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# The Twin Deficits, Monetary Instability and Debt Crises in the History of Modern Greece

**George Alogoskoufis**

THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

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# The Twin Deficits, Monetary Instability and Debt Crises in the History of Modern Greece

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## ABSTRACT

This paper reviews, analyses and interprets the determinants and the implications of the twin, fiscal and current account, deficits in the history of modern Greece. The analysis focuses on the determinants and the dynamic interactions among the twin deficits, domestic monetary regimes, and access to international borrowing. Two are the main conclusions: First, when Greece did not have access to international borrowing, fiscal imbalances usually led to monetary destabilization and inflation. Second, when it did have access to international borrowing, fiscal imbalances were generally larger, led to external deficits and, eventually, sovereign debt crises and defaults. The monetary and exchange rate regime also mattered. The 1950s and 1960s were the only prolonged period in which the twin deficits were tackled effectively and, as a result, the only period in which Greece enjoyed high economic growth, monetary stability, and external balance simultaneously.

**JEL Classification**: N1, N2, N4

**Keywords**: Modern Greece, economic history, institutions, fiscal policy, monetary policy, debt crises

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Historically, the two major recurring macroeconomic imbalances of the Greek economy are related to the twin fiscal and balance of payments deficits. The fiscal balance and the current account balance have been persistently negative almost throughout the history of modern Greece. Consequently, the twin deficits have been associated with long periods of fiscal and monetary instability, inflation, excessive foreign borrowing, periodic external debt crises and defaults and lower investment and growth rates.

Fiscal and monetary instability in the history of modern Greece was mainly the result of either the pursuit of the 'grand idea', as in the second half of the 19th century and the first quarter of the 20th century, or the pursuit of the redistribution of income and wealth and the creation of a welfare state through public borrowing, as during the 1980s.

Large fiscal imbalances led either to excessive accumulation of government debt and/or to excessive monetary financing, undermining the credibility of the currency and the domestic financial system, causing currency depreciations and inflation, and crowding out private investment.

In addition, throughout the history of modern Greece, periods associated with easy access to international borrowing led to excessive fiscal and external borrowing, due to the insufficiency of national savings relative to investment, and, ultimately, to sovereign debt crises and/or defaults.

The 1950s and 1960s were the only prolonged period in which the problem of the twin deficits was addressed effectively. As a result, during that period Greece enjoyed high economic growth, low inflation, and external balance.

In this paper, we combine three historical macroeconomic data banks made available recently, to bring together the relevant historical threads and provide a detailed analysis of the causes and consequences of fiscal and external imbalances, and their relation to monetary instability and inflation, sovereign debt crises and low economic growth. For the post-World War II period we use the relevant macroeconomic data from the OECD, the IMF, and the EU Commission.[1]

The rest of the paper is organized as follows: In section 1 we briefly review the history of the state and the economy of modern Greece, distinguishing among three major historical cycles. These are the cycle of independence and nation building, 1821-1898, the cycle of national expansion and consolidation, 1899-1949 and the cycle of economic and social development, 1950-2021. Section 2 contains a brief theoretical discussion of the relation between the twin deficits and their macroeconomic implications. Section 3 reviews the evolution, the determinants, and the implications of the twin deficits during the first historical cycle of modern Greece, spanning the 19$^{th}$ century, while sections 4 and 5 contain a similar review for the second and third historical cycles, spanning the first half of the 20$^{th}$ century and the post-

[1] The three historical data banks are the national accounts data bank compiled by Kostelenos et al (2007), the money and banking data bank of Lazaretou (2014) and the fiscal accounts data bank of Kammas and Koutendakis (2021). For the post-World War II period we use the OECD data banks and the AMECO data bank of the EU Commission.

World War II period respectively. In section 6 we review the implications of fiscal deficits for monetary instability and inflation, in section 7 we review their implications for external debt crises and defaults and in 8 we review their implications for investment and economic growth. The conclusions are summarized in the last section of the paper.

## 1. Three Historical Cycles in the Emergence of Modern Greece

The emergence of modern Greece can be analyzed through the identification of three major historical cycles. These represent distinct periods in the evolution of the Greek state and its economy. These historical cycles differed in their initial conditions, the dominant ideas and values of Greek society, domestic economic and social circumstances, the nature of the prevailing domestic political and economic institutions and the international political and economic environment.[2]

The first cycle is the 1821-1898 cycle of *national independence and state building*. This cycle saw the re-awakening and consolidation of Greece's national consciousness and identity, the war of independence and the creation of the first modern Greek state. It also saw the emergence of the 'grand idea', the aspiration to expand the boundaries of the new state to include the Greek populations still in areas controlled by the Ottoman Empire, and the development of constitutional and democratic institutions. However, it was also a period of political and economic instability and low economic growth.

Following the war of independence and the initial establishment of the Greek state under Governor Ioannis Kapodistrias (1828-1831), this historical cycle is characterized by two distinct political phases: The period of absolute monarchy, under King Otto (1833-1862) and the period of parliamentary monarchy, under King George I (1863-1913), which led to the early establishment of a fully functioning parliamentary system.

For the full duration of this first cycle, Greece operated under the influence of three 'Protecting Powers', Britain, France and Russia. These powers, and especially Britain, played a decisive role in the outcome of the Greek war of independence and almost every aspect of the national, political, and economic developments in Greece until the early 1920s, frequently intervening in the internal affairs of the Greek state and its disputes with the Ottoman empire.

The Greek economy was predominantly a low-productivity agricultural economy, without significant natural resources and with major fiscal problems, due to the need for occasionally high defense spending and limited tax revenues. Despite transfers and capital inflows from the Greeks of the diaspora, which helped finance essential imports of grain and manufactures, high domestic and foreign borrowing and Greece's difficulties in servicing its national debt led to long periods of monetary instability and three painful international 'defaults' in 1826, 1843 and 1893.

[2] See Alogoskoufis (2021a, c) for the identification and discussion of these historical cycles. Other scholars have proposed different and shorter historical cycles. Kalyvas (2015) distinguishes between 'seven boom, bust and bailout cycles', while Dertilis (2016) identifies 'seven wars, four civil wars and seven 'defaults''. The identification of the three major historical cycles goes beyond 'boom and bust' and 'wars, civil wars and defaults', and is related to distinct national and international political and economic circumstances.

The second cycle is the 1899-1949 cycle of *national expansion and consolidation*. This was a cycle dominated by wars, internal conflicts and alternating national 'triumphs' and 'disasters'. At the end of this cycle, Greece had expanded and consolidated its borders and population, through the inclusion of most Greeks previously living under Ottoman rule in the wider geographical region around the original Greek state. The national consolidation was completed following a population exchange with Turkey in the early 1920s.

This dense historical cycle includes the economic stabilization of the first decade of the 20th century, the Balkan wars and the subsequent significant territorial and population expansion of the Greek state, World War I, the national 'schism' of 1915-1916, the Asia Minor campaign and disaster, the revival of the national schism in the early 1920s, the integration of the refugees from Asia Minor and elsewhere, World War II and the disasters of the 1941-1944 occupation, and the Greek civil war that followed.

Despite the wars, the internal conflicts, and the alternation of 'triumphs and disasters', this was a critical historical cycle for the emergence of modern Greece. It led to the significant expansion and consolidation of the area and borders of Greece, a large expansion of its population and a significant transformation of Greece's society and economy. However, towards the end of this cycle, due to the occupation of 1941-1944, the Greek state and its economy had collapsed, and Greek society was again split into two. At that point, Greece was afforded the protection of Britain and the USA and became part of the 'western alliance' that emerged during the first stages of the 'Cold War' in the 1940s. This proved critical for the outcome of the civil war and the next historical cycle.

The 1898-1939 cycle of national expansion and consolidation was characterized by even more significant fiscal and monetary instability, and the most significant and persistent rises in inflation in the history of modern Greece. The excessive monetary expansions, used to finance the increases of military expenditures during the Balkan Wars, World War I and the Asia Minor campaign, led to sustained increases in inflation. Yet the worst episode was the hyperinflation that took place during the occupation of Greece in 1941-1944, following the policy of the occupying forces to use monetary financing to cover the costs of the occupation. This led to a total collapse of the economy and the monetary system and a huge redistribution of income and wealth.

The third cycle is the post-1950 cycle of *economic and social development*. This followed the initial attempts at reconstruction in the late 1940s and is characterized by a long initial period of rapid economic growth, which, despite the subsequent economic slowdown, fundamentally transformed the economy, society, and the state of modern Greece. It was also a cycle that led to the consolidation of Greece's democracy and its social structure, as well as its incorporation in the West and the European Union.

This cycle is characterized by two political and economic phases as well. In the first phase, between 1950 and 1973, this historical cycle is characterized by a relatively authoritarian political regime that emerged after the end of the civil war, but also the successful reconstruction and long period of high economic growth, in conditions of unprecedented fiscal and monetary stability. During this phase, characterized by democratic shortcomings

and a seven-year dictatorship, but also a consistent focus on the goals of economic growth and monetary stability, Greece experienced a true economic 'miracle'. The average annual growth rate of real GDP per capita more than tripled to around 6%, inflation remained particularly low by the international standards of the period and there were no balance of payments or external debt crises.

The second phase of this historical cycle began with the restoration of democracy in 1974 and continues to this day. Its main features are the consolidation of democracy, through the most liberal democratic regime in the political history of modern Greece, the pursuit of social goals, through a more equitable distribution of income and wealth and the creation of a welfare state, and the accession of Greece to the European Union. However, this second phase has been associated with a significant deterioration in Greece's economic performance.

The average annual growth rate of real GDP per capita fell back to around 2%, while, before euro area accession, there was a long period of fiscal and monetary instability and persistently high inflation. Between 1973 and 1993 average annual inflation rose to 18%, as opposed to only 3.5% in the 1953-1973 period. After euro area accession, inflation has been tackled, but persistent fiscal and external imbalances led to a major external debt crisis in 2010 and an unprecedented economic depression, perhaps the deepest and longest peacetime depression in the history of modern Greece.[3]

From this brief review, it appears that the twin deficits have played a significant role in all historical cycles in the emergence of modern Greece.

## 2. The Twin Deficits and their Implications

To analyze the causes and implications of the twin deficits, we must first determine how they are related and how they can be financed.

From the national accounting identities in an open economy, the current account is equal to the difference between aggregate national savings and domestic investment.

Aggregate national savings consist of two parts, aggregate private savings plus aggregate public savings. Hence, the current account is determined by the excess of national private savings over private investment plus the excess of public savings, over public investment. The latter is none other than the fiscal balance. This relation between the external and the fiscal balance is the basis of any consistent analysis of the role of the twin deficits in open economies.[4]

[3] There is a large selection of relatively broad recent overviews of the political and economic history of modern Greece, both in English and in Greek. For general overviews in English see Beaton (2019), Clogg (1992), Gallant (2016), Kalyvas (2015), Koliopoulos and Veremis (2002, 2010) and Kostis (2018). For additional overviews in Greek see Alogoskoufis (2021 c), Dertilis (2004, 2018), Fraghiadis (2007) and Patronis (2015). For a monetary history of modern Greece up to euro area entry see Alogoskoufis and Lazaretou (2002).

[4] See the Appendix for a simple algebraic derivation of the relation between the twin deficits in an open economy.

## 2.1 The Fiscal Deficit and its Financing

The fiscal balance is defined by the difference between government revenues and expenditures.

Revenues include tax revenue, revenue from duties and fees and other current revenue that may be raised by the government, such as revenue from government monopolies or other enterprises. Revenues do not include revenues from government borrowing, which is one of the methods of financing government expenditure.

Government expenditure is typically divided between primary expenditure and debt service expenditure, which consists mainly of interest on government debt.

In addition to the fiscal balance, we often refer to the primary fiscal balance, which is the difference between government revenues and primary expenditures, which do not include interest on government debt.

If the fiscal balance or the primary balance is negative, then we refer to a fiscal deficit or a primary deficit.

To finance fiscal deficits, governments have two main options:

First, borrowing through capital markets, either domestically or from the rest of world, by issuing bonds.

Second, borrowing from the central bank. This causes new base money to be issued and amounts to monetary financing, usually called seigniorage. [5]

In periods during which Greek governments did not have access to borrowing from capital markets, either because Greece was excluded from international capital markets, or because of the insufficiency of domestic savings, they resorted to borrowing from the central bank, initially the National Bank of Greece, and, after 1928, the Bank of Greece.

In such a case, the government sells bonds to the central bank in exchange for new banknotes with which to make its excess payments. Thus, deficits are financed through seigniorage, i.e., revenue from printing money. However, sooner or later, the increase in the money supply implied by resorting to seigniorage revenue leads to monetary instability and inflation, which is a tax on the money holdings of the domestic private sector. Hence, in the medium term, seigniorage turns out to be a form of taxation, the inflation tax.

In the case of Greece, this method of finance often led to significant expansions of the monetary base and the money supply, suspensions of currency convertibility, devaluations of the exchange rate and, sooner or later, increases in inflation. Episodes of monetary financing occurred during periods of significant increases of defense spending in the 19$^{th}$ century, during the Balkan wars, World War I, and the Asia Minor campaign of 1920-1922. The worst

[5] The word seigniorage is derived from the French *seigneur*, i.e., lord. In medieval times, it was the "seigneur" or lord who had the right to mint coins. Seigniorage was the profit resulting from minting coins. Silver and gold were mixed with base metals to make durable coins and seigniorage was earned by selling the coins above their melt value in exchange for guaranteeing the weight of the coin. In fiat money systems, seigniorage arises when sovereign-issued securities are exchanged for newly printed banknotes by a central bank, allowing the sovereign to 'borrow' without needing to repay.

episodes occurred during the foreign occupation of 1941-1944 and for a few years after liberation, when excessive monetary financing of fiscal deficits led to hyperinflation.

Following the monetary stabilization after the end of the civil war in 1949, monetary instability and inflation returned as problems during the 1970s, the 1980s and the early 1990s, because of the two international oil shocks and the high fiscal deficits.

### *2.2 The Current Account Deficit*

A deficit in the external balance of goods and services reflects either low private national savings relative to private domestic investment, or a fiscal deficit, or both.

Modern Greece had relatively high external deficits throughout most of its history both because of low private savings relative to investment and because of relatively high fiscal deficits. The only exception was during the 1950s and the 1960s.

Other things equal, a higher fiscal deficit will also tend to lead to a higher external deficit.[6]

A higher external deficit must be financed through higher international borrowing. In the medium term, a sustained high external deficit will thus lead to high international borrowing and a rapid accumulation of external debt.

To summarize, in the absence of sufficient private domestic savings relative to investment, fiscal deficits lead either to external borrowing or to printing money and inflation. If the government has access to international financial markets, then it can use both methods of finance. If not, it will have to rely more heavily on printing money.

Excessive reliance on international borrowing may lead to an external debt crisis and a sovereign default. Excessive reliance on seigniorage revenue will lead to periods of sustained high inflation, or even hyperinflation.[7]

Finally, the twin deficits may 'crowd-out' private and public investment. If domestic savings do not suffice for financing private or public investment, and domestic investors or the government cannot borrow internationally, then both private and public investment may turn out to be lower than otherwise, to the detriment of economic growth.

## 3. The Twin Deficits in 19th Century Greece

As already mentioned, the Greek state was created after the war of independence from the Ottoman Empire, which lasted between 1821 and 1829. The scarcity of natural resources and the low level of domestic capital and savings meant that resorting to international borrowing was the main option for financing the necessary current and investment expenditure for

[6] The only theoretical exception is when the private sector can borrow and lend without restrictions in competitive capital markets and current generations take full account of the welfare of future generations. In such a case, we have Ricardian equivalence between debt and tax finance, as in Barro (1974), and an increase in fiscal deficits does not necessarily lead to an increase in current account deficits.

[7] For theoretical analyses of the intertemporal relation between the twin deficits, growth and public and external debt in open economies see Alogoskoufis (2014) and Alogoskoufis (2021 d). Alogoskoufis and Christodoulakis (1990) and Alogoskoufis (1995) apply a simpler intertemporal model to the case of Greece in the 1980s, to examine the relation between fiscal policy, seigniorage revenue and external indebtedness.

setting up the necessary state institutions, for national defense and for economic growth and development.

## 3.1 Fiscal Institutions and Developments during the 19th Century, 1821-1898

The first Greek constitutions were approved during the war of independence. In addition to their other provisions, concerning the protection of individual rights and the system of governance, they contained significant provisions for the drafting and approval of a government budget.

The first Greek Constitution of Epidaurus in 1822 stated that,

'The Parliament approves at the beginning of each year the hypothetical account of the income and expenses which is submitted for its approval by the Executive.'

The Constitution of Troizina in 1827 stated in Article 76 that,

'At the beginning of the Synod, the House, after discussing the hypothetical account of public expenses presented by the Government, grants to the Government the necessary resources.'

The reference to the budget in constitutional provisions indicates that the effort to build democratically accountable fiscal institutions was at a similar level as individual rights and safeguarding national independence.

In large part, the financing of the Greek war of independence was based on the resources of the revolutionary Greeks themselves. They contributed from their own savings, while Greeks of the diaspora and 'philhellenes' also financially supported the war. The contribution of ship owners from Hydra, Spetses and Psara, who contributed significantly with ships and munitions, is worth a special mention. The same goes for the contribution of the peasants of the Peloponnese and Central Greece who contributed their crops and livestock for the maintenance of the revolutionaries. Another source of funding was the spoils from raids and battles. Parts of those resources were controlled through the Provisional Administration of Greece, formed following the declaration of Greek Independence and the adoption of the Constitution of Epidaurus in 1822. [8]

During the revolution, a large part of the existing agricultural and livestock capital of the Greeks was also consumed, while most of the existing infrastructure was destroyed during the conflicts. According to Gallant (2016), 'More than two-thirds of the olive trees and three-quarters of the vines were destroyed. Three-quarters of the oil mills and flour mills were in ruins. Of the estimated 100,000 sheep and goats before the war, only 10,000 were left.'

Since the financial needs were great and the resources inadequate, the provisional administration contracted in 1824 and 1825 two international loans, the 'loans of independence', in the London capital market. These loans, which were negotiated by representatives of the Provisional Administration of the Greeks, entailed particularly unfavorable terms and their product almost disappeared. The main details of the two loans of independence are summarized in Table 1.

[8] For an account of the finances of the Provisional Administration of Greece during the war of independence see Bozikis (2020).

**Table 1**
**The Loans of Independence and the 1826 Default**

| Date | Loan Amount | Coupon Rate, Maturity | Remarks |
|---|---|---|---|
| 1. Feb. 1824 | First Loan<br>£800,000 | 5%<br>36 years | Issue Price 59% (£472,000). The net amount to be paid to the Provisional Admimistration was only £ 350,000 because of additional charges of £ 80,000 for the pre-payment of interest for two years, £ 16,000 for a sinking fund (amortization), and £ 26,000 for commissions. Eventually, only £ 298,000 reached the Administration in the form of stores and specie. |
| 2. Feb. 1825 | Second Loan<br>£2,000,000 | 5%<br>36 years | Issue Price 55% (£ 1,100,000). The net amount to be paid out was only £ 816,000, as there was an additional charge of £ 284,000 for the pre-payment of interest for two years (£ 200,000), amortization (£ 20,000) and commission (£ 64,000). Of the £ 816,000, only £ 242,000 reached the Administration in the form of stores and specie. An outlay of £ 317,000 on naval craft was largely wasted, as was the remainder of the funds. |
| 3. Apr. 1826 | Default' | | Unilateral postponement of debt servicing. During the period 1827-1832 the Kapodistrias administration was in unsuccessful negotiations to restructure the loans. After 1832 the administration of Otto did not recognize the loans. |
| 4. Jul. 1879 | 'Settlement' Loan<br>£1,200,000 | 5%<br>33 years | Settlement of the 1824 and 1825 Loans, agreed with bondholders in Sept. 1878. By 1878 the nominal amount of the debt, including accumulated arrears, had reached £10,000,000. The value of the new bonds was equivalent to the sum of the two loans originally credited to Greece. Service of the new bonds, including 1.25% for a sinking fund, amounting to £75,000 per year, was to be secured by the custom revenues of Corfu plus a second charge on stamp duty. The new bonds were traded in Paris and London. |

**Source:** Wynne (1951).

The first loan, amounting to £472,000, against the issue of bonds of a nominal value of £800,000, was used to finance the civil strife that broke out during 1824. And the second loan, amounting to £1.1 million, against the issuance of bonds with a nominal value of £2 million, practically never reached Greece. It was wasted outside Greece on the purchase of cannons and the building of warships in England and America, most of which never reached the country, as well as on the hiring of foreign generals and admirals.

The largest part of the second loan was wasted on the London Stock Exchange for the purchase of bonds of the first loan, worth £250,000. The purchase of Greek bonds by the English managers of the loan was not aimed at consolidating the credit of the Greek state but

at artificially increasing the price of the bonds of the second loan, which were in the hands of its English managers. [9]

The conclusion of the 'loans of independence' in London by the provisional administration of the revolution had been considered a far more important success than any military victory. It was hailed as the successful initiation of economic alliances with Western Europe, and especially with Britain, and therefore, as an indirect international recognition of the War of Independence and the pursuit of the establishment of an independent Greek state. The loans, however, were not used for the purpose for which they were contracted, namely the continuation and intensification of the war, but, as Andreades (1904) typically remarks, to finance the 'internal struggle for hegemony and primacy'.

In 1826, the Provisional Administration of Greece, finding itself unable to continue servicing the loans, unilaterally suspended the necessary payments. It was the first Greek 'default'. The abuse of Greek loans by foreign speculators was so scandalous that it had drawn the indignation of the Philhellenes even in England. English newspapers such as *The Times* publicized the money management scandals. Over time, the scandals were forgotten. However, the inability to repay the debt resulted in the country's loss of credibility in international capital markets for many years. Because of the default, Greece was excluded from international capital markets for the best part of the half century that followed. A 'settlement' with bond holders was only reached in 1878, and Greece only then returned to international capital markets.

Despite the initial efforts of Ioannis Kapodistrias, the first Governor of modern Greece, to impose fiscal discipline, fiscal deficits could not be contained, especially in the period leading up to his assassination and immediately after.

In 1833, on the establishment of the monarchy and the arrival of Otto and his entourage, Greece was granted a new international loan of 60 million French francs, guaranteed by the Protecting Powers. This was one of the demands of King Ludwig I of Bavaria, the father of the young prince. The loan was to be paid in three instalments and a large part was spent on military and administrative expenses. However, tax revenue would not suffice to service the new loan. As a result, in 1843 there was a second sovereign 'default' of the Greek state, because of the inability of the Otto Monarchy to abide by the terms of the loan. Given that this loan was granted under the guarantee of the Protecting Powers, this gave them an extra lever and an additional excuse for direct interference in the internal affairs of the Greek state.

The details of the 'guaranteed' Monarchy loan of 1833 are summarized in Table 2. Following the 1843 default and the ousting of King Otto in 1862, Greece finally reached a settlement with the Protecting Powers in 1864, to pay a fixed annual sum of FF 900,000 for debt service.

[9] For the background to the granting and management of the Greek 'loans of independence' see Andreades (1904) and Chadjioannou (2013). For a detailed account of the history of Greek sovereign borrowing from the war of independence to World War II see Wynne (1951), pp. 283-357.

**Table 2**
**The Guaranteed 'Monarchy' Loan of 1833**

| Date | Nominal Amount | Coupon Rate, Maturity | Remarks |
|---|---|---|---|
| Sept. 1832 | 'Guaranteed' Loan<br>FF 60 million | 5%<br>36 years | Loan Guaranteed by the Protecting Powers, Britain, France and Russia. Was to be paid out in three annual installments of FF 20 million each, starting in 1833. The first two installments were paid out in 1833, at an issue price of 94% (FF 37.6 Mn). Because the loans of independence were in default, neither the London Stock Exchange nor the Paris Bourse admitted the issue to quotation. Out of the proceeds of FF 37,600,000, 1,700,000 went to pay the bankers charges, 11,200,000 to indemnify the Ottoman Empire for territory ceded to Greece, and FF 300,000 to repay an advance Great Britain had made in 1830. Greece received only FF 24,300,000. The third installment was withheld and used to pay limited advances, just enough to keep Greece solvent. Greece maintained debt service though these advances for four years. Debt service payments were resumed in 1840, only to be suspended again in 1843. |
| Sept. 1843 | 'Default' | | Unilateral suspension of debt service by Greece. In 1845 and 1846 Britain warned Greece that it may have to intervene in its internal affairs to secure servicing of the loan. Between 1854 and 1857 Britain and France occupied Piraeus on the pretext of securing debt service by Greece, but actually in order to stop Greece from intervening in the Crimean War. An International Financial Commission of Inquiry was established by the three Protecting Powers in 1856 to advise on debt repayment. Its report suggested an annual payment of FF 900,000, one fourth of the full debt service, to which Greece agreed. After paying the initial annuity in 1860, Greece 'defaulted' again. |
| 1864 | Final Restructuring | | New debt restructuring agreement. Greece agreed to pay 900,000 annually, and conceded one third of the customs receipts of the port of Syra for that purpose. After the accession of King George to the throne, the Powers relinquished one third of the debt service (12,000 or FF 300,00), as 'a personal donation to his Majesty King George I'. Amortization of the loan was completed in 1871, by which time the indebtedness of Greece to the Powers for their payments on account of debt service amounted to FF 92 Mn. From time to time proposals were made to increase the annuity of FF 600,000 actually paid by Greece, but the Powers did not press the matter and no new arrangement was ever effected. At that rate in would take about a century to fully repay the loan. |

**Source:** Wynne (1951)

After 1833, during the period of the Regency, important new fiscal institutions such as the Council of State, the Court of Auditors and the State Accounting Office were introduced. However, fiscal management did not improve. It is noteworthy that a large part of the international loan of 1833 was spent on payments for the Bavarian regiments that accompanied King Otto, when appointed as the first monarch of modern Greece.

The Constitution of 1844, which took effect during the Otto monarchy, after the 'Revolution of September 3rd, 1843', stated in Article 53 that,

'The House and the Senate vote for the budget and decide on the implementation report of the previous budget. All the income and expenses of the state must be noted in the budget and the implementation report.'

Unfortunately, the relevant declarations and provisions, although of great symbolic significance, were not generally implemented effectively by the governments of the time.

Fiscal deficits were somewhat reduced after 1838, due to pressure from Greece's international lenders, and remained relatively low even after the transition to the reign of King George in 1863. This was the result of the difficulties of Greek governments to service the international loan of 1833 and the inability of the Greek governments to borrow internationally, following the two 'defaults' of 1826 and 1843.

However, throughout this period, governments, in the quest for power, used public resources for party political pursuits, such as the appointment of their supporters to the administration, and operated with almost complete lack of concern for the social effectiveness of public expenditure. The system of patronage and the pursuit of votes through public appointments gradually became entrenched and, among other things, prevented the establishment of a fiscal administration with the skills, the effectiveness, and the political autonomy that the circumstances required. Short government terms also contributed to fiscal laxity. The quality of fiscal institutions remained low and was a serious obstacle to any attempts at fiscal consolidation.

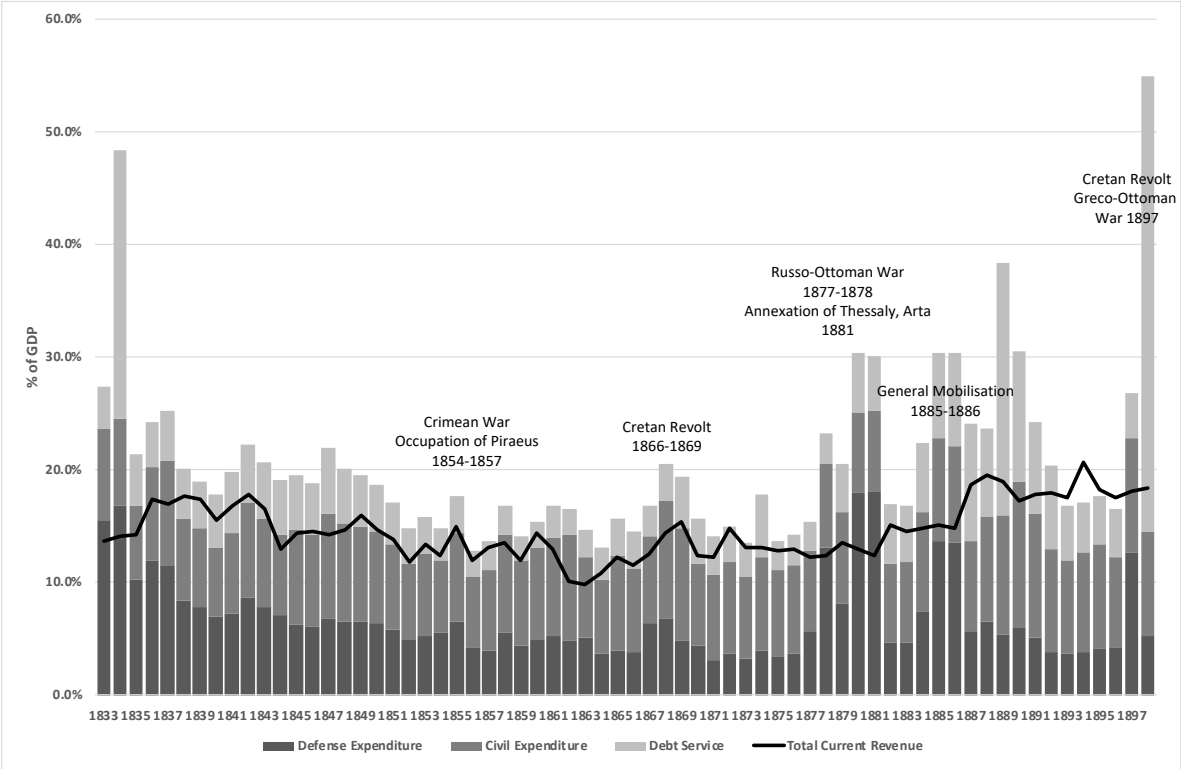
The situation was even worse on the revenue side. Tax revenue was initially based on the Ottoman system of the 'tithe' (one tenth of agricultural production) and on the rental of the 'national lands' to tenant farmers (fifteen percent of production). For many years, the system of collection of these taxes was based on 'tax farming', the 'assignment' of the collection of taxes to local dignitaries, which was a highly lucrative and desirable assignment, usually reserved for supporters of the government.

Indirect taxes were mainly duties on imported and exported goods. New sources of regular revenue, such as luxury taxes, taxes on alcoholic beverages, wine and beer, tobacco taxes and state monopolies were gradually introduced.

The tax system mainly burdened farmers and low and medium incomes, while the upper income classes were essentially tax exempt. In addition, the political influence of private tax collectors was a major obstacle to a fundamental reform of the tax system.

There were efforts by several governments to improve fiscal institutions, but there was little progress. The most important reforms were the introduction of tenure and educational qualifications for civil servants, in the sense that it limited government arbitrariness and led to more qualified and committed personnel.

**Figure 1**
**Government Expenditure and Revenue, 1833-1898**




**Data Source:** Kammas and Koutentakis (2021).

The evolution of government expenditure, for national defense, civil purposes, and debt service, until 1898 is depicted in Figure 1. The evolution of total current revenue is also depicted.[10]

Government expenditure rose from an average of 19.7% of GDP during the period of the Otto Monarchy, 1833-1862, to 21.3% of GDP during the period of the Parliamentary Monarchy, 1863-1898. Total primary expenditure (excluding interest on government debt) remained at around 15% of GDP. In fact, it fell slightly from 15.1% of GDP during 1833-1862 to 14.9% of GDP during 1863-1898. Debt service rose from 4.5% of GDP in the period 1835-1862 to 6.4% of GDP in the period 1863-1898. This is mainly due to the return of Greece to the international capital markets after 1879 and the increase in foreign borrowing. On average, half of the Greek state's primary expenditure during the 19$^{th}$ century was expenditure on defense. This fell slightly from 7.3% of GDP in the period 1833-1862 to 6.5% of GDP in the period 1863-1898.

However, defense expenditure displayed significant variability and has been the main source of fiscal instability. This was related to the pursuit of the 'grand idea', the aspiration to

[10] We base our analysis for the period up to 1939, on the fiscal series compiled by Kammas and Koutentakis (2021), which are more consistent and satisfactory than the corresponding data of Prontzas et al (2011) and Antoniou (2012), reported by Lazaretou (2014). Among other shortcomings, in the categorizations of both public expenditure and revenue, the latter have included many of the loans in the category of public revenues, resulting in a distorted picture regarding the fiscal balance.

incorporate into the Greek state the neighboring territories of the Ottoman Empire inhabited mainly by Greeks. The 'grand idea' was the main driving force of the Greek state until the Asia Minor disaster of 1922.

As can be seen from Figure 1, rises in defense expenditure were associated with wars between Russia and the Ottoman empire, revolts by Greeks in the parts of Greece still under Ottoman occupation, and army mobilizations in Greece itself. Such were the Cretan Revolt of 1866-1869, the Russo-Ottoman War of 1877-1878 and the subsequent incorporation of Thessaly and Arta in the Greek state in 1881, the general mobilization of 1885-1886 and the Greco-Ottoman War of 1897. These resulted in large increases in defense expenditure and were the main reason behind the significant fiscal and monetary instability that characterized the period after 1867. [11]

The evolution of total government revenue is also depicted in Figure 1. Total current government revenue rose slightly from 14.5% of GDP in the period 1833-1862, to 14.9% of GDP in the period 1863-1898. However, it remained systematically below total government expenditure, meaning that the Greek state was running continuous budget deficits, which became significantly larger in periods of increases of defense expenditure. Furthermore, over time, there was a shift from direct to indirect taxes and tariffs, due to the inefficiency of the system of direct taxation. Total tax revenue (excluding tariffs) fell between the two sub-periods, from 8.2% of GDP in the period 1833-1862 to 5.9% in the period 1863-1898. Revenue from tariffs rose significantly, from 3.0% of GDP in the 1833-1862 period, to 4.6% of GDP in the 1863-1898 period. In addition, the relative weight of indirect taxes increased between the two periods. From 7.2% of GDP in the 1833-1862 period, direct tax revenue fell by a half, to 3.8% of GDP during 1863-1898. On the other hand, indirect taxes (excluding tariffs) doubled, from 1.0% of GDP in the period 1833-1862, to 2.1% in the 1863-1898 period.

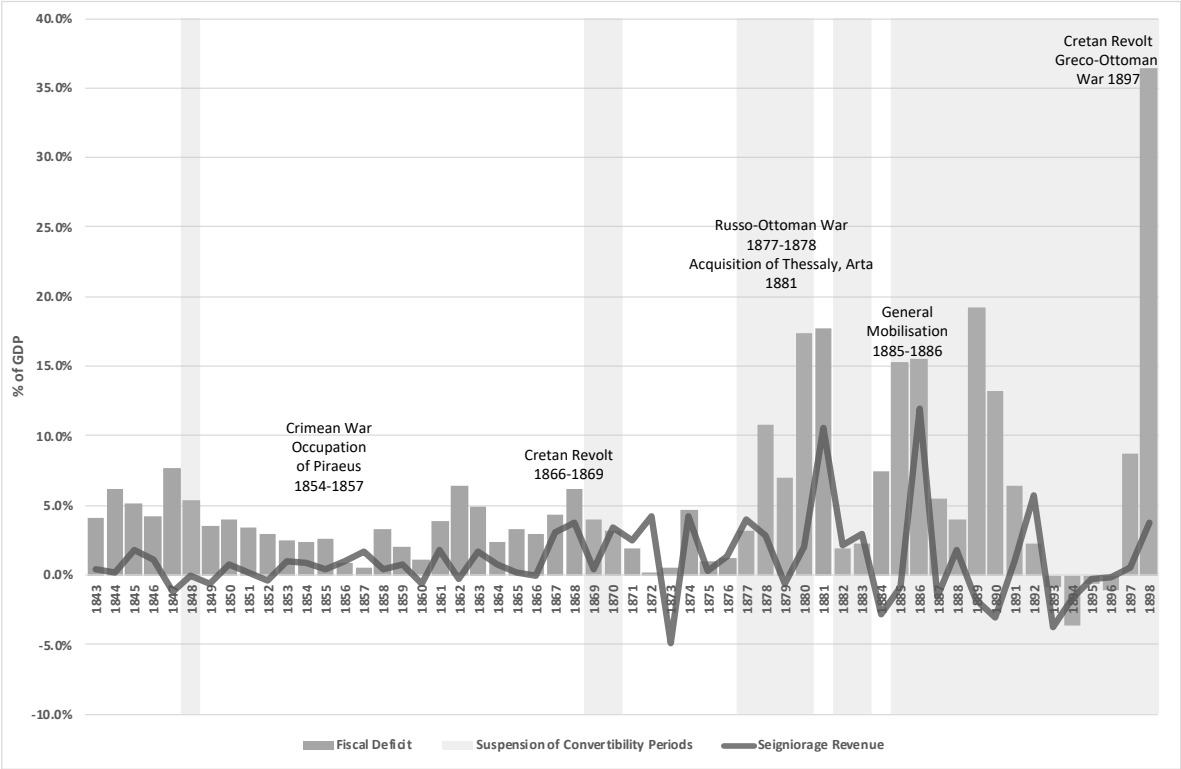
The evolution of the fiscal deficit as well as seigniorage revenue, is depicted in Figure 2. After the default of 1843, the average fiscal deficit fell significantly, as Greece did not have access to borrowing from international financial markets and the drachma remained convertible. Fiscal deficits started rising again after the settlement of the Otto monarchy loan in 1864 and the loans of independence in 1879. After these settlements Greece regained access to international borrowing. The average annual fiscal deficit, as measured by the difference between total current expenditures and revenues, rose from about 3.6% of GDP in the period 1843–1862 to 6.4% of GDP in the period 1863–1898. Seigniorage revenue, measured as the change in the monetary base as a share of GDP, also rose from 0.5% of GDP in the period 1843–1862 to 1.5% of GDP in the period 1863–1898.[12]

Deficits increased significantly in periods when defense expenditure spiked, such as the Cretan revolt in 1866-1869, the Russo-Ottoman war of 1877-1878 and the acquisition of Thessaly and Arta in 1881, the general mobilization of 1885-1886 and the Greco-Ottoman war

[11] See Lazaretou (1993, 1995), Alogoskoufis and Lazaretou (2002), Alogoskoufis (2021 a, c) and Kammas and Koutentakis (2021) for detailed analyses of how defense spending destabilized the government budget and led to monetary instability.

[12] Strictly speaking this is not the fiscal deficit, but the government's financing needs, as the Kammas and Koutentakis data do not distinguish between interest payments and amortization in debt service expenditures.

**Figure 2**
**Fiscal Deficits and Seigniorage Revenue, 1843-1898**




**Data Source:** Kammas and Koutentakis (2021) and Lazaretou (2014).

of 1897. So did revenue from seigniorage, although between the settlement of the debts of independence in 1879 and 1893, the year of the 3rd Greek 'default', high fiscal deficits were also financed through external borrowing.

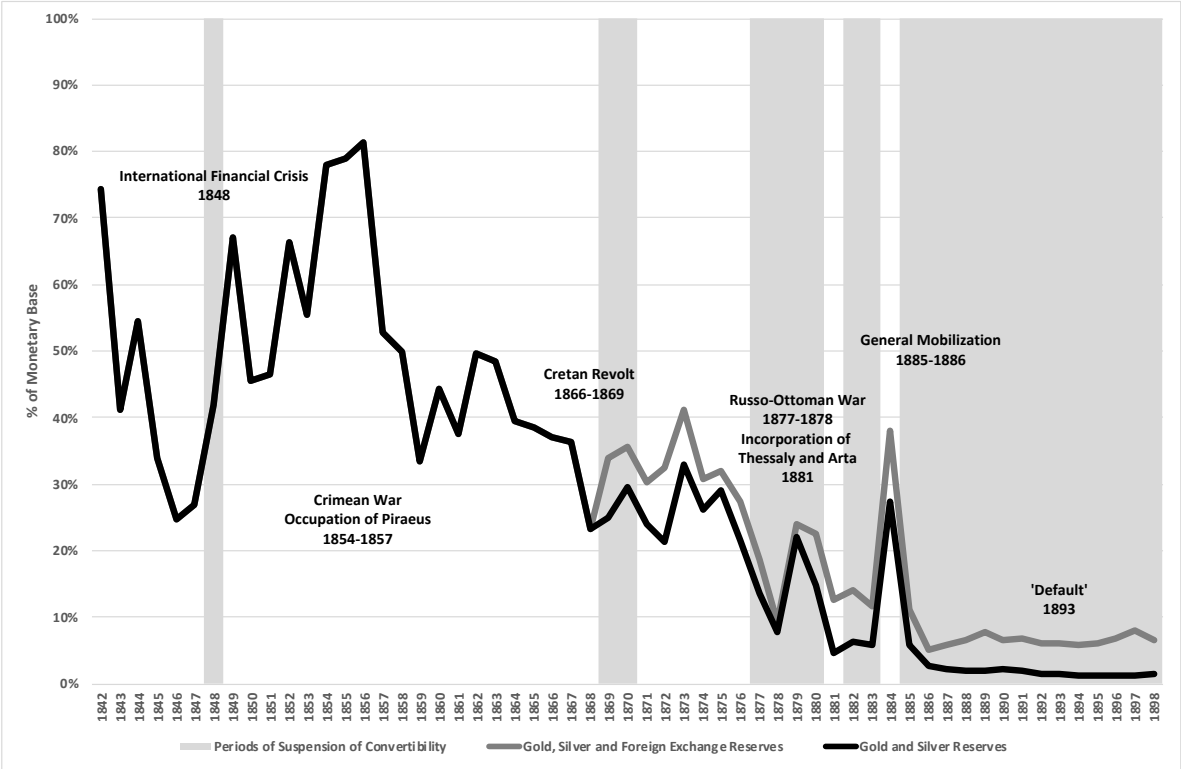
## 3.2 Monetary and Financial Developments and 19th Century Debt Crises

The evolution of the monetary system of the new Greek state was affected both by global monetary developments and by the fiscal disturbances caused by the pursuit of the 'grand idea'.

In 1828, when the first currency of the new Greek state, the 'phoenix', was introduced by Ioannis Kapodistrias, the monetary system in Europe and the rest of the world was based on bimetallism. Some countries were on a gold standard, and most were on a silver standard. The monetary system of modern Greece was initially based on silver, although most of the coins in circulation were copper coins of small denominations. The 'phoenix' could not establish itself, and Greek coins circulated alongside several other coins, of either Spanish or Ottoman origin. The fiscal difficulties faced by the newly formed Greek state caused the first suspension of silver convertibility in mid-1831 and the issuance of paper money. The murder of Governor Kapodistrias led to the eventual abandonment of the 'phoenix'.

In 1833, after the establishment of the Otto monarchy, the 'drachma' was introduced as the new currency of the Greek state. It was named after a coin of ancient Athens. The new Greek

**Figure 3**
**Metallic and Foreign Exchange Reserves as a Ratio of the Monetary Base, 1833-1898**




**Data Source:** Lazaretou (2014).

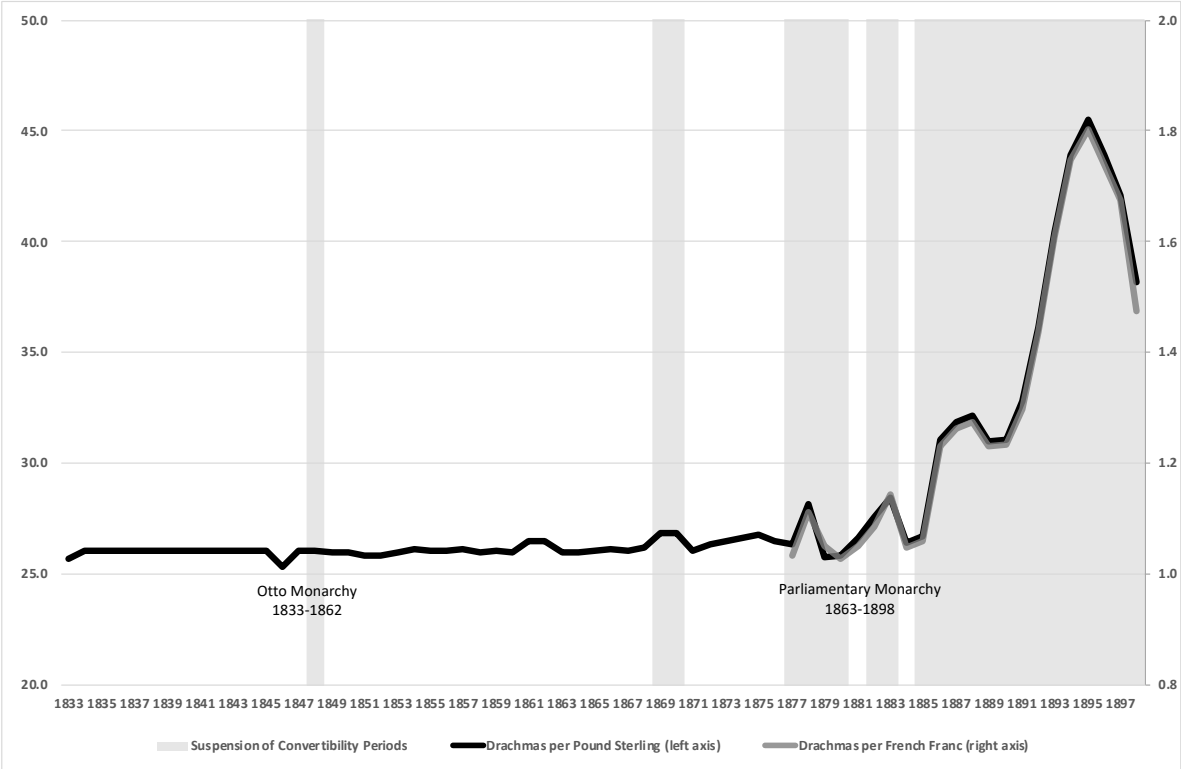
monetary system was conceptually bimetallic, but in practice only a limited quantity of gold coins was minted. The drachma began to be accepted more widely in domestic transactions, as the acceptance of Ottoman coins by government agencies was expressly prohibited.

The monetary system gradually expanded and, in 1841, the National Bank of Greece was finally established, as a commercial bank which had also been granted the monopoly of issuing banknotes. The banknotes of the National Bank of Greece were convertible to silver coins or silver at par. The silver standard was maintained until 1877, although there were also short periods of suspension of convertibility, such as during the global economic crisis of 1848 and the Cretan revolt in 1868.

Suspensions of convertibility were mostly related to large declines of the ratio of silver, gold, and foreign exchange reserves of the National Bank of Greece to the monetary base. In metallic standards, such as the one adopted by Greece, convertibility requires a sufficiently high ratio of metallic reserves to the monetary base. In the case of the National Bank of Greece, the ratio of metallic reserves to the quantity of banknotes was fixed at one quarter (25%), implying a ratio of metallic reserves to the monetary base of one fifth (20%). The evolution of this latter ratio until 1898 is depicted in Figure 3.

During the Cretan revolt the ratio of silver and gold reserves to the monetary base fell below 25% and convertibility was suspended during 1869 and 1870. Convertibility was suspended again in 1877 following the Russo-Ottoman war of 1877-1878, when the reserve ratio

**Figure 4**
**The Drachma-Sterling and Drachma-French Franc Exchange Rates, 1833-1898**




**Data Source:** Lazaretou (2014).

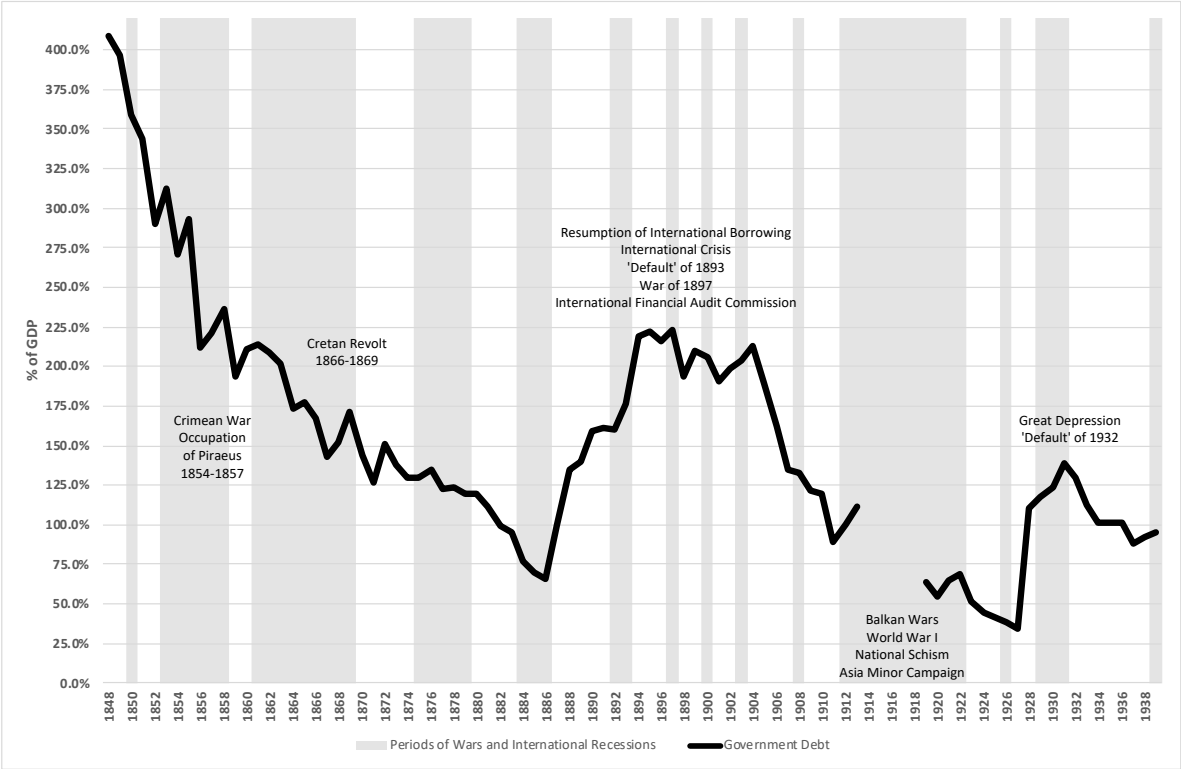
dropped significantly. Attempts to restore convertibility since then were short-lived, because of the low ratio of metallic and foreign exchange reserves to the monetary base, due to large budget deficits which were partly financed through seigniorage.

Figure 4 depicts the evolution of the exchange rate of the drachma against sterling and the French franc, the major international currencies until World War I. The volatility of the exchange rates of the drachma increased in periods of fiscal instability, such as the period between 1877 and 1898, when the convertibility of the drachma in silver and gold was suspended.

Under pressure from its foreign creditors, and due to the growing problems of international bimetallism, in 1867 Greece had signed the agreement of the Latin Monetary Union, linking the drachma with the French franc. However, the Cretan revolts in 1866-1869 and the Russo-Turkish war of 1877-78 prevented Greece's full participation in the Latin Monetary Union. As already mentioned, Greece was forced in 1877 to proceed with a suspension of metallic convertibility once again.

The suspension of convertibility was maintained, with two short breaks, for more than 30 years. It was not until 1910 that Greece was able to fully participate in the international gold standard, which had been adopted by the Latin Monetary Union and most developed economies from 1879 onwards.

**Figure 5**
**Greece's Public Debt, 1848-1939**




**Source:** Reinhart and Rogoff (2009).

Given the low private savings and its fiscal weakness, access to international capital markets was vital for the new Greek state right from the start. This was the reason why the Greek state sought from the beginning to be able to borrow from abroad and to participate in the international monetary system of the time. Since national savings were insufficient, even if one counted the transfer of funds from Greeks of the diaspora, international borrowing was a necessary evil.

The weaknesses of Greece's fiscal institutions, especially regarding the collection of public revenues, but also because of the frequent and large increases in defense spending, resulted in occasionally large borrowing needs. These were covered either through internal or, when possible, external borrowing.

The evolution of Greece's public debt between 1848 and 1939 is depicted in Figure 5.[13]

For a long time, mainly between 1843 and 1879, when the 'Independence Loans' and the 'Otto Monarchy Loan' were finally settled, Greece had no access to external borrowing, because of the 'defaults' of 1826 and 1843. The government could only borrow from the National Bank of Greece. However, this required an increase in the quantity of banknotes issued by the National Bank, which undermined the metallic convertibility of the currency because it was not associated with an increase in the Bank's metallic and foreign exchange

[13] For a detailed account of the history of Greek sovereign borrowing from the war of independence to World War II see Wynne (1951), pp. 283-357.

reserves. Combined with the fiscal instability caused by periodic spikes in military spending, this led to long periods of currency volatility. Because of the inability of Greece to raise capital in international capital markets, public debt declined relatively to GDP during this period.

After 1879 the trend was gradually reversed. Both infrastructure investment, a priority of the governments of Charilaos Trikoupis, and defense spending, a priority of the governments of Theodore Diligiannis, the two politicians who alternated as prime ministers during this period, were financed through international borrowing. In fact, even borrowing for infrastructure investment, was in most instances used to finance budget deficits caused by defense spending. The sequence of loans of the 1879-1890 period is presented in Table 3.

Financing temporary increases in defense expenditure and infrastructure investment through borrowing was not a Greek peculiarity. Infrastructure investment results in an increase in a country's capital stock and raises future per capita income. Hence, financing it through borrowing is warranted. In addition, when there are large temporary increases in government spending, such as during wars, rather than resorting to tax increases, governments tend to resort to temporary borrowing and issuance of paper money, so as to minimize the economic and political downsides of large and sharp increases in tax rates. This is called tax smoothing and is also warranted (see Barro 1979). The same is true in cases of major recessions. A recession leads to temporary falls in tax revenues due to a slowdown in economic activity and a temporary increase in counter-cyclical government social spending relative to GDP. Due to their temporary nature, financing such deficits through borrowing is warranted.

Therefore, both periods of high infrastructure investment and wars and recessions can lead to increases in government deficits and debts. In the case of wars, because of the difficulties of borrowing, there is also recourse to the issuance of unsecured paper money, which can lead to the suspension of the convertibility of the currency and inflation.[14]

In the case of Greece, after the settlement of the loan of the Otto monarchy in 1864 and the 'loans of independence' in 1879, there was a prolonged round of external borrowing, both to finance defense expenditure and to invest in transport infrastructure.

However, it must be noted that defense spending was a much more significant factor than infrastructure investment in causing fiscal imbalances and excessive international borrowing. In any case, this round of international borrowing also eventually led to 'default', that of 1893, the third in the history of modern Greece, and the establishment of the International Financial Commission in 1898, to ensure the repayment of Greece's sovereign debt.

[14] The positive association between rises in military expenditure and fiscal deficits and debts is historically well documented. During the Napoleonic Wars of 1803-1815 in the United Kingdom, and during the American Civil War of 1861-1865 in the United States, the convertibility to specie was also suspended. Thus, the link of the money supply to gold and silver was relaxed through the issuance of non-convertible paper currency. The Bank of England issued non-convertible sterling banknotes, and the United States issued non-convertible 'greenbacks'. The issuance of non-convertible banknotes was used to finance a large part of the cost of the respective wars of these countries and resulted in large increases in both government debt and the money supply. The increase in the money supply resulted in a rise in the price level through inflation. Yet, until World War I, the suspension of convertibility was always considered to be temporary. Sterling convertibility was restored in 1821, and dollar convertibility was finally restored in 1879, when the USA joined the international gold standard.

**Table 3**
**International Bond Issues, 1879-1890**

| Year of Issue | Nominal Amount Mn FF | Coupon Rate, Maturity | Remarks |
|---|---|---|---|
| **1. 1879** | 60 | 6% 40 years | Issue price 78.5% (FF 47.1 Mn). First issue after the agreement to settle the loans of independence in 1878 to repay recent advances from Greek banks and restore convertibility. Secured by stamp duties. Was used to finance budget deficits. The loan was paid off in 1889, out of the proceeds of the 4% loan of that year. |
| **2. 1881** | 120 | 5%, 40 years | Issue Price 75.6% (FF 90.72 Mn). Loan backed by tax revenues. |
| **3. 1884** | 170 | 5% 37.5 years | Issue price 68.5% (FF 116.45 Mn). For restoration of convertibility to gold. Was used to finance budget deficits. The bonds were traded in Athens, Paris, London, Berlin and Frankfurt. |
| **4. 1887** | 135 | 4% 75 years | Monopoly bond Loan. Issue price 78.5%. Was partially covered (91 million). The bonds were traded in Athens, Paris, London, Berlin and Frankfurt. |
| **5. 1889** | 155 (30+125) | 4% Perpetual | The issue price of the 30 mn loan was 68.125%. The issue price of the 125 mn loan, which was only partially covered (100 mn) was 72.75%. The bonds were traded in Athens, London, Berlin and Frankfurt. |
| **6. 1890** | 90 | 5% 99 years | Railway Network Bond Loan. There were two tranches. One with an issue price of 89% and a second with an issue price of 86%. The loan was partially covered (53 mn). The bonds were traded in Athens, London, Berlin and Frankfurt. |

**Source:** Wynne (1951), Lazaretou (2014).

Thus, the twin deficits, fiscal and external, caused both monetary instability, in the form of occasional suspensions of the convertibility of the drachma and inflationary episodes, and debt crises and defaults, such as the defaults of 1826, 1843 and 1893.[15]

[15] See Wynne (1951). For recent accounts and analyses of the 1893 default and its aftermath see Kakridis (2018) and Lazaretou (2013).

**Table 4**
**The Indemnity and Economic Loan of 1898 and the International Financial Commission**

| Year of Issue | Nominal Amount<br>Mn FF | Coupon Rate, Coupon Price, Maturity | Remarks |
|---|---|---|---|
| **1898** | 'Indemnity and Economic Loan'<br>150 | 2.5%<br>500 FF<br>30 years | Used to pay the indemnity to Turkey and tidy over the finances of Greece. It was guaranteed by the Protecting Powers and was accompanied by the establishment of the International Financial Commission, with the authority of control Greece's finances. Starting in 1903, Greece had to pay for a period of 30 years a fixed amount of gold FF 9 million per year. Every time the drachma appreciated against the French franc, interest and arrears would increase by 30% of the appreciation. In addition to the payment of war reparations to Turkey. (Indemnity Loan) Greece used the loan to finance the budgetary deficit of 1897, convert the gold floating debt and pay its 1898 dues to holders of its external bonds. |

**Source:** Wynne (1951).

## 4. The First Half of the 20th Century, 1899-1949

The end of the 19th century cycle saw the establishment of the International Financial Commission which oversaw the stabilization of Greece's currency, its public finances, and the economy in general. At the time, this was seen as a major blow to national sovereignty. Yet, the monetary and fiscal stabilization proved critical for the preparation of Greece for the next historical cycle, which proved to be a cycle of national expansion and consolidation.

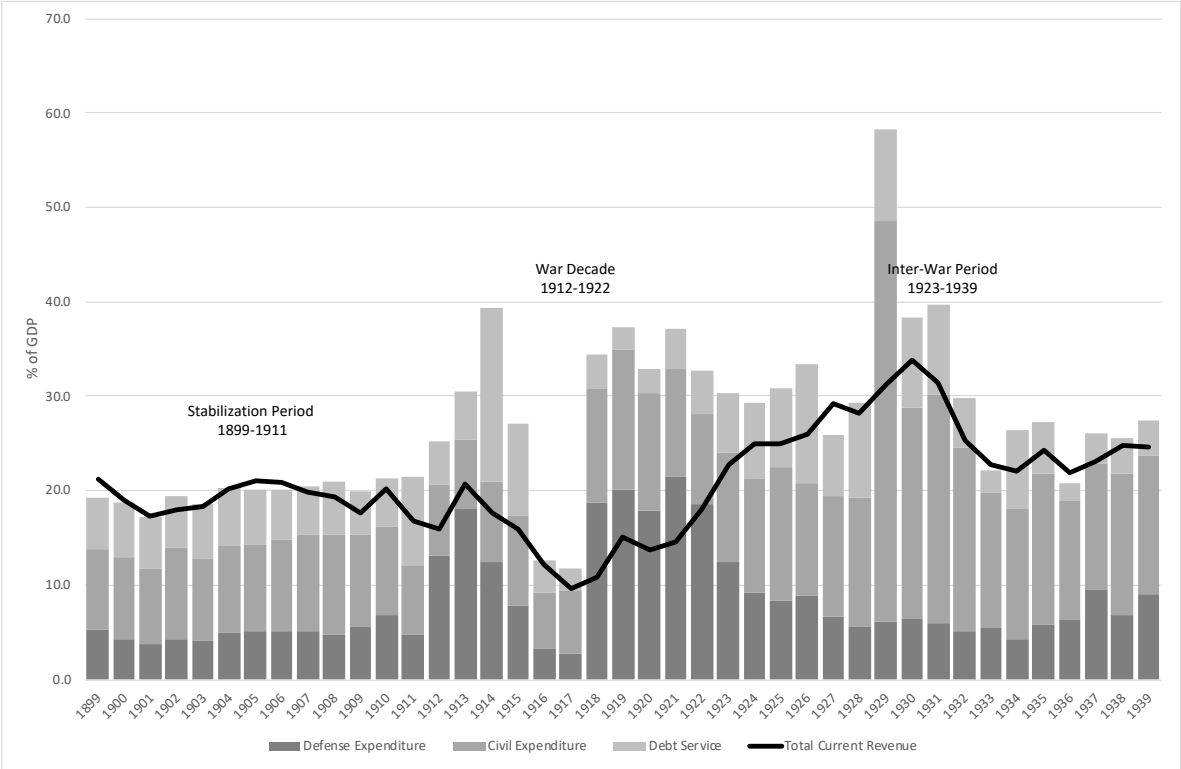
The establishment of the International Financial Commission was accompanied by a large Indemnity and Economic Loan, to help Greece pay the reparations to Turkey and finance the deficits of 1897 and 1898. The terms of this loan agreement are summarized in Table 4.

Fiscal developments during the second historical cycle, 1899-1949 can be subdivided into four sub-periods: First, the stabilization period, 1899-1911, second, the 'first war decade', 1912-1922, third, the inter-war period, 1923-1939 and, fourth, the 'second war decade', the period of World War II, the occupation, and the civil war, 1940-1949.

The relevant fiscal developments for the first three sub-periods are depicted in Figures 6, and 7. The data for the second 'war decade', 1940-1949, due to the disruptions of the occupation and the civil war are incomplete and not comparable.

Primary government expenditure was stabilized at 14.1% of GDP during the stabilization period, 1899-1911, but rose to 23.6% of GDP during the first war decade, 1912-1922. This was again mainly due to defense expenditure, which rose from 5.0% of GDP during the period of stabilization to 14.0% of GDP during the 'first war decade'. Expenditure for debt service remained roughly constant at 5.7% of GDP.

**Figure 6**
**Government Expenditure and Revenue, 1899-1939**



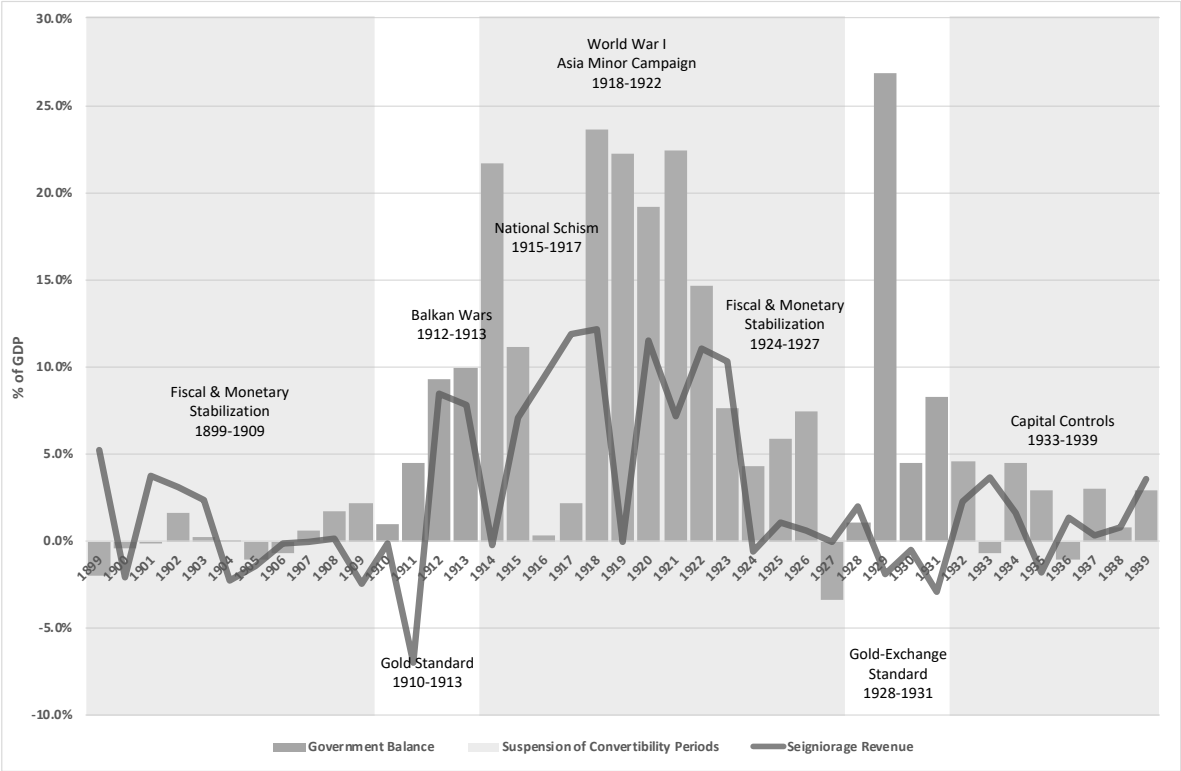

Data Source: Kammas and Koutentakis (2021).

Primary government expenditure remained high during the inter-war period 1923-1939, at 23.9% of GDP, as the reduction of defense spending to 7.2% of GDP after the Asia minor disaster was accompanied by an increase in civil spending to 16.7% of GDP, from 9.6% of GDP during the period of wars, 1912-1922. This was due to the need to increase spending for the settlement of refugees, following the exchange of populations agreed in the Treaty of Lausanne in 1923. Debt service also rose slightly in the inter-war period, to 6.7% of GDP, due to additional international borrowing.

On the revenue side, as can also be seen from Figure 6, total government revenue rose significantly to 19.2% of GDP during the period of stabilization, 1899-1911, fell back to 14.9% of GDP during the first war decade, 1912-1922, and rose steeply, to 26.0% of GDP in the inter-war period, 1923-1939. Tax revenue rose to 7.3% of GDP during the period of stabilization, but this was again due to the rise of indirect taxes. It fell slightly to 6.3% of GDP during the war years, but rose sharply, to 12.7% of GDP in the interwar period, again based on indirect taxes. Indirect taxes rose from 3.5% of GDP in the first war decade 1912-1922, to 7.9% of GDP in the inter-war period, 1923-1939. Revenue from tariffs rose to 6.0% of GDP in the period of stabilization, 1899-1911, fell to 3.8% during the war decade, 1912-1922, and rose sharply to 7.6% of GDP in the inter-war period, 1923-1939.

As can be seen from Figure 7, the average annual fiscal deficit, as measured by the difference between total expenditures and revenues, fell to 0.6% of GDP in the period of stabilization, rose to 14.2% of GDP during the first war decade, 1912-1922, and fell to 4.7% of GDP in the

**Figure 7**
**Government Deficits and Seigniorage Revenue, 1899-1939**




Data Source: Kammas and Koutentakis (2021) and Lazaretou (2014).

inter- war period, 1923-1939. Seigniorage, i.e., revenue from money creation, fell to almost zero during the period of fiscal and monetary stabilization, rose to 7.8% of GDP during the first war decade and fell back to 1.2% of GDP in the inter-war period, 1923-1939. Thus, the rise in government deficits during the first war decade 1912-1922 led to a significant rise in seigniorage revenue, as Greece was not able to tap other sources of finance.

The fiscal and monetary stabilization achieved after the establishment of the International Financial Commission in 1898 allowed Greece to regain access to external borrowing and eventually adopt the gold standard in late 1909. This was critical for the country's preparations for the Balkan Wars of 1912-1913. During this period Greece concluded three international bond issues, one in 1902, one in 1907 and one in 1910. Furthermore, it also concluded a three-part bond issue in 1914, before the outbreak of World War I. These international bond issues are summarized in Table 5.

However, the Balkan wars, the 'national schism', participation in World War I, and the campaign and disaster of Asia Minor led to a new period of even higher fiscal and monetary instability than in the past.

Figure 8 depicts the evolution of the exchange rate of the drachma against sterling, the major international currency until World War I and the US dollar, the major international currency since. Although the exchange rate of the drachma remained constant during the Balkan wars and World War I, because of wartime capital controls, the volatility of the drachma exchange

**Table 5**
**International Bond Issues, 1902-1914**

| Year of Issue | Nominal Amount Mn FF | Coupon Rate, Maturity | Remarks |
|---|---|---|---|
| **1. 1902** | 56.3 | 4%, 98 years | Issue Price 84% (FF 47.292 Mn). Railway Network Loan. The bonds were issued and traded in Athens, Paris and London. |
| **2. 1907** | 20 | 5% 36 years | Issue price 97% (FF 19.4 Mn). National Defense Loan. The bonds were traded in Athens and London. |
| **3. 1910** | 110 | 4% 50 years | Issue price 86.5% (FF 95.15 Mn). Was partially covered (91 million). The bonds were issued and traded in Athens, Paris and London. |
| **4. 1914** | 335 | 5% 50 years | Issued in three parts, at issue prices 92.25%, 100% and 87.75% respectively. The bonds were traded in Athens, Paris and London. |

**Source:** Wynne (1951).

rates increased immediately after World War I, when the drachma was devalued continuously and significantly following the Asia Minor campaign and disaster.

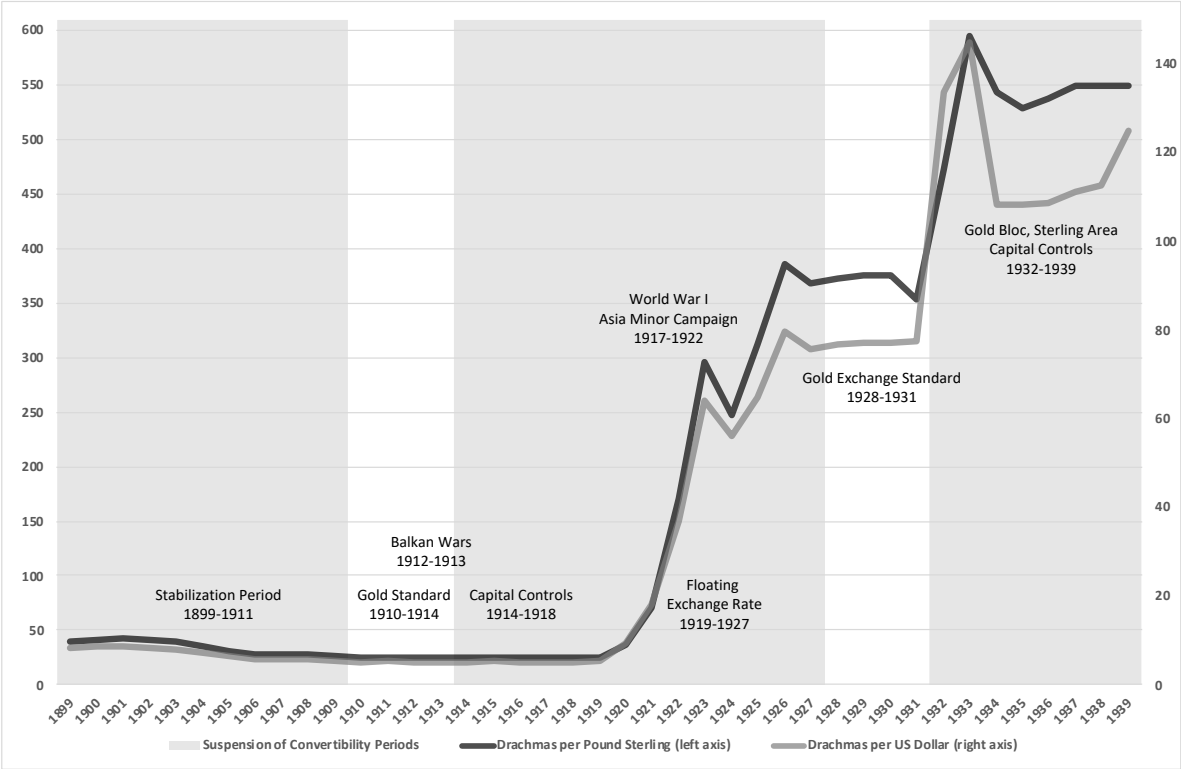
The fiscal and monetary instability of the interwar period was not limited to Greece. It also characterized the rest of Europe and the world, due to the shortcomings of the Treaty of Versailles, which imposed exorbitant war reparations on Germany. Greece tried to stabilize its economy after the mid-1920s, through the stabilization program of 1926-1927. It succeeded and adopted the 'gold exchange standard' in 1928, with the aid of a £ 9 million tripartite loan, under the aegis of the League of Nations. This had a coupon of 5% and a maturity of 99 years. It was used for the stabilization of the drachma and refugee relief, following the exchange of populations in 1923. However, the international financial crisis of the early 1930s forced Greece to abandon the 'gold-exchange standard' in 1932. This coincided with the fourth Greek 'default'.[16]

After the 'default' of 1932 aggregate demand remained high due to the devaluation of the drachma, high tariff protection and capital controls. The drachma remained originally tied to the gold based French franc, and, after France left the gold bloc, it remained tied to the pound sterling, through Greece's participation in the sterling bloc.

Wars usually result in spikes in government expenditure and fiscal deficits and monetary instability. In the case of Greece, periods of spikes in defense spending led to rises in fiscal deficits, suspensions of convertibility and monetary financing through seigniorage,

[16] See Mazower (1991), Pepelasis-Minoglou (1993, 1998), Alogoskoufis and Lazaretou (2002), Ch. 6, Christodoulaki (2015), Christodoulaki et al (2012) and Christodoulakis (2013) for analyses of the interwar stabilization and the subsequent crisis.

**Figure 8**
**The Drachma-Sterling and Drachma-Dollar Exchange Rates, 1899-1939**



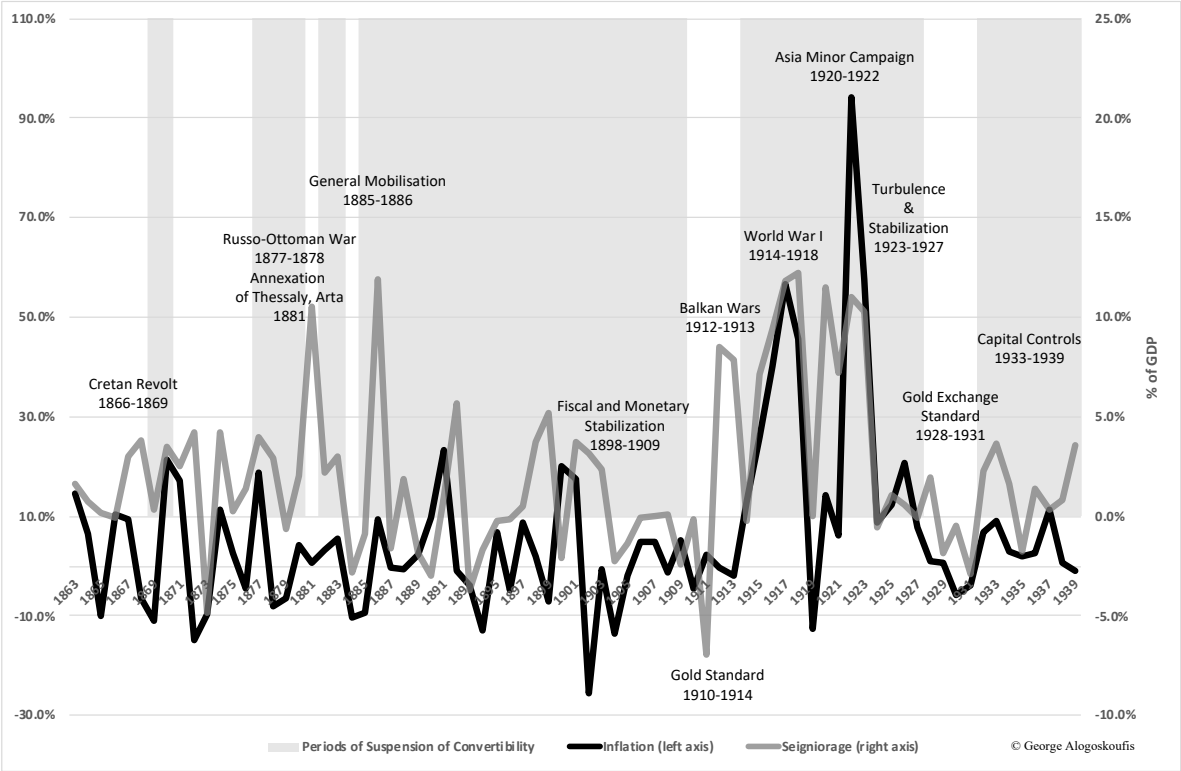

**Source:** Lazaretou (2014).

devaluations and inflation. The worst such episodes took place during the first war decade of 1912-1922 and resulted in the longest period of sustained high inflation before the outbreak of World War II. The evolution of the inflation rate and its close association with seigniorage, the percentage of GDP financed through expansions of the monetary base, is presented in Figure 9.

Whereas before World War I rises in seigniorage and inflation were mostly temporary, and were usually followed by deflation, during World War I and the Asia Minor campaign the rise of inflation was not only unprecedented but also persistent. This was because monetary financing of the high budget deficits was the only option available to Greek governments during this period, as recourse to either internal or external borrowing was not possible.

The positive relationship between defense spending, monetary financing (seigniorage revenue) and inflation is apparent in Figure 9. There were spikes in government spending and inflationary finance during the Cretan revolt of 1866-1869, the Russo-Turkish war of 1877-1879 and the acquisition of Thessaly and Arta in 1881, the general mobilization of 1885-1886 and the Greco-Ottoman war of 1897. However, inflationary finance was temporary and so were the rises in inflation. During the period of stabilization, 1899-1910, following the establishment of the International Financial Commission, Greek governments were required to reduce seigniorage revenue down to zero and average inflation fell to zero as well. However, during the first war decade 1912-1922, average seigniorage revenue rose significantly to 7.8% of GDP and average inflation rose to 25.6%.

**Figure 9**
**Defense Spending, Monetary Financing, and Inflation, 1863-1939**




**Source:** Lazaretou (2014).

This was repeated in the 1940s. World War II, the occupation, and the civil war of the 1940-1949 period, because of the unprecedented rise in fiscal deficits and monetary financing, resulted in the worst possible period of fiscal and monetary instability in modern Greece, a hyperinflation, and a total economic and monetary collapse.[17]

## 5. The post-World War II Period, 1950-2021

Following the end of the civil war, the fiscal consolidation of the early 1950s, the devaluation of 1953 and the monetary reform of 1954, the conditions were created for a rapid reconstruction and recovery of the Greek economy. What followed was a real economic 'miracle'. The average annual growth rate of real GDP per capita between 1953 and 1973 was 6.8%. In 1973, per capita GDP stood at $10956 (in 2011 prices), almost four times higher than in 1952. At the same time, monetary stability was maintained, as inflation fell and remained very low, while the exchange rate of the drachma remained constant against the US dollar for almost twenty years.

Thus, the end of the civil war marked the beginning of a new historical period for Greece and its economy, as one of the most important obstacles to the stabilization and reconstruction of the economy was removed. The political situation remained unstable for several more

[17] For a vivid account of the occupation and its dire implications for the people of Greece see Mazower (1993), For the economic and monetary collapse see Alogoskoufis and Lazaretou (2002), Ch.8, and Alogoskoufis (2021 a, c).

years. Yet, the conditions proved right for preparing for one of the longest periods of rapid economic growth and monetary stability experienced in the history of modern Greece.

The foundations for the impressive course of the Greek economy in the twenty-five-year span between 1949 and 1973 were laid in the late 1940s and they were strengthened in the early 1950s. Had it not been for certain critical decisions and choices during this period, such as the implementation of the Marshall Plan, the fiscal and monetary stabilization of the early 1950s, the devaluation of 1953 and the monetary reform of 1954, and for the continuity and consistency that characterized economic policy during the 1953-1973 period, the course of the Greek economy might not have been so positive.

The period 1950-1973 was also one of the rare periods in which Greece's economic growth was not based on international borrowing and was not interrupted by external debt crises. High investment was financed through an increase in domestic savings, mediated through the domestic banking system. This allowed for a long period of rapid economic growth without an increase in inflation, the current account deficit and external debt.

Fiscal and monetary instability returned with the oil crises of the 1970s, the collapse of the Bretton Woods system and the attempt, particularly during the 1980s, to redistribute income and wealth through public borrowing.

The 1980s was one of the few periods in the history of modern Greece when fiscal and monetary instability was not associated with an increase in defense spending or wars, but with an increase in government employment, public sector wages and transfer payments.

The evolution of government spending as a percentage of GDP is depicted in Figure 10.

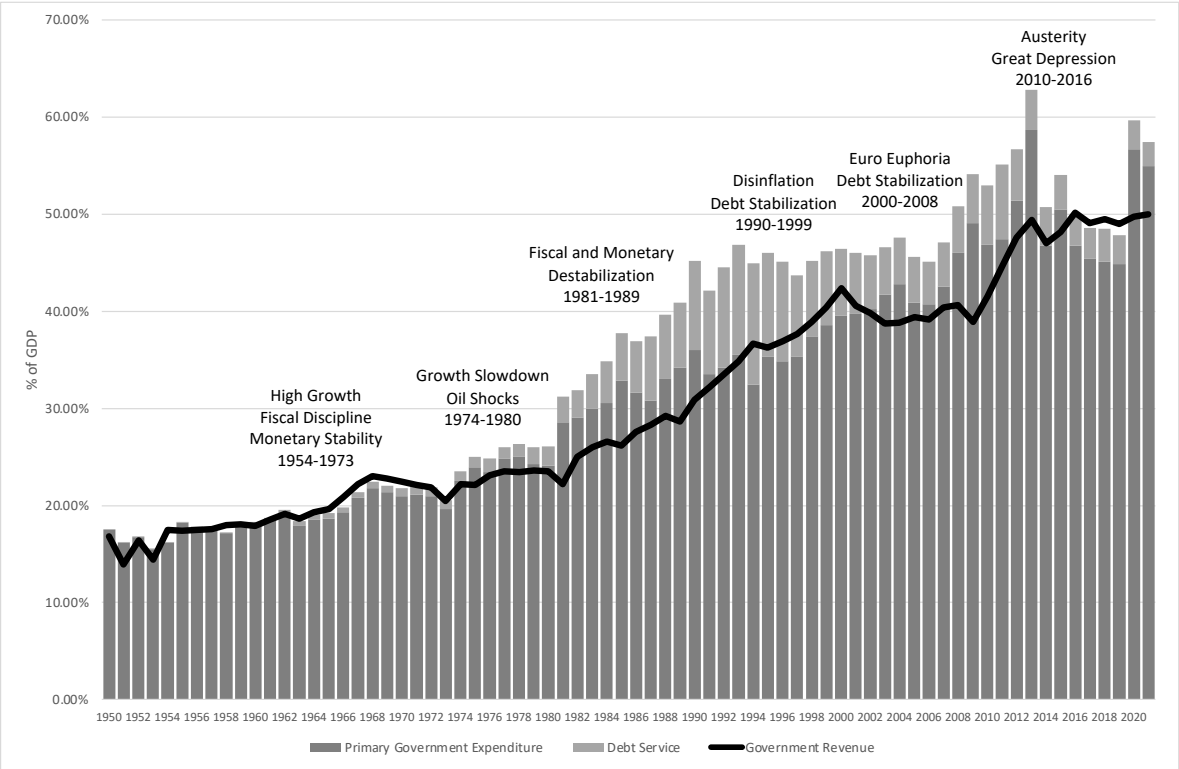
Until the 1980s, government spending was rising slightly faster that GDP. It rose from an average of about 17% of GDP in the 1950s, to 20% of GDP in the 1960s and to 24% of GDP in the 1970s. However, since the early 1980s, the rise in government spending accelerated. It exploded to 35% of GDP in the 1980s and 45% of GDP in the 1990s. Although its rate of growth decelerated after 2000, government spending kept rising relative to GDP. It averaged 47.5% of GDP during the 2000s and 53% of GDP in the 2010s.

As can also be seen from Figure 10, government revenue did not initially follow the rise in government spending. As a result, the government fiscal balance, which is depicted in Figure 11, deteriorated sharply during the 1980s, and showed little improvement, despite the adjustment efforts, during the 1990s and the 2000s.

During the 1980s, Greek governments financed those increased deficits through a combination of domestic government borrowing and revenue from money creation (seigniorage). Government debt relative to GDP increased significantly, as did average inflation. In addition, interest payments on the growing debt, constituted a growing share of total government expenditure (see Figure 10).

Inflation was finally tackled in the 1990s, following the adoption of a restrictive monetary policy, but the fiscal imbalances were only partially tackled. In addition, the problem of the low international competitiveness of the Greek economy worsened significantly during the 1990s. The reason was the tendency of the Greek political system to constantly postpone the necessary economic and fiscal reforms, due to the short-term political costs involved.

**Figure 10**
**Expenditure and Revenue of General Government, 1950-2021**




**Source:** Data for 1995-2021 from AMECO Data Bank (November 2022). For 1970-1994 data from Eurostat based on the pre-1995 system of National Accounts. For 1950-1969 data are estimates based on the National Accounts of Greece, which refer to the Central Government.

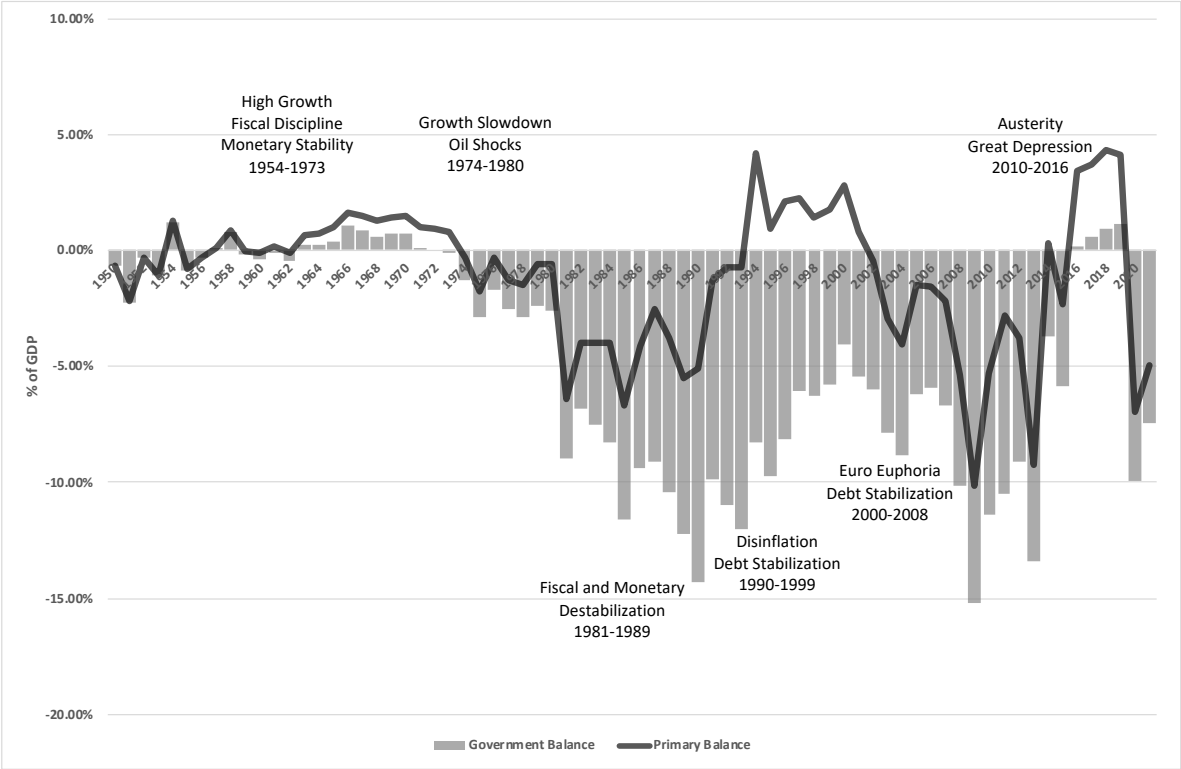
Greece, which had joined the European Economic Community in 1981, later joined the euro area, adopting the single European currency, the euro, in 2001.

However, the pre-existing major fiscal imbalances worsened during the period of euphoria after joining the euro area, and so did the already serious problem of the low international competitiveness of the Greek economy. The Greek political system failed to adapt the Greek monetary and fiscal institutions to the requirements of Greece's participation in the EU and later in the euro area.

As a result, after joining the euro area and the resulting fall in real interest rates and rise in economic growth, external imbalances widened and there was a significant and sustained increase in external borrowing, mainly due to the decline in savings relative to investment.

The evolution of the Greek current account and international competitiveness (based on unit labor costs) since 1970 is depicted in Figure 12. The current account deficit widened significantly in the run up to euro area entry, and especially after Greece was admitted into the euro area.

**Figure 11**
**Overall and Primary Balance of General Government, 1950-2021**




**Source:** Data for 1995-2021 from AMECO Data Bank (November 2022). For 1970-1994 data from Eurostat based on the pre-1995 system of National Accounts. For 1950-1969 data are estimates based on the National Accounts of Greece, which refer to the Central Government.

This was instrumental for the debt crisis that erupted in 2010, following the international financial crisis and recession of 2008-2009. The financial crisis of 2010 was essentially the fifth 'default' of the Greek state, although it was not formally presented as such.[18]

## 6. Fiscal Deficits, Seigniorage and Inflation

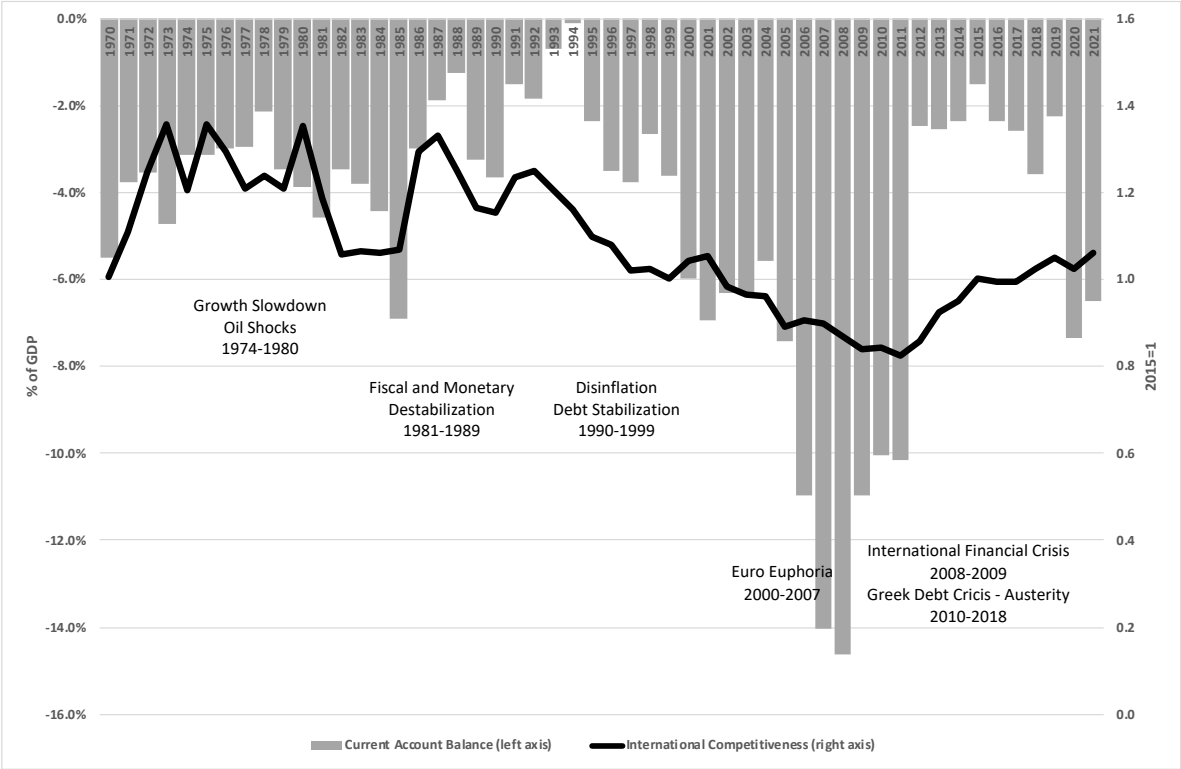
The evolution and fluctuations of inflation in modern Greece is depicted in Figure 13.[19]

During the 19th century, in the 1833-1898 period, fluctuations in inflation were significant, but periods of high inflation were short-lived and were usually followed by periods of equally sharp disinflation. The most serious inflationary episode was associated with the naval blockade of Piraeus during 1854-1857, when annual inflation peaked at 56%. Even in periods of suspensions of the convertibility of the drachma into silver and temporary monetary expansions because of wars, inflation seldom exceeded 20%, and was usually followed by an equally sharp disinflation. As a result, the average inflation rate during 1833-1898 was only about 2% per annum.

[18] For a more detailed analysis of the period of high growth see Alogoskoufis (1995) and Iordanoglou (2020). For an account of the role of the twin deficits in the rise of inflation during the 1980s and the debt crisis of 2010 see Alogoskoufis (2019, 2021 b). For the relation between inflation and exchange rate regimes see Alogoskoufis and Philippopoulos (1992) and Alogoskoufis et al (1998). See also the contributions in Alogoskoufis and Featherstone (2021).

[19] The data for the hyperinflation are not included as they are entirely out of scale.

**Figure 12**
**The Current Account Balance and International Competitiveness, 1970-2021**



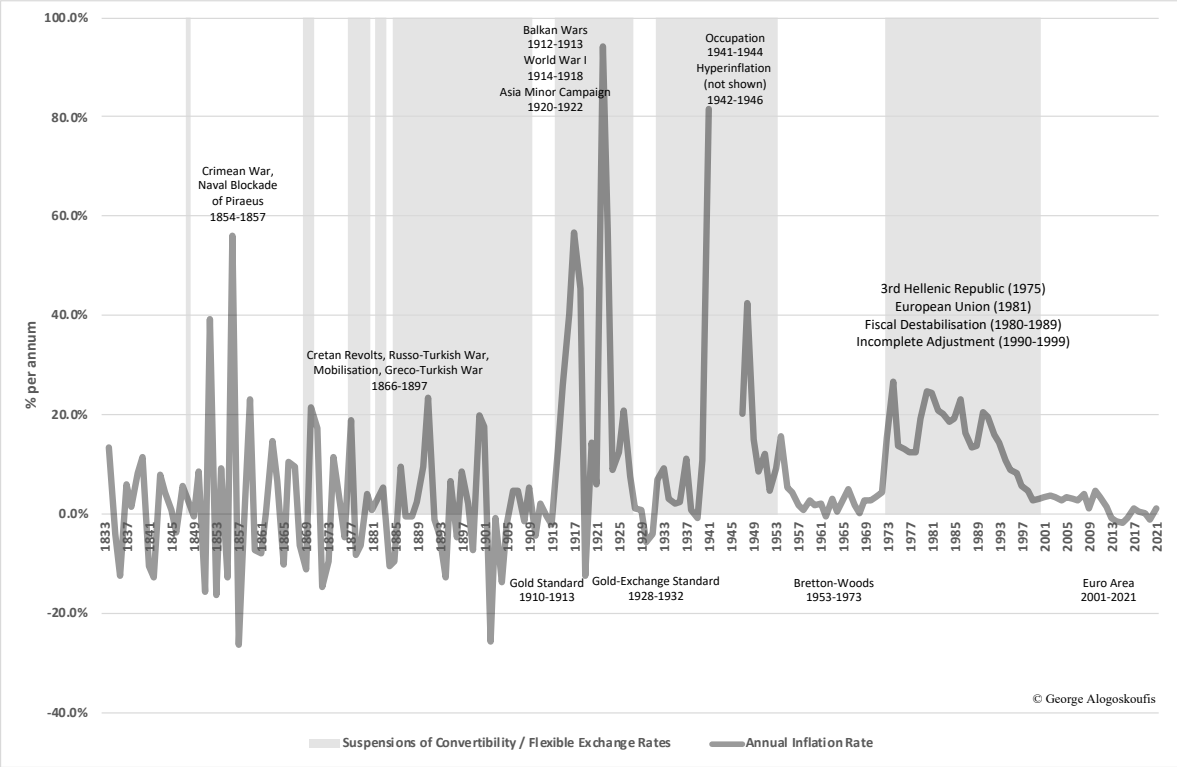

**Source:** IMF for current account data and AMECO Data Bank for international competitiveness. The latter is measured in terms of relative unit labor costs vis-à-vis the EU 15.

Inflation was tackled during the adjustment period in which Greece's public finances were under the supervision of the International Financial Commission. Since the outbreak of World War I, inflationary episodes have been more severe and more persistent. Annual inflation rose to 56.6% in 1917, following Greece's entry into World War I and peaked at 94% in 1922, the final year of the Asia Minor campaign. During World War II, the occupation, and its aftermath (1941-1945), Greece experienced five years of hyperinflation. Even if one were to ignore the period of hyperinflation during the triple occupation of 1941-1944 and the subsequent civil war of 1944-1949, average annual inflation during the 1899-1939 period was slightly in excess of 10%, five times higher than during the previous historical cycle. Periods of low inflation included Greece's short-lived participation in the international gold standard (1910-1913) and the interwar gold exchange standard (1928-1931).

In the 1950s and the 1960s Greece experienced a true economic 'miracle'. The average annual growth rate of real GDP per capita more than tripled to around 6%, inflation remained particularly low by the international standards of the period and there were no balance of payments or external debt crises.

However, since the early 1970s there was a significant deterioration in Greece's economic performance. The average annual growth rate of real GDP per capita fell back to around 2%, while, before euro area accession, there was a long period of fiscal and monetary instability and persistently high inflation. Between 1973 and 1993 average annual inflation rose to 18%, as opposed to only 3.5% in the 1953-1973 period. After euro area accession, inflation has been tackled, but persistent fiscal and external imbalances led to a major external debt crisis

**Figure 13**
**The Evolution of Inflation in Modern Greece**




**Source:** Kostelenos et al (2007), Lazaretou (2014) and OECD Data Bank. Before 1915 the rate of inflation is based on the GDP deflator, while after 1915 it is based on the Consumer Price Index.

in 2010 and an unprecedented economic depression, perhaps the deepest and longest peacetime depression in the history of modern Greece.

Most of the major inflationary episodes in the history of modern Greece are associated with high fiscal deficits, limited scope for domestic and/or international borrowing and recourse to the printing press. The only exceptions are the two World Wars and the two international oil shocks of 1973-74 and 1979-80, in which the rise in inflation was imported, because of international rises in inflation.

The fiscally induced inflationary episodes in the case of Greece, are summarized in Table 6.

The high inflation during Greece's participation in World War I, between 1917 and 1918, and subsequently, during the Asia Minor campaign of 1919-1922, was the result of the inability of the Greek state to borrow either domestically or internationally during the war, and the subsequent refusal of the Allies to provide the loans promised during World War I. Thus, inflationary finance was the only option left to the Greek authorities. The positive association between monetary financing (seigniorage) and inflation for the 1863-1939 period is depicted in Figure 10.

The same happened during the occupation and the civil war, during the 1940s. Despite the international aid and loans after 1944, recourse to the printing press was also necessary, as there were limits to the available amounts of aid and loans, and the fiscal situation was desperate.

**Table 6**
**High Fiscal Deficits and Inflation in the History of Modern Greece**

| Period of High Fiscal Deficits | Average Annual Fiscal Deficit | Average Annual Inflation Rate | Resolution |
|---|---|---|---|
| **World War I & Asia Minor Campaign 1918-1922** | 20.5% of GDP | 29,5% | Stabilization Program of 1926-1927 |
| **Occupation 1941-1944** | No Comparable Data | Hyperinflation | Successive post-1944 Stabilization Programs |
| **Civil War 1946-1949** | No Comparable Data | 311.1% | Marshall Plan Aid Post-1950 Stabilization Programs |
| **The 1980s 1980-1989** | 9.4% of GDP | 19.5% | Post-1990 Stabilization and Convergence Programs |
| | | | |

Finally, the 1980s was also a period during which Greek governments used both domestic debt and inflationary finance.

On the other hand, in periods when recourse to the printing press, i.e., seigniorage revenue, could be avoided, either through domestic or international borrowing, the rise of inflation was not significant or sustained.

In case where the governments did not have recourse to seigniorage, as after the early 1990s, when monetary financing was forbidden in the Maastricht Treaty, inflation was eventually tackled.

However, in such cases, sustained inflation was replaced by a sustained rise in external debt, which often resulted in debt crises and 'defaults'.

## 7. External Borrowing and Sovereign Debt Crises and Defaults

Because of the inadequacy of national savings throughout Greece's history, except for the 1960s and the 1970s, periods associated with easy access to international borrowing resulted in excessive foreign borrowing and debt and, eventually, sovereign debt crises and defaults.[20]

A key feature of developing economies is that their domestic savings are often not sufficient to finance the investment opportunities that arise in them or government deficits and debts. Therefore, developing economies, like some developed economies too, often resort to borrowing from international money and capital markets to finance investment and promote economic growth or fiscal deficits which cannot be financed otherwise. However, unlike the main developed economies, the international debt of developing economies is usually contracted in foreign currency, and not in their own currency. This has been the case for Greece throughout its history.

The high external borrowing in foreign currency makes an economy vulnerable if conditions, or even expectations, change in international markets. If international investors start to believe that a country may not be able to continue to service its foreign debt, i.e., that it may 'default', they will stop financing the country bringing about a foreign debt crisis, even if the country is in fact solvent. It is the same process that brings about crises in fixed exchange rate regimes. Loans in foreign currency or bonds in foreign currency that are maturing are not renewed, or international investors demand higher premia, causing a rise in the debt service cost of a country in foreign currency. This can precipitate an international debt crisis or a 'default'.[21]

There are four key pre-requisites for a sovereign debt crisis or a 'default': First, high international capital mobility at the global level, which allows a country to borrow in international financial markets. Second, a period of protracted deficits in the current account and a large increase in foreign currency denominated external debt. Third, an event changing conditions or expectations in international capital markets. Such an event may be a global recession that reduces demand for the exports of the country concerned, an increase in international interest rates, a political change in the country, or all these factors. Fourth, limited foreign exchange reserves and a fixed exchange rate regime.

All four pre-requisites applied in the case of Greece's international debt crises and defaults, which are summarized in Table 7.

The 'defaults' of 1826 and 1844 occurred, first, because Greece was able to borrow internationally despite its weak fundamentals, and second, because it was effectively

[20] The 'defaults' of modern Greece have been examined by Reinhart and Trebesch (2015) who are extremely critical of Greece's 'external dependence'. So is Dertilis (2016). What both studies seem to underplay is that in the absence of private domestic savings, the only alternative to international borrowing to finance a war or investment or to avoid a recession is outright monetary financing and inflation.

[21] The inability of developing economies to borrow in their own currency, is often called the *original sin of developing economies*. See Eichengreen and Hausmann (1999). Conversely, the ability of Britain until 1914 and the USA since the end of World War I to borrow in sterling or dollars, and in this way to reduce the real value of their international obligations, is often referred to as the *exorbitant privilege*. The term was coined in the 1960s by Valery Giscard D'Estaing, then French Minister of Finance. See Eichengreen (1998) for a survey of the historical evolution of the international monetary system and international capital markets.

**Table 7**
**External Borrowing and Sovereign Debt Crises and Defaults**

| Period of External Borrowing | Debt Crisis - Default | Consequences | End of the Crisis |
|---|---|---|---|
| Independence Loans 1824-1825 | Default 1826 | Exclusion from International Capital Markets | Final Debt Restructuring 1878 |
| Guaranteed Loans to King Otto 1833 | Default 1843 | Exclusion from International Capital Markets International Financial Audit Commission 1859 | Debt Restructuring 1864 |
| External Borrowing for Re-armament and Infrastructure 1879-1892 | Default 1893 | Adjustment Program International Financial Audit Commission 1898 | Entry to the International Gold Standard 1910 |
| External Borrowing for Refugees and Infrastructure 1926-1931 | Default 1932 | Abandonment of Gold Exchange Standard Capital Controls | Link with Gold Bloc 1933 Link with Sterling 1936 |
| External Borrowing Before and After Euro Area Participation 1998-2009 | Debt Crisis 2010 | Troika and Adjustment Programs 2010-2018 Great Depression | Euro Area Participation under Enhanced Surveillance 2018 |

insolvent as it lacked the foreign currency earnings with which to service the debt. In addition, the 'loans of independence', due to their extremely unfavorable terms, would have been impossible to service even if Greece's economy was a regular economy and not a war economy.

On the other hand, the 'defaults' of 1893 and 1932 and the debt crisis of 2010 were not only due to prolonged periods of high current account deficits and large increases in foreign currency debt but were also prompted by international recessions that reduced the demand for Greece's international exports and caused interest rates on Greece's debt to rise. Furthermore, the defaults of 1893, 1932 and the debt crisis of 2010 were associated with

Greece's inadequate foreign exchange reserves and, in the case of the latter two, participation in a fixed exchange rate regime.[22]

The first stage of a debt crisis is for international investors (the 'markets') to begin to doubt whether the country concerned will be able to continue servicing its foreign debt. This leads to a reduction in international lending to the country, or worse, a 'sudden stop' in capital inflows that reduces foreign exchange reserves and causes interest rates to rise.

Sudden stops are usually followed by a sharp decrease in output, private spending and credit to the private sector, and real exchange rate depreciations, to reduce the current account deficit. This is the only way to return to external equilibrium. A crisis often leads to a rapid currency depreciation, inflation, and collapse of the banking system, particularly if banks are also leveraged in foreign currency. Often, after a sovereign debt crisis a country is forced to resort to official lending through a program which requires it to follow an adjustment program which usually includes a devaluation of the currency, fiscal adjustment, and monetary stabilization in order to balance the current account.

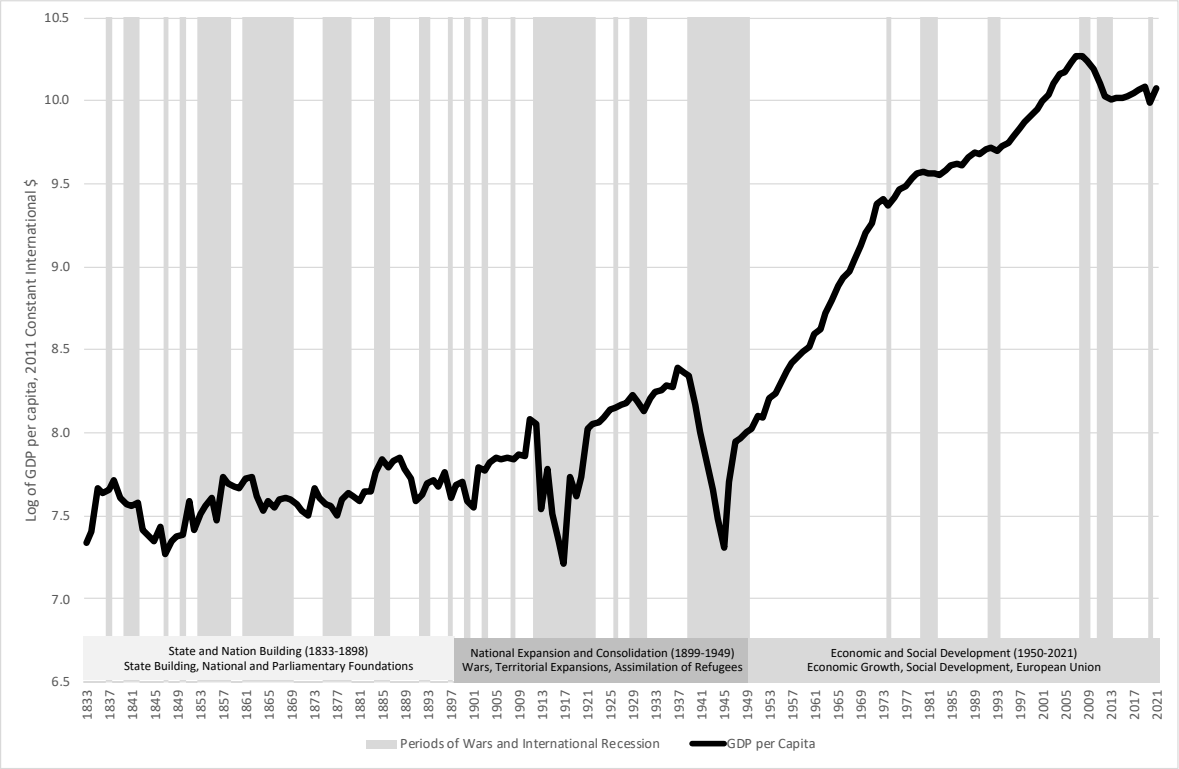
All the above have featured in the periodic debt crises that affected the Greek economy. The 'default' of 1844 was followed by the 'naval blockade' of Piraeus and the establishment of an International Financial Commission of Inquiry which reported on the re-payment of Greece's restructured debt payments. The 'default' of 1893 was followed by the establishment of an even more powerful International Financial Commission which in exchange for a new official loan imposed harsh fiscal and monetary adjustment that resulted in a short but deep recession. The 'default' of 1932 was followed by devaluation, fiscal adjustment, a prolongation of the recession and the imposition of capital controls. The debt crisis of 2010 was followed by official lending and the imposition of three successive adjustment programs, designed and supervised by a 'troika' of representatives from the International Monetary Fund, the European Commission, and the European Central Bank. Although they contributed to a correction of the external and fiscal imbalances that characterized the Greek economy, this was at the expense of a 'great depression', that lasted for almost seven years, between 2010 and 2016.

## 8. The Twin Deficits and Economic Growth

The twin deficits also appear to have acted as constraints on the investment rate and hence the evolution of real per capita income of modern Greece. Since data on investment do not exist before the establishment of a system of national accounts in 1948, our discussion of the determinants of economic growth during the first two historical cycles cannot be but sketchy and speculative.

[22] In the case of the 1932 'default' Greece was forced to abandon the gold exchange standard of the interwar period, devalue, and adopt capital controls. In the case of the 'debt crisis' of 2010 these options were not available, unless Greece was prepared to exit the euro area. Capital controls would have helped but they were not even considered until 2015. In any case, 'Grexit' would have been an even worse option than the 'austerity' that followed the 2010 crisis, both during the transition to a weak national currency and in the medium term.

**Figure 14**
**The Evolution of Real GDP per Capita in Modern Greece**




**Source:** Bolt and van Zanden (2020).

Figure 14 depicts the evolution of Greece's real GDP per capita, for the period 1833-2021. For the period up to 1898, the first major historical cycle, the average annual growth rate of real GDP per capita was equal to 0.9%. For the period 1899-1949, the second major historical cycle, the average annual growth rate of real GDP per capita was equal to 2.0% per annum despite the wars and the economic collapse during the occupation of 1941-1944. For the period 1950-2021, the third major historical cycle, the average annual growth rate of real GDP per capita was equal to 3.0% per annum despite the great depression of 2010-2016 and the deep 2020 recession due to the covid pandemic.

However, these averages, showing that Greece added 1% to its growth rate in each successive historical cycle conceal important differences within the periods.

Table 8 summarizes the evolution of economic growth, the twin deficits, inflation and sovereign debt crises and defaults in different shorter sub-periods.

One can distinguish among two sub-periods within the first historical cycle, 1833-1898. During first sub-period, the Otto monarchy, the average annual growth of real GDP per capita was equal to 2.0%. In the second sub-period, the reign of George I, the average annual growth rate fell to zero (0.1%). In the absence of detailed date on investment and technical progress, one can only speculate that because of low investment, due to the twin deficits, the high

**Table 8**
**Growth and Investment, the Twin Deficits, Inflation and Debt Crises, 1833-2019**

| | Average Annual Growth Rate | Average Gross Investment Rate | Average Fiscal Deficit | Average Annual Inflation Rate | Average Current Account Deficit | No of Debt Crises/ Defaults |
|---|---|---|---|---|---|---|
| **1833-1862** | 2.0% | N/A | 5.2% | 2.3% | N/A | 1 |
| **1862-1898** | 0.1% | N/A | 6.4% | 2.0% | N/A | 1 |
| **1899-1911** | 3.6% | N/A | 0.6% | 0.0% | N/A | 0 |
| **1912-1922** | 3.6% | N/A | 14.3% | 25.6% | N/A | 0 |
| **1923-1939** | 1.8% | N/A | 4.7% | 7.9% | N/A | 1 |
| **1940-1949** | -1.4% | N/A | N/A | 875976406.4% | N/A | 0 |
| **1950-1973** | 6.1% | 23.5% | 0.0% | 4.6% | 1.7% | 0 |
| **1974-1992** | 1.6% | 19.0% | 7.2% | 18.3% | 3.2% | 0 |
| **1993-2007** | 3.8% | 19.1% | 7.2% | 5.4% | 5.4% | 0 |
| **2008-2021** | -1.3% | 13.3% | 6.7% | 0.9% | 5.7% | 1 |

**Sources:** Bolt and van Zanden (2020), Kammas and Koutentakis (2021), Lazaretou (2014), EU Commission, OECD, IMF. N/A suggests that data is not available. The investment rate and the fiscal and current account deficits are in % of GDP.

population growth and low technical progress of this period, there was a pause in economic growth.[23]

There were small differences in the average fiscal deficits and the average inflation rates in these two sub-periods, while there was one sovereign debt default in each of them.

One can distinguish between four different sub-periods within the second historical cycle, 1899-1949. The period of economic stabilization, 1899-1911, the first decade of wars, 1912-1922, the interwar period, 1923-1939, and the second decade of wars, 1940-1949.

During the period of economic stabilization, under the auspices of the International Financial Commission, Greece slashed its twin deficits. The fiscal deficit was reduced to 0.6% of GDP and the average inflation rate fell to zero. The capital inflows that took place after 1902 must have helped revive investment, hence the rise in the average annual growth rate of real per capita GDP to 3.6%.

The average growth rate remained high during the first decade of wars, 1912-1922, despite the collapses that occurred between 1912 and 1917. However, the significant increase in the fiscal deficit, to an average of 14.3% of GDP, and the lack of access to international borrowing, led to an explosion of inflation to an average annual rate in excess of 25%, because of monetary financing.

[23] Such an explanation would be consistent with the standard Solow (1956) model of economic growth.

Both the fiscal deficits and the inflation rate were partially tackled during the inter-war period 1923-1939. The fiscal deficit was reduced to 4.7% of GDP, while the average inflation rate fell to 7.9%. Yet the international borrowing to help finance the settlement of the refugees, following the exchange of populations, in conjunction with Greece's attempt to remain on the gold exchange standard until 1932, led to the default of 1932. In any case, the investment undertaken during this period, mainly to resettle the refugees, led to positive economic growth, and, because of the increase in tariff protection and capital controls, allowed Greece to escape from the worst aspects of the great depression of the 1930s.[24]

However, the second decade of wars, during 1940-1949 was a catastrophic decade. Real GDP per capita collapsed during the occupation of 1941-1944, and recovered only partially until 1949, mainly because of the civil war. Also, because of excessive monetary financing of the exorbitant deficits by the occupying forces, high inflation quickly turned into hyperinflation, which proved very difficult to tackle during the civil war.

Yet, the reconstruction efforts undertaken after 1946, the Marshall Plan aid and the gradual monetary and fiscal stabilization, allowed Greece to enjoy more than two decades of unprecedented economic growth, accompanied by low fiscal and current account deficits, high domestic savings and investment, monetary stability, and low inflation. As can be seen from Table 4, in the 1950-1973 Greece tackled the problem of the twin deficits. The fiscal deficit was on average zero and the current account deficit a manageable 1.7% of GDP. High investment, to the tune of 23.5% of GDP led to rapid capital accumulation and growth. Real GDP per capita grew at an annual rate of 6.1%, unprecedented in the history of modern Greece, while annual inflation at 4.6% remained quite low relative to the international standards of the period. If one were to ignore the high inflation in the beginning and the end of this period, because of the devaluation of 1953 and the first oil shock of 1973, annual inflation was even lower. Average inflation between 1955 and 1972 was only 2.5%.

However, the re-emergence of the twin deficits and the decline in investment in the following five decades, brought back the problems of inflation, external imbalances, and weak economic growth.[25]

One can distinguish among five consecutive sub-periods following 1973: First, the period 1974-1980, which was a period of preparations for EEC entry, following the restoration of democracy in 1974, second, the 1980s, which was a decade of fiscal and monetary destabilization, third, the 1990s, which was a decade of disinflation, in the pursuit of entry into the euro area, fourth, the 2000s, which was a decade of euphoria following euro area entry, and, fifth, the 2010s, which was a decade of economic depression, following the debt crisis of 2010.[26]

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[24] See Mazower (1991) and Alogoskoufis and Lazaretou (2002) for an analysis of the Greek experience during the interwar depression.

[25] For studies of post-war economic growth in Greece see Alogoskoufis (1995), Bosworth and Kollintzas (2001), Gogos et al (2014), Iordanoglou (2020) and Leounakis and Sakellaris (2021)

[26] See Alogoskoufis (2019, 2021 b) for a detailed analysis and discussion of the post 1973 period and the 2010 crisis.

In previous sections, we have already discussed the relation between the twin deficits, inflation, and external debt crises during this period. The fiscal destabilization of the 1980s led to high inflation because of the monetary financing of the deficits. The disinflation of the 1990s, during the run-up to euro area entry, led to declines in international competitiveness and nominal and real interest rates. The low real interest rates of the 2000s led to a rise in investment and growth, but also, in conjunction with the low and deteriorating international competitiveness, an unprecedented widening of the current account deficit. This led to the sovereign debt crisis of 2010 and the great depression of 2010-2016, following the adjustment programs that were adopted. The great depression, the fiscal adjustment, and the improvement in international competitiveness, due to nominal and real wage reductions, led to a narrowing of the current account deficit.

For economic growth, it is interesting to concentrate on the evolution of gross fixed investment. During the 1980s and the 1990s, gross fixed investment remained five percentage points below the average of the high growth period 1950-1973. As a result, growth in real per capita income fell by almost five percentage points as well. There was a recovery of both investment and growth during the euphoria of 2000-2007, but the deterioration of the current account led to the debt crisis of 2010. The dramatic fall in gross fixed investment was one of the main implications of the 2010 crisis, exacerbating the great depression of 2010-2016.

Hence, at least for the period since 1950, the twin deficits appear to be negatively associated with investment and economic growth, in addition to their positive association with inflation and debt crises. In the 1950s and the 1960s, when Greece managed to address the problem of the twin deficits, it achieved high economic growth, low inflation, and external balance. In most other periods, the existence of the twin deficits led to either low growth, or monetary instability or debt crises and defaults.

## 9. Conclusions

This paper has reviewed, analyzed, and interpreted the determinants and the implications of the fiscal and current account deficits, the so-called twin deficits, in the history of modern Greece.

Throughout its two-hundred-year history, modern Greece was characterized by prolonged periods of low economic growth, monetary instability and sustained fiscal and external deficits. These often led to high inflation, international over-indebtedness, and sovereign debt crises and defaults.

The analysis has mainly focused on the determinants and the dynamic interactions among the twin deficits, domestic monetary regimes, and access to international borrowing.

Current account deficits have been a consequence of the shortfall of domestic savings relative to investment. The only exception was during the 1950s and the 1960s. Until the 1950s the main drivers of fiscal deficits have been the occasional military mobilizations and wars because of the pursuit of the grand idea, the two world wars and a civil war. After the late

1970s, the main driver of fiscal deficits has been the attempt to redistribute income and wealth and create a welfare state, in the pursuit of great equality.

Regarding the monetary and financial implications of the twin deficits, two are the main conclusions:

First, when Greece did not have easy access to international borrowing, fiscal imbalances led to monetary destabilization and inflation. Second, when it did have access to international borrowing, fiscal deficits were generally larger, led to external deficits and, eventually, sovereign debt crises and defaults.

The monetary and exchange rate regime also mattered. Currency convertibility or participation in a fixed exchange rate regime acted as a constraint on the monetary financing of deficits but led to higher international borrowing. When this was not possible, Greece resorted to suspensions of currency convertibility and adopted flexible exchange rates. This allowed for monetary financing of the deficits and led to currency depreciations and inflation.

In addition, historically, the twin deficits acted as constraints on the domestic investment rate and hence the growth of real per capita income. The 1950s and 1960s were the only prolonged period in which the twin deficits were low and did not act as a constraint on domestic macroeconomic developments. As a result, this was the only period in which Greece enjoyed high economic growth, combined with monetary stability and external balance.

## Appendix

**The Twin Deficits and the National Accounting Identities in an Open Economy**

From the national accounting identities in an open economy, output is equal to aggregate domestic demand plus the balance of goods and services.

$$Y=C+I+G+(X-M) \quad (1)$$

*Y* is total domestic output (GDP), *C* is aggregate private consumption, *I* is aggregate domestic investment, *G* is aggregate public consumption, *X* is exports of goods and services, and *M* is imports of goods and services. *(X-M)* is the external balance of goods and services, i.e., the difference between the exports and imports of goods and services.

It follows from the national accounting identity (1) that the external balance of goods and services is equal to the difference between aggregate savings and investment.

$$(X-M) = (Y-C-G) – I \quad (2)$$

*(Y-C-G)* equals aggregate domestic savings.

Aggregate domestic savings consist of two parts, aggregate private savings plus aggregate public savings. Adding and subtracting total current government revenue to aggregate domestic savings *(Y-C-G,* and re-arranging we get that,

$$(Y-C-G) = (Y-T-C) + (T-G) \quad (3)$$

*T* is total current government revenue, *(Y-T-C)* is equal to aggregate private savings and *(T-G)* is the current fiscal balance, equal to current government revenue minus expenditure.

Hence, the external balance of goods and services is determined by,

$$(X-M) = (Y-T-C) + (T-G)- I = (Y-T-C) - Ip + (T-G – Ig) \quad (4)$$

*Ip* denotes private investment and *Ig* denotes public investment. Obviously, $I = Ip + Ig$.

From (4) the external balance on goods and services is equal to the difference between the sum of the excess of private savings over private investment and the fiscal balance.

To move from the external balance of goods and services to the current account, we need to add to both sides of equation (4) the sum of net income and transfers from the rest of the world. Net income is the income earned abroad by domestic residents minus the income of foreign residents earned domestically. The same goes for net transfers, such as emigrants' remittances.

If we denote net income and transfers from the rest of the world as *Yf*, and add it to both sides of (4), we get,

$$(X-M) + Yf = (Y+Yf-T-C) - Ip + (T-G – Ig) \quad (5)$$

The term on the left-hand side is the *current account*. The first term on the right-hand side is *aggregate private national savings*. The last term on the right-hand side is the government fiscal balance. Hence, it follows that,

Current Account = National Private Savings – Private Domestic Investment + Fiscal Balance

This last relation is the basis of the analysis of the role of the twin deficits in this paper.

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