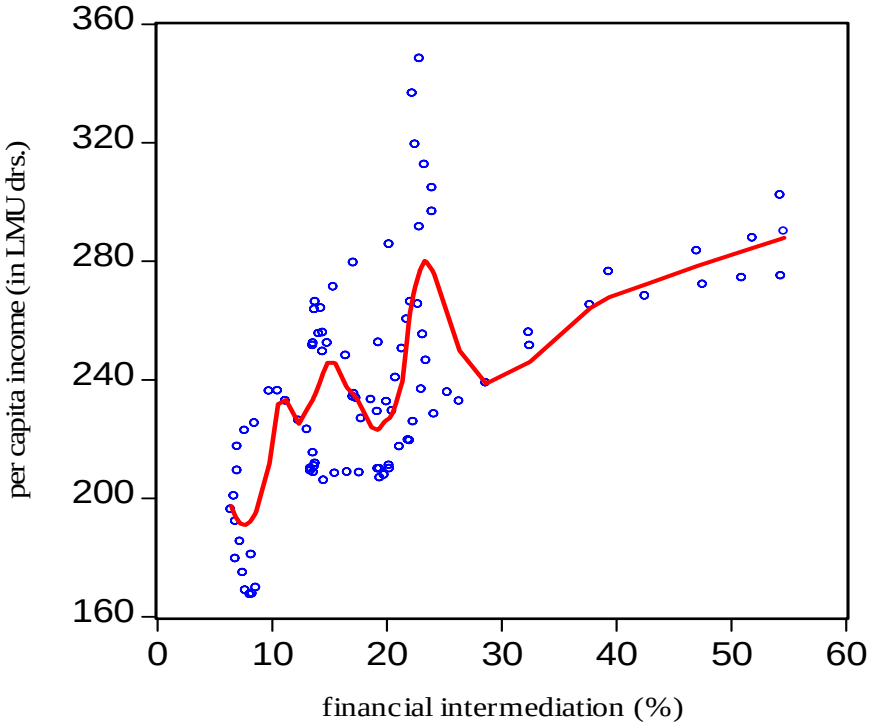
Figure 3
Financial Development, 1846-1938



Notes: The data series are year averages using a five year rolling time span and are defined as per cent to GDP. End-of-year data. *Deposits*= total private deposits (sight, time, savings and bank bonds) denominated in specie, foreign exchange and drachmas. They refer mainly to deposits with the National Bank of Greece (NBG) till 1911 and with all other banks and the NBG from 1912 afterwards. The sample covers 15 banks and the NBG for the period 1912-1926, 43 banks and the NBG in 1927 and 38 banks and the NBG for the period 1928-1939. *Loans*= total gross loans to firms and households, 8 large banks (namely, NBG 1842-1939; Emporiki Bank 1908-1932; Agricultural Bank of Greece 1930-1939; Bank of Athens 1896-1939; Anatolis Bank 1905-1925; Bank of Crete 1899-1917; Epirus-Thessaly Bank 1882-1896). *Assets*= based on the sample of 8 large banks. *Money*= defined as broad money, i.e., the sum of total private deposits and banknotes in circulation outside the banking system.
Sources: The data series for total assets and private loans are taken directly from the banks' *Balance Sheets* (various issues); the data for money and deposits are from worksheets underlying Lazaretou (2005a). The data for GDP are taken from Kostelenos *et al*. (2007).

By plotting in Figure 4 private lending and real per capita income, we can look at the linkages among them. The pattern is pretty clear. Per capita income and private lending go hand in hand in the data. The correlation coefficient is positive and high enough (0.6), implying that banking credit expands with rising per capita income. It seems that this association holds in almost every date of our long time span, even though the country had passed through different stages of the economic and financial development process.

Figure 4
Financial Intermediation and Per Capita Income, 1846-1939



Notes: A locally weighted second degree polynomial regression is fitted for each data point in the sample. Financial intermediation is defined as the ratio of private credit to GDP; per capita income is at constant 1914 prices and in LMU drachmas. The data series are annual averages based on a 5 year rolling time span.
Sources: banks' *Balance Sheets* and Kostelenos *et al.* (2007).

However, two cases are worthy of mention. First, the correlation coefficient becomes higher (0.9) for those dates which combine a high per capita income with a high ratio of private lending. From the turn of the 19th century till the outbreak of WWI, strong economic growth was reflected into high per capita income. Bank loans expanded to accommodate the increase in output demand. As lending expands, more banks entered the market to exploit profits since there were no entry barriers. Second, after averting the world-wide crisis of 1929, relatively low rates of bank lending were associated with high per capita income (see the cluster of observations in the north-west corner of the figure). The correlation is reduced to 0.4, indicating that other forces might motivate economic growth. During that period, large public

infrastructure works were implemented that stimulated domestic production. On the financial sphere, the Greek version of the world-wide financial crisis of 1929 was mirrored to several bank dissolutions and bankrupts. To restore public confidence in the banking system, an institutional set up was established in 1931, concerning the function and supervision of the country's credit institutions. However, as it is widely known, institutions change only gradually and slowly and their effects on the economic conditions take time before they can be noticed.

4. The Country's Financial Structure (I): Banks' Behavioural Indicators

Key features of every developing country are: few money transactions, low demand for money, savings shortage and low public confidence in banking. In the very early years of the modern Greek state, the demand for credit was satisfied by merchants and small private bankers. Their main activities were currency exchange, money deposits and short-term lending with collateral. The country's financial system made its start with the inception of the National Bank of Greece (NBG) in 1842. It was created and functioned as a 'universal bank', that is a deposit and a discount bank as well as a provider of short- and long-term private credit. At the same time it was granted by the government the monopoly of note issue. Soon, it became the biggest in resources and exerted its dominance over the domestic money market.

Throughout the 19th century, the process of financial intermediation went at a slow pace. Many banks were created but very few eventually functioned. In principle, they were short-lived with limited and locally located activities. Soon after their owner's and manager's death or retirement, they were becoming dissolved. Till 1900, only 4 out of 23 credit institutions remained active.

In the eve of the 20th century financial intermediation process went at a quick pace. The change in the stance of the economic policy pursued towards fiscal consolidation and monetary prudence followed the country's external debt compromise in 1898, largely contributed to the restoration of public confidence in the domestic currency. As a result, significant private investment capital inflows occurred which combined with high money inflows from trade, shipping and emigrants' remittances. The high rate of economic activity increased money transactions and the

demand for money as well, and caused an enlargement of the banking system. From 1900 to 1914 several new banks operated; some of them proved to be the most valid and long-lived credit institutions of the country.

These favourable developments continued in the 1920s. They were mainly driven by two forces: first, the sudden and rapid increase of the country's population in 1922-23 augmented domestic consumption and output demand, and, second, the strong devaluation pressures on the drachma due to high inflation, not only increased exports but, more importantly, reinforced speculation in the currency.[7] 46 new credit institutions operated from 1918 to 1927. However, very few managed to survive, while most of them were dissolved or went bankrupt soon after the currency's stabilization in 1928 and the 1929 world wide financial crisis.[8]

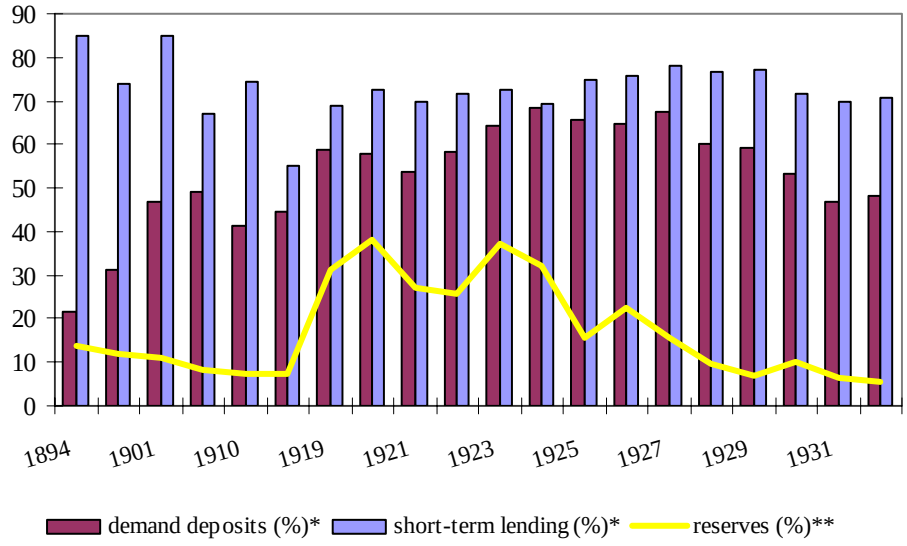
Main configurations of the Greek banking system were: (i) numerous small banks co-existed with very few large ones; (ii) they were highly leveraged and poorly asset-liability managed; (iii) they enjoyed monopoly rents; (iv) they were not regulated by an institutional principle and (v) there was no a central bank which would safeguard monetary and financial stability, and would act as a LLR during periods of crisis.

In particular, banks accepted private deposits and provided liquidity in the economy through trade discounts, commercial advances and short term lending with collateral (for example assets). Specialized credit institutions did not exist, which would provide long term, high risk loans to specific sectors of the economy, such as industry. Consequently, firms used to rely on short term lending to finance long term investment projects.

[7] The abnormal fluctuations of the drachma's exchange rate during that period caused large discrepancies between the buying and selling prices. Speculation attacks on the currency were strong, frequent and excess profitable. Many banks were created to enjoy these profits.

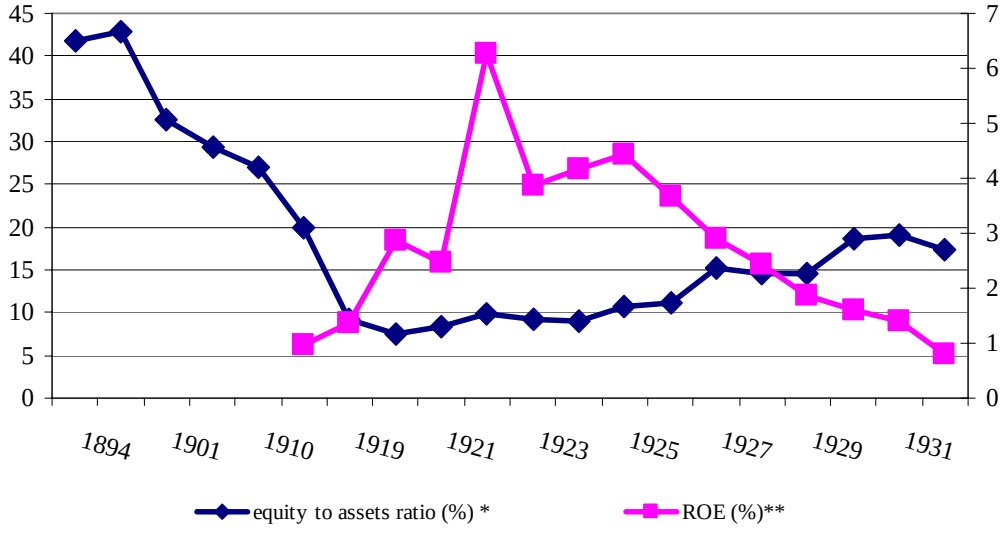
[8] Between 1917 and 1923 17 new banks were in function; in 1924 11 new banks were created; in 1925 8; in 1926 8 and in 1927 2. In the first months of the great crash 12 banks became bankrupt. By the end of 1932, the banks that remained active were reduced to 32.

Figure 5
Deposits, Loans and Reserves



Notes: all banks; * as per cent to total; ** as per cent to total assets.
Sources: banks' *Balance Sheets* and Kirkilitsis (1934).

Figure 6
Balance Sheet Indicators



Notes: * all banks; ** 6 large banks. LHS=equity to assets ratio, RHS=return on equity.
Sources: banks' *Balance Sheets* and Kirkilitsis (1934).

The excess liquidity in the 1920s due to a massive money creation to cover wartime emergencies, caused a rapid increase in bank deposits. In the absence of a

developed capital market, private agents preferred to keep their money with the banks in the form of more liquid investments (e.g. demand deposits) so as to convert them readily into a gold-based foreign exchange. The 1920s were also a period of high domestic consumption and output demand. Banks accommodated the increase in output demand by expanding short term lending. As seen in Figure 5, in 1928 discounts and advances accounted for more than 75% of total private lending; demand deposits were 60% of the total. At the same time, the ratio of reserves to assets was kept at high levels, especially in the years of high demand deposit increases. This implies that banks prudently used to hold vault cash to meet the demands of their customers for cash and payments their customers made by checks deposited in other banks. On the other hand, however, this also indicates that they used to keep a large part of their private deposits, which were a liability for the banks, in the form of barren money.

The rapid increase in bank deposits which was not followed by a rise in the banks' equity capital, resulted in a fall of the equity to assets ratio and an increase of the proportion of deposits to equity. As is evident in Figure 6, the equity to assets ratio had been reduced from 42% in 1894 to 20% in 1914. This downward movement became stronger during the inflationary period of the 1920s. From 1919 to 1928 the equity to assets ratio was on average 10.5%.[9] The low values of the ratio indicate that the banks were highly leveraged in the sense of a high ratio of deposits to equity. However, this is reasonable in the case of a positive, high present value of expected future profits. Banks usually choose a longer, on average, assets maturity in order to speculate on a positive yield curve and exploit funding profits. On the other hand, however, as the discrepancy between the maturities of assets and liabilities rises, the bank's exposure to liquidity risk becomes larger and the bank more vulnerable in panics and sudden deposit withdrawals. In the view of a bank run, it has to decide upon two costly options: to sell securities at a discount or/and to borrow in the inter-bank market at a high rate. A simple inspection of the banks' balance sheets suggests that the Greek banks were poorly asset-liability managed in the sense that assets and liabilities seem to have the same, on average, maturity. This means that they

[9] The equity to assets ratio is a measure of capital adequacy; it is the inverse of the equity multiplier. Equity multiplier is an index of capital adequacy in financial terms and not in regulatory terms. It measures financial leverage and represents both a profit and risk measure. Low values of the equity to assets ratio imply that the bank operates with less equity and more debt.

malfunctioned in terms of the transformation of liquidity – which is one of the most important banking operations – and consequently, they could not enjoy funding profits.

Even though the Greek banks could not enjoy funding profits, they did enjoy, however, high profits as revealed by the trend behaviour of the return to equity ratio (ROE). As seen in Figure 6, ROE moved upwards in the first half of the 1920s. In 1925 it was more than four times as high as it was in 1914. Banks' profitability was chiefly driven by two forces: first, high profits derived from the speculation in the currency and, second, monopoly rents. In particular, the market was characterized by an oligopolistic structure; they were a few large banks and several small ones. In the eve of the 1929 crash 85% of the total bank deposits were kept with 6 banks; 4 banks held 80% of the total equity capital. Among the larger banks, one bank, the NBG, was far and away the bigger. Almost half of the deposits were kept with it. Therefore, it exerted a monopolistic position over the market. Bank competition was extremely weak and in conjunction with interest inelastic demand for lending and supply of private deposits, the interest rate spread was high.[10]

To sum up, the development of the Greek banking system had passed through different phases. From the turn of the 19th century afterwards, monetary stability and strong economic growth increased money transactions, bank deposits and the demand for money. In the 1920s the banking system expanded further. Numerous small banks were created. However, they were poorly asset-liability managed in terms of the liquidity transformation. They were also suffered by capital adequacy and were highly leveraged. Leverage ratio was not used as a banks' policy tool in order to exploit a mismatch in the maturities of assets and liabilities and enjoy funding profits. Instead, macroeconomic conditions, namely excess liquidity due to continuous money expansions during wartime and its aftermath, stood behind the banks' balance sheet restructuring. The third phase of the development process took place in the early 1930s. In an attempt to make banks more crisis resistant, the government made important institutional reforms including the foundation of a central bank and the initiation of a regulatory framework.

[10] The increase in demand for goods and services caused an excess demand for money which threw a pressure on lending rates. The discount rate fluctuated between 7.5% and 11%. The short term lending rate was 15% or even higher. Whereas, the return on bank deposits was rather low: 3.5-4% on sight deposits, 4% on time deposits and 5% on savings.

5. The Country's Financial Structure (II): the Quantity of Money

Our concern in this section is to study the composition of money supply and to examine its long run behaviour. Fortunately, the compilation - for the first time - of long time series for the money supply in Greece and its main components gives us the opportunity to carry out this task.

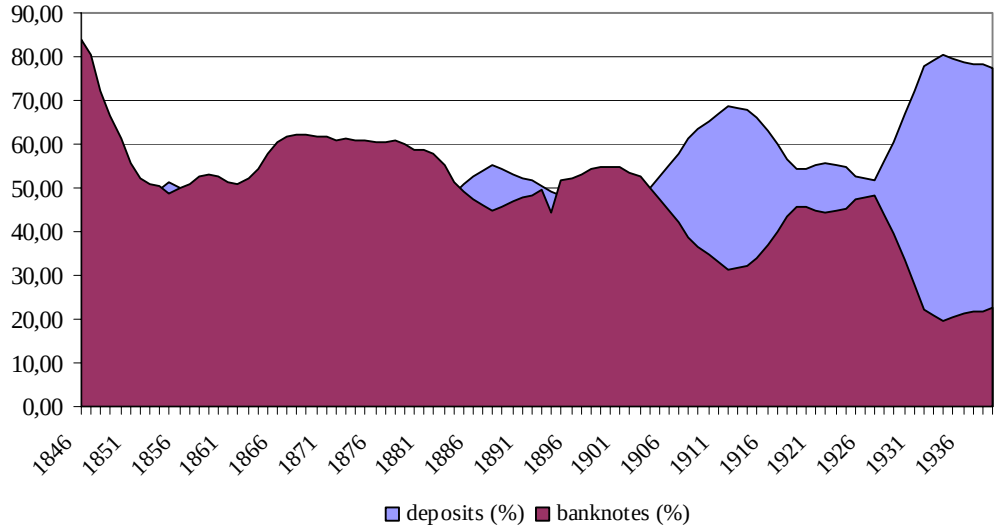
5.1 Composition

In the case of Greece the year 1842 marks a watershed. Till then, money transactions were made in coins. Gold coins were minted in an extremely limited quantity though considerably more silver coins were produced. The Greek State's later paucity of revenues made it impossible for it to continue minting coins made of precious metal. Gold and silver coins went rapidly out of circulation. They were either exported, hoarded by the public or melted down for the precious metal. Token coins were minted from non precious metal, such as nickel, bronzer and more often copper, almost every year to allow money transactions to be carried out.[11] 1842 was the year that the NBG started its operation. The government granted to the Bank the monopoly of issuing and circulating banknotes which were 'payable to the bearer upon request' and readily convertible to specie. The NBG was ready to supply the public with the required means of payments. Its notes were accepted for private transactions; they were also accepted by the Pay Office and they were used to cancel out debts with the government.[12]

[11] The Greek monetary unit was the drachma, introduced in 1833 and based on bimetallism. In order to adopt the LMU monetary system, the government introduced in 1882 the new drachma, equal to 1.12 old drachmas. Unfortunately, data series for the metallic coin circulation do not exist. Quantities of coins minted on specific dates are only available. For a detailed discussion on the monetary history of Greece, see Lazaretou (2005b).

[12] The monopoly of issue was granted in exchange for the government's participation in the bank's equity and management control.

Figure 7
The Composition of the Quantity of Money, 1846-1939



Notes: private total deposits and banknotes in the hands of the public are defined as per cent to broad money. The data series are annual averages based on a 5 year rolling time span. End-of-year data.
Sources: banks' *Balance Sheets* and Lazaretou (2005a).

Figure 7 depicts the composition of the quantity of money in Greece. Two points are worthy of mention. First, the ratio of deposits to money stock can be considered as a measure of public confidence in the domestic banking system. As is evident, the use of banks' deposits as a mean of payments was hardly employed in the early years of our time span. However, from the mid 1900s deposits displayed a strong upward trend. In fact, in the first years of the NBG's operation private deposits never reached 20% of the money supply. Ten years later, they were around 40% and remained at this level till the mid 1880s. In 1910, when the drachma successfully adopted the gold standard and public confidence had been restored, the share of deposits climbed to 65%. During the 1920s domestic and international financial turmoil moved people to convert deposits into paper notes. Once the crisis had passed in the early 1930s, the share of deposits regained its upward trend, reaching 80% and remained at this high level till the end of the decade.

The continuous opening of the NBG's branches in all major cities largely contributed to the increase of circulated banknotes and its use by the public as a mean of payments, especially in the country's provinces. The degree of financial depth was also an important contributor factor. The enlargement of the banking system in the

first decade of the 20th century could explain the increase of the share of deposits in the stock of money. Moreover, the higher rates of output growth during that time and the higher levels of per capita income, as well as the gradual urbanization of the country and the appearance of an urban-creditor class could also be considered as key determinant factors.

Second, in the periods of currency inconvertibility crises[13] the share of deposits fell notably. As a matter of a low confidence in the currency, private agents decided to reduce their holdings of deposits, to hoard metallic coins and to use the non-convertible paper note in their money transactions.

5.2 Long run behaviour

To analyze the long run behaviour of the money supply, we have to start with the mechanisms of money supply determination. Within the classical framework proposed by Cagan and Friedman (1956), the stock of money is jointly determined by the central bank, through its control of the monetary base (high-powered money); the public, through its preferred currency to deposit ratio; and the banks, through their preferred reserve holding behaviour.

As is well known, the public has an influence on the determination of the money supply through its effect on the currency component. The currency-deposit ratio, that is, the ratio of the public's holdings of currency to their holdings of deposits, represents the behaviour of the public. It is determined primarily by payment habits. The ratio increases when the ratio of consumption to output increases.[14] Therefore, its values reflect the level of integration of the country's financial system, the level of urbanization and the level of per capita income. Banks also affect the determination of the money supply, through their influence on the deposit component. The behaviour of the banks is described by the reserve-deposit ratio. The bank's choice of reserve ratio depends on four factors. First, on the interest forgone by holding reserves; second, on the cost of borrowing when the bank runs short of reserves, third, on the required reserve ratio; and, four, on the uncertainty of the bank's deposit inflows and outflows. Thus, an increase in the market interest rate on earning assets decreases the

[13] i.e., the late 1860s, the late 1870s, from the mid 1880s to the late 1890s and the early 1920s.
[14] Currency demand is more closely linked to consumption than output. The reverse is true for deposit demand.

reserve ratio. While an increase in the cost of running short of reserves or an increase in the required reserve ratio increases the reserve ratio. Similarly, the more variable the inflows and outflows of its deposits a bank experiences, the more reserves it would like to hold. Finally, the central bank's behaviour is summarized by the stock of the high powered money or the monetary base.

The interactions among the behaviour of the banks, the public and the central bank determine the money supply. Table 2 develops the details of the process of money stock determination. As seen, changes in the monetary base largely dominated the changes in money balances. For the whole sample period, 86.4% of the average growth rate of money supply was caused by the growth rate of the monetary base. This might be interpreted that the money supply changes closely followed the changes in the monetary base, while money multiplier which reflects the behaviour of the public and the banks, had a minimum impact.[15]

Table 2: Money Growth Determination, 1847-1939 (in per cent)

Time periods	*Money Supply (1)*	*Monetary Base (2)*	*Monetary Base (3)*	*Money Multiplier (4)*
Whole Sample Period				
1847-1939	11.7	10.1	86.4	13.6
Selected Sub-periods				
1847-1899	10.6	9.6	91.0	9.0
1900-1913	6.2	1.9	31.3	68.7
1914-1927	23.9	16.2	68.2	31.8
1928-1939	9.1	3.2	35.1	64.9

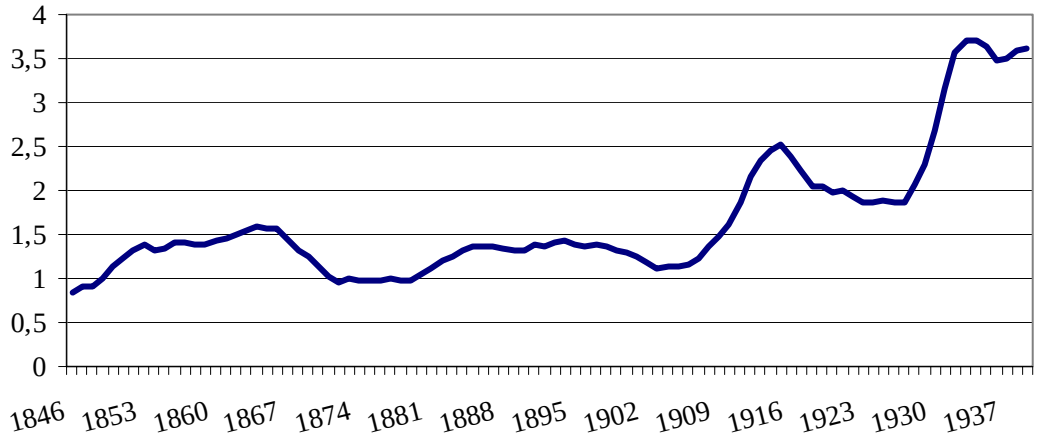
Notes: Columns (1) and (2) report the average annual rate of growth of the money supply (i.e. broad money) and the monetary base over selected dates. Columns (3) and (4) report the relative contribution of the monetary base and the money multiplier to the growth rate of the money supply. Monetary base is defined as the sum of banknotes in circulation in the hands of the public, cash and the balances of the commercial banknotes with the central bank. Money multiplier is the ratio of money stock to high-powered money. The time series for money supply and monetary base are annual averages over a five year rolling time span.
Sources: Own calculations based on data from banks' *Balance Sheets* and Lazaretou (2005a).

The picture, however, changes when we look at the selected sub-periods. During the 19th century, the rate of growth of the money supply was almost dominated by the monetary base. This could be easily attributed to the long-lived inconvertible paper

[15] This finding is close in accordance with similar findings for other less developed European countries, like Spain and Portugal. See, in particular, Martin-Acena (2007).

currency standards and the low degree of the country's financial depth. However, in the first decade of the 20th century, the relative contribution of the monetary base was reduced in favour of the growing impact of the banking sector and the public. Main contributor factors were the rapid development of the banking sector and the growing confidence in the domestic monetary and the banking system. The same was also true for the last sub-period, when the country made credible efforts to adhere to the interwar gold-exchange standard rule.

Figure 8
Money multiplier, 1846-1939



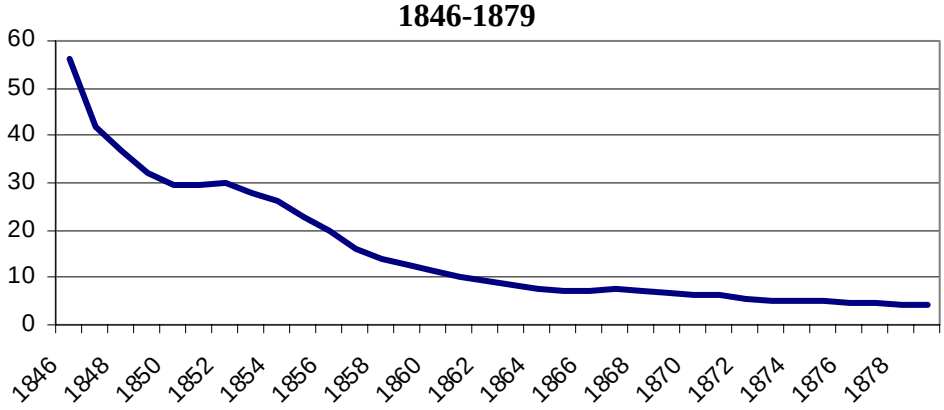
Note: The time series are annual averages based on a 5 year rolling time span.
Source: Lazaretou (2005a)

Money multiplier defined as the ratio of money stock to high powered money, has been widely used as an index of pubic confidence in the domestic banking and monetary system. Money multiplier is higher the smaller the reserve-deposit ratio and the smaller the currency-deposit ratio. Thus, increasing values reflect public confidence's promotion since a larger proportion of money balances in the hands of the public are kept with the banks and a smaller proportion is kept as reserves by the banks. Figure 8 shows its long run, or trend, behaviour in pre-WWII Greece. The ratio exhibited a steady increase after 1900, which was particularly striking in the years the country strictly adhered to the specie rule.[16] It is also striking to mention that during the 19th century, money multiplier was not far from constant. Increasing values in the

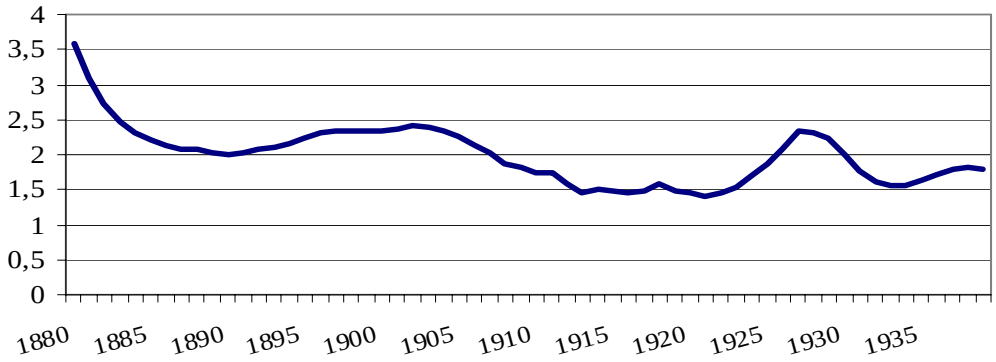
[16] i.e., 1910-1914 and 1928-1932.

years of currency convertibility were followed by falling values in the years of inflationary money.[17] This corroborates our previous finding that during this period monetary base variations were the proximate determinants of the money supply movements.

Figure 9
The Income Velocity of Money
1846-1879



1880-1939



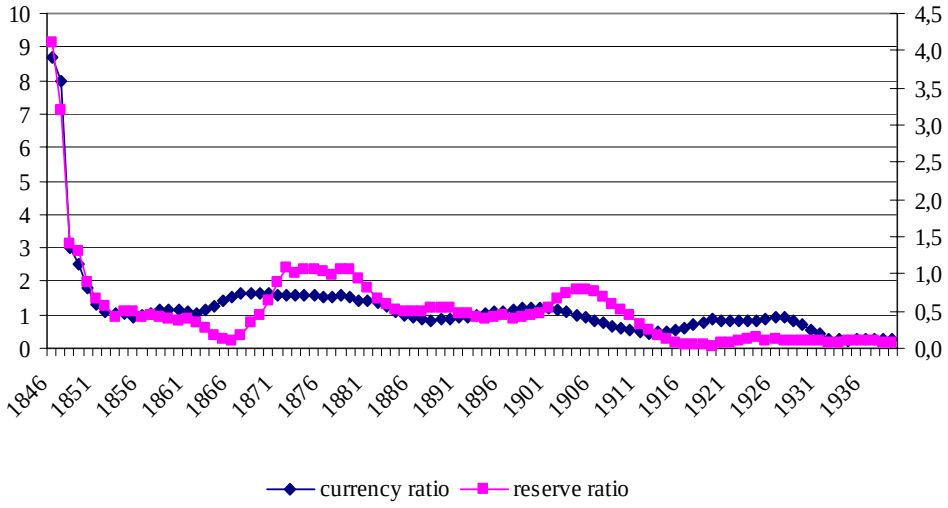
Notes: The times series are annual averages based on a 5 year rolling time span.
*Source*s: Worksheets underlying Kostelenos *et al.* (2007) and Lazaretou (2005a).

Another metric of the public confidence is the income velocity of money, defined as the ratio of income to money and shown in Figure 9. In the very early years of the NBG's operation, the rate of turnover of money was strikingly high, reflecting the lack of confidence of people in the new form of money, namely the NBG's note,

[17] i.e., 1868-70, 1877-1884, 1886-1897.

and the low demand for money balances. As the country was gradually being more financially developed, the higher demand for money in relation to income made velocity to fall. Velocity declined sharply reaching around 4 in the mid-1870s from over 50 at the starting date of our sample. In the following years, velocity continued its downward movement: the rate of turnover of money was half cut by 1910 and, with the exception of a short-lived increase during the high inflation period of the 1920s[18], it remained at a level less than 2.

Figure 10
Currency and Reserve Ratios, 1846-1939



Notes: currency ratio=LHS, reserve ratio=RHS. The time series are annual averages based on a 5 year rolling time span. End-of-year data.
Sources: banks' *Balance Sheets* and Bank of Greece, *Monthly Statistical Bulletin* (various issues).

The trend behaviour of the other two determinants of the money supply, namely the currency-deposit ratio and the reserve-deposit ratio, is depicted in Figure 10. If we remove from the sample the exceptionally high values in the early years of the NBG's operation, the currency ratio exhibited a downward movement throughout the 19th century. It fluctuated between the values of 1 and 1.5, while it declined below 1 from the turn of the century afterwards. The lower values prevailed that period, mirrored the progress made in the development of the domestic financial system and

[18] Under conditions of very high and expected inflation money demand falls relative to income and, thus, velocity rises as people use less money in relation to income. Inflation makes money loses purchasing power and creates a cost of holding money balances.

the increased demand for deposits as a form of money. Moreover, it mirrored the restored confidence of people in the currency as the country consistently adhered to the specie rule. However, when the specie rule was abandoned in 1914, the coefficient rose again. With regard to the reserve ratio, we observe the same trend behaviour, but it was more volatile. The fluctuations were more violent in the years of the inconvertibility crises, as people moved to convert deposits into banknotes. As the calm returned to the market, the ratio resumed its trend behaviour. Post-1900 it moved more strongly downwards, while it exhibited a remarkable stability.

6. The Country's Financial Structure (III): Central Banking

6.1 Origin

Features such as the weakness in banks' risk management and the absence both of a regulatory framework and a central bank determined the specific institutional character of the country's financial system. Studying these features is very important since the propagation of a disturbance and the probability of its turning into a generalized financial crisis with real 'macro' economy effects are influenced by that specific institutional character (see, in particular, Eichengreen and Portes 1987).

Till 1920s, Greek commercial banks, as seen in the previous section, were poorly asset-liability managed, highly leveraged and not institutionally supervised. The domestic banking system was dominated by the NBG, which acted as a commercial and an issue bank. Although it undertook some of the functions of a central bank, it was not a central bank in a strict sense. Profit motives and the priority to preserve monetary stability, namely, to safeguard the convertibility of its banknote, prohibited it from operating as a 'banker to banks' and a 'lender of last resort' in times of crises. Rather, it performed as the Treasury's bank and the sole issuer of the domestic banknote. Therefore, it usually appeared reluctant to take part in rescue operations through re-discounts so as to help commercial banks overcoming liquidity difficulties. Main reasons for this attitude were its profit-maximization aims and its rivalry with other banks. As a consequence, monetary tightness usually resulted with real effects and financial stability could not be preserved. Furthermore, the NBG could not preserve monetary and exchange rate stability either. Its commercial responsibilities, emanating from its acceptance of interest-bearing deposits, the tying-

up of its capital in long term asset investments, its exposure to business risks, its large involvement into high risk loans as well as its public duties as the main government finance provider[19] were all factors that decisively affected its flexibility and independence in conducting monetary policy. Specifically, it was not allowed to use the interest rate (i.e. the discount rate) as a monetary policy instrument. Hence, there was a need for the establishment of a separate issuing institution (the Bank of Greece) that would monitor budget deficit financing and enact policies consistent with exchange convertibility. In particular, the government's stabilization effort in 1927 was backed by a foreign loan. Foreign creditors, however, set two pre-conditions for lending: first, the restoration of currency convertibility as a signal of fiscal prudence and monetary discipline and, second, the foundation of an independent and pure central bank that would have the sole privilege of note issue and operate as an official agent in the conduct of monetary and exchange rate policies, according to the new central banking orthodoxy.[20] Hence, the Bank of Greece was born in 1928 by the detachment of the NBG's issuing department; the latter was, thus, turn into a pure commercial bank.

Another major institutional reform was made in the aftermath of the great crash. In 1931, for the first time, a rigorous set up concerning the structure, the regulation and the supervision of domestic commercial banking was initiated. Expectantly, the government acted according to 'learning by crisis procedure'.[21] Namely, it was actively involved in creating a regulatory framework that would insulate the banking system and the real economy from a shock. In particular, all commercial banks were obliged by law to keep reserves with the central bank to meet excess liquidity demand.[22] By the same law, banking activities were specified, a lower limit of equity was set to safeguard capital adequacy and banks' exposure to business risk was strictly prohibited. It was defined that all banks were allowed to operate in the form of a limited company. Reserve-required ratio, un-doubtfully, was the most important institutional change since a new tool of monetary control was introduced.

[19] Between 1920 and 1927 the government's debt to the NBG amounted to almost 45% of its total assets.
[20] See, League of Nations (1927a,b).
[21] In an attempt to make the system more crisis resistant, governments always make institutional reforms after the occurrence of a generalized crisis. History has shown that this is a common practice followed after a major shock.
[22] The required reserve ratio was initially set to 7% of the total bank demand and savings deposits kept with the Bank of Greece and 12% of total deposits kept in the form of required reserves in their cash.

Through it, the central bank could control banks' lending activities and check their liquidity conditions.

6.2 Functions

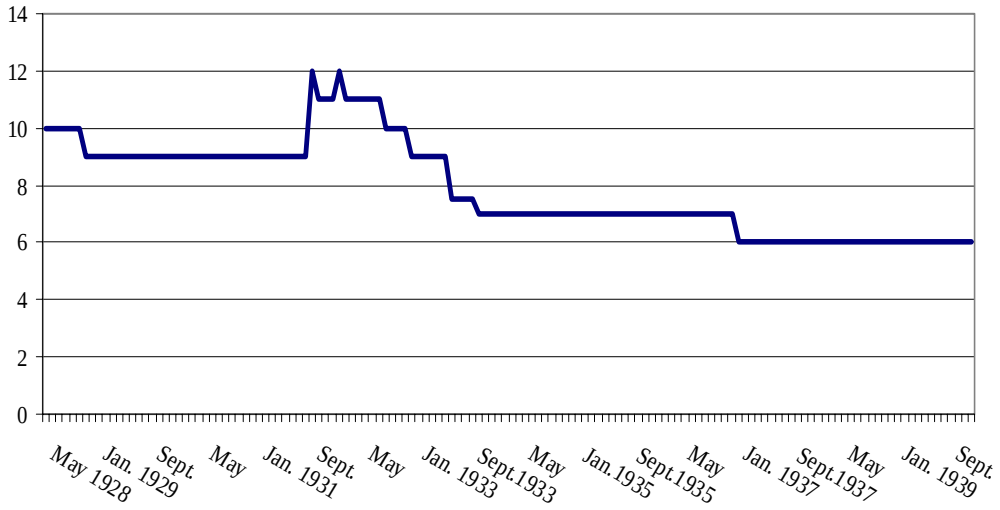
Maintaining the convertibility of the currency was one of the overriding objectives of the new central bank. As a guardian of the gold-exchange standard, the Bank of Greece also performed the function of a lender of last resort. However, it tried very hard before it was successfully established as the 'bank to banks' and the official body in the conduct of monetary and credit policies. Due to the small size and the structure of its portfolio, the Bank was not ready from the very beginning to perform the functions of a central bank. At the time of its inception, the Bank's standing facilities (i.e. discounted trade bills) were 100 times as small as the trade portfolio of all commercial banks.[23] Hence, defending the exchange rate of the domestic currency by selling and buying foreign exchange at the official parity was the ultimate Bank's function. The discount rate policy was also shown to be unsuccessful. The Bank reduced its rate in 1928, but it did not succeed to lower the market lending rate, since commercial banks did not face liquidity problems and the demand for money was high enough.

Things, however, changed two years later. The role and the functions of the Bank had developed and evolved as had the environment in which commercial banks operated. Specifically, the sharp decline of international demand and income caused agricultural exports, prices and production to fall rapidly. Industry was also adversely influenced. The crisis was soon transferred to commercial banking since firms could not repay their loans to the banks and the banks were thus attacked by severe withdrawals of funds by depositors. Moreover, the collapse of the Athens Stock Exchange following the collapse of the New York Stock Exchange and the other European countries caused heavy losses in the banks' trade portfolio since they had largely invested in government bonds of external debt. For the first time, commercial banks experiencing serious financial problems turned to the Bank asking for assistance. Unable to meet their liquidity requirements, they attempted to obtain

[23] 50 million drachmas compared to 5 billion drachmas.

support through the LLR function by borrowing from the central bank. The latter undertook a rescue effort and raised its rate.

Figure 11
The Discount Rate of the Bank of Greece
(1928-1939)



Note: based on the dates of change, in per cent per annum, end-of-month data.
Source: Bank of Greece

As can be seen in Figure 11 which depicts the evolution of the official discount rate, the Bank was quite active regarding the number of its rate changes. Over a 10-year period the Bank changed its rate 11 times while it remained the required reserve ratio nearly unchanged. Only in one year, in 1932, the Bank changed its rate four times. After the de-linking of the drachma from the British pound in 1931 and the dollar in 1932, the Bank of Greece, by reducing its discount rate, managed successfully to lower the market lending rate and make capital cheaper, without, however, altering the anti-inflationary stand of the monetary policy pursued. The discount rate fell from 10% in 1928 to 6% in 1937.

Table 3.1 Bank of Greece Financial Statement, *14 May 1928*
(in millions of drachmas)

Assets		*Liabilities*	
Gold	876.3	Capital	400.0
Foreign exchange *(convertible into gold)*	3191.1	Banknotes in circulation	4863.4
Other foreign exchange	9.8		
Discounted trade bills	49.9	Current accounts and deposits	
		banks	964.6
		government	666.7
		other(*)	891.4
Claims on government	3759.5	Foreign liabilities in gold and foreign exchange	113.2
Other	42.9	Other	30.4
TOTAL	7929.7	TOTAL	7929.7

Note: (*) mainly deposits held by the International Economic Committee for foreign assistance.
Source: Bank of Greece, *Annual Report of the Governor for the Year 1928*, 1929.

All operations that a typical central bank performs, that are currency issue, foreign exchange operations, funds investment, monetary policy operations and emergency liquidity assistance, affect its balance sheet. The study of the structure of the central bank's balance sheet and its over time evolvement, that is the items both on the asset and the liquidity side, provides useful information on monetary policy implementation.[24] The balance sheet can also be considered as a preliminary overview of central bank profitability issues and financial independence. Profitability factors are operating costs and the possible obligation of the central bank imposed by the government to engage in loss-making activities such as granting cheap credit to the government and bailing out banks in difficulty. Profitability is also affected by changes in the exchange rates and in long term interest rates. Lack of profitability is a key issue since profitability reflects central bank's independence[25] and credibility.

[24] The items in the central bank balance sheet are ordered into four categories: autonomous liquidity factors, open market operations, standing facilities and commercial banks' reserves with the central bank. For an analysis of each category, see Bindseil (2004).
[25] Central bank independence has been defined in many different ways by central bankers themselves (see Mahadeva and Sterne 2000). The most commonly mentioned as important factors in the definition of independence are: instrument independence, the ability to formulate policy and the existence of

And this is because if a central bank is not independent but subordinates to the government, then there is a serious risk that monetary policy is not set only according to monetary policy needs but for economic and political reasons.

Hence, it is worth looking at the Bank of Greece's balance sheet over selected dates, namely, in 1928, 1932 and 1939; it provides us with an insight into the key features of monetary policy implementation by a small developing country during interwar. Table 3.1 displays the balance sheet on 14 May 1928, the day that the Bank of Greece commenced its operations and the drachma was *de jure* stabilized against sterling in the context of the gold-exchange standard. A number of observations can be made. The amounts of the gold metal and the substantial holdings of foreign exchange readily convertible into gold on the assets side was the outcome of the country's commitment to participate in the interwar gold standard.[26] Besides foreign exchange, the other important asset item was government paper holdings. The claims against the government (47.5% of its total assets) dominated the asset side of the balance sheet. It seems to reveal a dependence of the Bank on the government and a serious risk of potential central bank losses. On the contrary, its trade portfolio was negligible, meaning that the Bank was at a weak position to defend its role as a 'bank to banks'. On the liability side, even though commercial banks (except the NBG) were not subject to minimum reserves, current accounts and deposits with the central bank were properly distinguished among the government and the banks. From the point of view of monetary policy implementation, this separation is necessary in order to assess the degree to which reserve requirements are met. Overall, the balance sheet was largely dominated by net foreign assets on the asset side and note circulation on the liability side, implying that monetary policy strategy was focused on defending the official exchange rate parity. However, the dependence of the Bank on the government,[27] - a key feature of a developing country - might be interpreted as an indicator of potential financial instability and inflationary pressures.

---

statutory objectives. Moreover, it is useful to distinguish between instrument independence and goal independence (see Mishkin 2000). Typically, a central bank will be instrument independent but not goal independent. This means that the government determines the macroeconomic goals that the central bank is called to achieve by setting the instruments of monetary policy independently.

[26] According to the Bank's statute, no less than 40% of the banknotes in the hands of the public plus reserves should be converted into gold-based foreign exchange.

[27] That was due to the large involvement of the NBG in government re-financing.

Table 3.2 Bank of Greece Financial Statement, *31 December 1932*
(in millions of drachmas)

Assets		*Liabilities*	
Gold and foreign exchange	2478.1	Capital and reserves	492.8
Domestic coins	174.5	Banknotes in circulation	4714.2
Discounted trade bills	297.6		
Banks	195.5		
Other	102.1		
Current accounts and advances	2684.4	Current accounts and deposits	
Banks	811.8	*Banks*	349.2
		Government	187.0
Other(*)	1872.6	*Other*	2887.6
Investment assets	359.7	Drafts and bills of exchange	27.1
Buildings, premises and equipments	136.0	Foreign liabilities in gold and foreign exchange	225.2
Claims against the government	2714.1		
Other	266.9	Other	228.1
TOTAL	9111.2	TOTAL	9111.2

Note: (*) in drachmas and foreign exchange
Source: Bank of Greece, *Annual Report of the Governor for the Year 1932* (1933).

Table 3.2 displays the Bank's financial statement at the end of 1932 when major institutional changes took place which were the government's response to the aftermath of the severe economic and financial crisis of 1929. A careful look at the Bank's balance sheet can provide information on whether and how these changes might influence monetary policy implementation. Some important conclusions can be derived. First, even though the domestic currency was de-linked from gold, the Greek monetary authorities continued to keep a high ratio of note circulation backed to gold or foreign exchange (39% at the end of December 1932).

Table 3.3 Bank of Greece Financial Statement, *31 December 1939*
(in millions of drachmas)

Assets		*Liabilities*	
Gold and foreign exchange	4346.1	Capital and reserves	626.7
Domestic coins	142.8	Banknotes in circulation	9452.8
Discounted trade bills	728.3		
Banks	380.6		
other	347.6		
Current accounts and advances	12350.9	Current accounts and deposits	
Banks	3512.9	*Banks*	440.4
		Government	466.5
Other(*)	8838.0	*Other*	10550.9
Investment assets	419.1	Drafts and bills of exchange	87.2
Buildings, premises and equipments	509.7	Foreign liabilities in gold and foreign exchange	538.4
Claims against the government	4084.1		
Other	824.8	Other	1242.8
TOTAL	23405.8	TOTAL	23405.8

Note: (*) in drachmas and foreign exchange.
Source: Bank of Greece, *Annual Report of the Governor for the Year 1939* (1940).

Second and, more importantly, monetary policy operations were not now negligible. The central bank *via* standing facilities managed to influence the demand for and the supply of banks' reserves and to support its role as a banks' bank. Discounted trade bills, advances, current accounts and collaterized credit[28] had all considerably increased. Third, claims on the government had substantially been reduced to 29.8% of its total assets, implying moderate involvement of the Bank in government financing and a higher degree of independence. Last but not least, on the liability side, deposits held by the banking system with the central bank had massively increased from the previous year (86.2%), as the result of the new institutional framework. Hence, reserve requirements supplied the Bank with a new and very

[28] Credit to commercial banks, the government and private agents. Contrary to the standard functions of a central bank, the Bank of Greece used to provide short term lending facilities not only to the banks but directly to the private sector. This was because commercial banks experiencing serious financial problems were unable to meet the demand for money.

important instrument for monetary control. All in all, however, the Bank's balance sheet can be considered far from being 'lean'[29] and the Bank being deeply concentrated on monetary policy implementation. Even though monetary base dominates on the liability side, monetary policy operations do not do so on the asset side. Government debt and foreign exchange reserves are of a similar order of magnitude with monetary policy operations.

Looking next at the Bank's balance sheet in the end of 1939, when the western European countries had already gone to war, some interesting observations can also be made. First, regarding the monetary policy strategy, it appears that the Bank of Greece continued to focus on defending the exchange rate of the drachma even though the international monetary relations had changed towards floating rates and the central banks had abandoned the goal of preserving exchange rate stability. The balance sheet is largely dominated by foreign exchange and mainly gold reserves on the asset side and banknotes in circulation on the liability side. Even though the statutory limit of 40% of note circulation convertible into foreign exchange was not any more in effect, a per cent near this lower bound limit was backed by gold. And this was because the central bank continued to excessively focus on the chosen monetary policy framework of a currency peg against sterling.[30] Second, the balance sheet reveals that the Bank remained dependent on the government and, third, regarding the monetary policy implementation framework, the Bank had chosen to administer the amount of credit-money created by the commercial banks *via* standing facilities – consisted either of a discount and an advance facility – and imposing reserve requirements. In view of the widespread panic withdrawal followed the start of hostilities in Europe, the Bank reacted by lowering the reserve holdings by the banks with it and providing liquidity mainly through advances and current accounts.[31]

[29] In a perfectly 'lean' central bank balance sheet, the liability side consists only of the monetary base while the asset side displays only monetary policy operations (see Bindseil 2004, ch.2).
[30] In April 1932 the government devalued the drachma and abandoned the gold-exchange standard. However, it appeared unable to abandon the gold shelter. In 1933 the country joined the Gold Bloc and the drachma was pegged against the Swiss franc. After its dissolution in September 1936, the drachma joined the 'Sterling Area'. Until the eve of WWII it remained fixed against sterling.
[31] Banks' deposits with the central bank were reduced by 54% in December 1939 over the same period the previous year, while credit increased by 35%.

7. Conclusions

The main purpose of this paper was to trace – for the first time - the historical evolution of central banking in pre-WWII Greece. To this end, the country's process of financial development was presented. Two structures that determined the specific institutional character of the domestic financial system, namely the quantity of money and central banking, were detailed. In particular, several indices of financial depth were assessed and their evolvement was studied. The composition of the money supply and its long run behaviour was also analysed. Central banking was viewed with respect to the monetary policy strategy, the monetary policy implementation framework and dependence on the government. All factors were closely determined by the structure of the central bank's balance sheet.

The paper's main conclusions have as follows. The country's financial development had passed through different stages. Throughout the 19th century, the process of financial intermediation went at a slow pace. Many banks were created but very few eventually operated. One bank, the NBG, created in 1842 and functioned as a 'universal' and an issue bank, soon became the biggest in resources and exerted its dominance over the domestic money market. From the turn of the century afterwards, monetary stability and rapid economic growth increased money transactions, bank deposits and the demand for money. In the 1920s the banking system expanded further. However, on the basis of the evaluated behavioural indices, banks were shown to be poorly asset-liability managed. This means that they malfunctioned in terms of the liquidity transformation and they could not enjoy funding profits. They were also suffered by capital adequacy and were highly leveraged. It seemed that excess liquidity due to continuous money expansions stood behind the banks' balance sheet restructuring.

Concerning the quantity of money, the trend behaviour of its main determinants (i.e. the monetary base, the currency-deposit ratio and the reserve-deposit ratio) was studied. Two metrics of the public confidence in the banking system, namely the money multiplier and the income velocity of money were also assessed. It was found that the money supply changes closely followed the changes in monetary base, while money multiplier which reflects the behaviour of the people and the banks, had a minimum impact. This finding demonstrates that money creation primarily determined the money stock. It was also found that during the periods of

currency convertibility, public confidence in the domestic banking system was promoted, as measured by money multiplier and velocity.

Key inefficiencies of the country's financial system were the absence both of a central bank and a regulatory framework for the supervision of commercial banking activities. The major institutional reforms that took place in the last decade of the interwar period altered the operation of the domestic banking system and changed the character of monetary policy implementation. The first reform concerned the founding of a pure and 'real' central bank and the second one was related to the initiation of a rigorous set up with clear cut rules over the banking system.

A look at the structure of the central bank's balance sheet revealed that throughout the period under study the Bank of Greece appeared to be excessively focused on the chosen monetary policy strategy of a currency peg. Monetary policy operations mainly included liquidity-providing standing facilities, conducted at the initiative of the banks and were consisted either of discounts and advances. In the course of a ten year period (1928-1939) the Bank of Greece had successfully controlled over the domestic money market *via* its discount rate policy and supported its role as a 'banks' bank'. However, its considerable involvement in government re-financing might indicate its low independence on political pressures.

Two caveats are in order. First, a comparative study taking into account the experience of other European developing countries might be included in the paper's analysis. This should be useful for our better understanding of the history of the monetary policy implementation and the evolution of the financial development process in other less-known European countries. Second, useful conclusions would also be drawn by a thorough examination of the episodes of financial crises in pre-WWII Greece with respect to the timing of action, the role of the government in handling these crises and the central bank's motives. Both issues would be very interesting questions for further suggestive and empirical research.

References

Barro, R. and X. Sala-i-Martin (2003), *Economic Growth*, MIT Press.

Barro, R. and X. Sala-i-Martin (1992), 'Convergence', *Journal of Political Economy*, 100, 223-251.

Beck, T. and R. Levine (2004), 'Legal Institutions and Financial Development', NBER, *Working Paper* no 10417.

Beck, T., A. Demirgüc-Knut and R. Levine (1999), 'A New Database on Financial Development and Structure', World Bank Research *Working Paper* no 2146.

Bindseil, U. (2004), *Monetary Policy Implementation: Theory, Past and Present*, Oxford University Press.

Bordo, M. and P. Rousseau (2006), 'Legal-Political Factors and the Historical Evolution of the Finance-Growth Link', ONB, *Working Paper* no 107.

Boyd, J. H., R. Levine and B.D. Smith (2001), 'The Impact of Inflation on Financial Sector Performance', *Journal of Monetary Economics*, 47, 221-248.

Bruno, M. and W. R. Easterly (1998), 'Inflation, Crises and Long Run Growth', *Journal of Monetary Economics*, 41, 3-25.

Cagan, P. (1956), The Monetary Dynamics of Hyperinflation' in M. Friedman (ed.), *Studies in the Quantity Theory of Money*, Chicago, the University of Chicago Press.

Capie, F. C. Goodhart, S. Fischer and N. Schnadt (eds.) (1994), *The Future of Central Banking*, Cambridge University Press.

Casu, B., C. Giradrone and P. Molyneaux (2006), *Introduction to Banking*, FT Prentice Hall.

Dowd, K. (1996*), Competition and Finance: A New Interpretation of Financial and Monetary Economics*, London: Macmillan.

Eichengreen, B. and R. Portes (1987), 'The Anatomy of Financial Crises' in R. Portes and A. Swoboda (eds.), *Threats to International Financial Stability*, CEPR and Cambridge University Press, 10-66.

Goodhart, C. (1989), 'Why Do Banks Need a Central Bank' in *Money, Information and Uncertainty*, 2nd edition, London: Macmillan, ch. 8, 176-193.

Gylfason, T. and T.T. Herbertsson (2001), 'Does Inflation Matter for Growth', *Japan and the World Economy*, 13, 405-428.

Kirkilitsis, A. (1934), *Banking in Greece*, Athens (in Greek).

Kostelenos, G. *et al*. (2007), *Greek Domestic Product, 1830-1939*, KEPE and the National Bank of Greece (in Greek).

Lains, P. (2003), *Os Progressors Do Atraso. Uma Nova Historia Economica de Portugal, 1842-1992*, Lisboa, Imprensa de Ciencies Sociais.

Lazaretou, S. (2005a), 'The Drachma, Foreign Creditors and the International Monetary System: Tales of a Currency During the 19th and the early 20th centuries', *Explorations in Economic History*, 42, 202-236.

Lazaretou, S. (2005b), 'Greek Monetary Economics in Retrospect. The Adventures of the Drachma', *Economic Notes, Review of Banking, Finance and Monetary Economics*, 34, 331-370.

League of Nations (1927a*), Report to the Financial Committee of the League of Nations on the Role of the National Bank of Greece*, Bank of Greece.

League of Nations (1927b), *Report to the Financial Committee of the League of Nations on Greece's Public Finances*, Bank of Greece.

Mahadeva, L. and G. Sterne (eds.) (2000), *Monetary Policy Frameworks in a Global Context*, New York: Routledge.

Maddison, A. (2003), *The World Economy. Historical Statistics*, OECD Development Centre Studies.

Martin-Acena, P. (2007), 'Central Banking in the Iberian Peninsula: A Comparison', paper presented in the annual conference of the EABH, Malta, May 2007.

Mishkin, F. (2000), 'What Should Central Banks Do?", Federal Reserve Bank of St. Louis, *Review*, November-December.

Morys, M. (2006), 'South-Eastern European Growth Experience in European Perspective, 19th and 20th centuries', in R. Avramov and S. Pamuk (eds.), *Monetary and Fiscal Policies in SE Europe, Historical and Comparative Perspective*, SEEMHN and BNB, 23-44.

BANK OF GREECE WORKING PAPERS

61. Hall, S. G., G. Hondroyiannis, P.A.V.B. Swamy and G. S. Tavlas, "A Portfolio Balance Approach to Euro-area Money Demand in a Time-Varying Environment", October 2007.

62. Brissimis, S. N. and I. Skotida, "Optimal Monetary Policy in the Euro Area in the Presence of Heterogeneity", November 2007.

63. Gibson, H. D. and J. Malley, "The Contribution of Sector Productivity Differentials to Inflation in Greece", November 2007.

64. Sideris, D., "Wagner's Law in 19th Century Greece: A Cointegration and Causality Analysis", November 2007.

65. Kalyvitis, S. and I. Skotida, "Some Empirical Evidence on the Effects of U.S. Monetary Policy Shocks on Cross Exchange Rates", January 2008.

66. Sideris, D., "Real Exchange Rates over a Century: The Case of Drachma/Sterling Rate", January 2008.

67. Petroulas, P. and S. G. Hall, "Spatial Interdependencies of FDI Locations: A Lessening of the Tyranny of Distance?", February 2008.

68. Matsaganis, M., T. Mitrakos and P. Tsakloglou, "Modelling Household Expenditure on Health Care in Greece", March 2008.

69. Athanasoglou, P. P. and I. C. Bardaka, "Price and Non-Price Competitiveness of Exports of Manufactures", April 2008.

70. Tavlas, G., "The Benefits and Costs of Monetary Union in Southern Africa: A Critical Survey of the Literature", April 2008.

71. Chronis, P. and A. Strantzalou, "Monetary and Fiscal Policy Interaction: What is the Role of the Transaction Cost of the Tax System in Stabilisation Policies?, May 2008.

72. Balfoussia, H., "An Affine Factor Model of the Greek Term Structure", May 2008.

73. Brissimis, S. N., D. D. Delis and N. I Papanikolaou "Exploring the Nexus between Banking Sector Reform and Performance: Evidence from Newly Acceded EU Countries", June 2008.

74. Bernholz, P., "Government Bankruptcy of Balkan Nations and their Consequences for Money and Inflation before 1914: A Comparative Analysis", June 2008.

75. Oosterlinck, K. and U. R. Loredana "Multiple Potential Payers and Sovereign Bond Prices", June 2008.

76. Kossev, K. D., “The Banking Sector and the Great Depression in Bulgaria, 1924-1938: Interlocking and Financial Sector Profitability”, June 2008.

77. Buyst, E. and I. Maes, “The Regulation and Supervision of the Belgian Financial System (1830-2005)”, June 2008.

78. Barisitz, S. “Banking Transformation (1989-2006) in Central and Eastern Europe – with Special Reference to Balkans”, June 2008.

79. Lazarević, Ž., “Banking Performance in South-Eastern Europe during the Interwar Period”, July 2008.

80. Apostolides, A., “How Similar to South-Eastern Europe were the Islands of Cyprus and Malta in terms of Agricultural Output and Credit? Evidence during the Interwar Period”, July 2008.

81. Avramov, R. and D. Gnjatović, “Stabilization Policies in Bulgaria and Yugoslavia during Communism’s Terminal Years: 1980s Economic Visions in Retrospect”, July 2008.

82. Nenovsky, N., M. Ivanov and G. Mihaylova, “The Evolution of Bulgarian Banks’ Efficiency during the Twenties: A DEA Approach”, July 2008.

83. Görmez, Y., “Banking in Turkey: History and Evolution”, July 2008.

84. Ceca, K., K. Rexha and E. Orhan “Banking and Finance in South-Eastern Europe: The Albanian Case”, July 2008.

85. Bordo, M. “Growing up to Financial Stability”, July 2008.