7

A Macroeconomic Perspective on the Greek Debt Crisis

Michael Wickens

7.1   Introduction: The Greek Debt Crisis

A debt crisis arises for a country when the holders of the debt doubt that the country either has the ability or the willingness to redeem its debt or to service the interest payments; both are forms of default. Credit ratings provide an assessment of the probability of default. Greece's rating in 2015 by the three main agencies was CCC (Fitch), Caa3 (Moody's), B- (S&P). This implies a probability of default over the rest of the life of a 10-year bond of at least 0.4. How did this state of affairs arise? What is needed to avoid default? Is it likely that this can be achieved? In this chapter, we consider each of these questions from a macroeconomic point of view.

M. Wickens (✉)
University of York, York, UK
e-mail: mike.wickens@york.ac.uk

M. Wickens
Cardiff University, Cardiff, UK

7.2   How Did the Greek Debt Crisis Arise?

(i)   Public finances: some basics

Governments borrow by issuing debt when their expenditures exceed their revenues. The alternative is for the central bank to print new money, in effect, to give the government an overdraft. This tends to generate inflation and to devalue incomes and nominal assets, a form of taxation called seigniorage. Taken to extremes, this is how hyper-inflation occurs, such as those in Germany in the 1930s, in the former Soviet countries immediately after 1989 and more recently in Zimbabwe. This option has not been open to Greece since it adopted the euro in 2001 because the European Central Bank determines the money supply and not the Greek Central Bank.

   When a government borrows it is, in effect, asking future generations to pay for the fiscal excesses of the current generation as future generations must redeem and service the debt. One possible justification for doing what otherwise might seem to be selfish behaviour by the current generation is to stimulate the economy when in recession in order to restore full employment. This requires the fiscal multiplier—the response of GDP to a one unit increase in the fiscal deficit through higher expenditures or lower taxes—to be greater than unity. The multiplier might be greater than one in recession, but at full employment, the multiplier is likely to be close to zero and so crowd out private expenditures. In technical terms, the fiscal multiplier is state-dependent, something commonly overlooked by those who advocate a fiscal expansion no matter the state of the economy. Another justification for increased government expenditures is when they are for investment and are expected to increase the productive capacity of the economy. In both cases, the expectation is that the stimulus will more than pay for itself and so, although increasing debt in the short term, will lead to a fall in debt in the longer term.
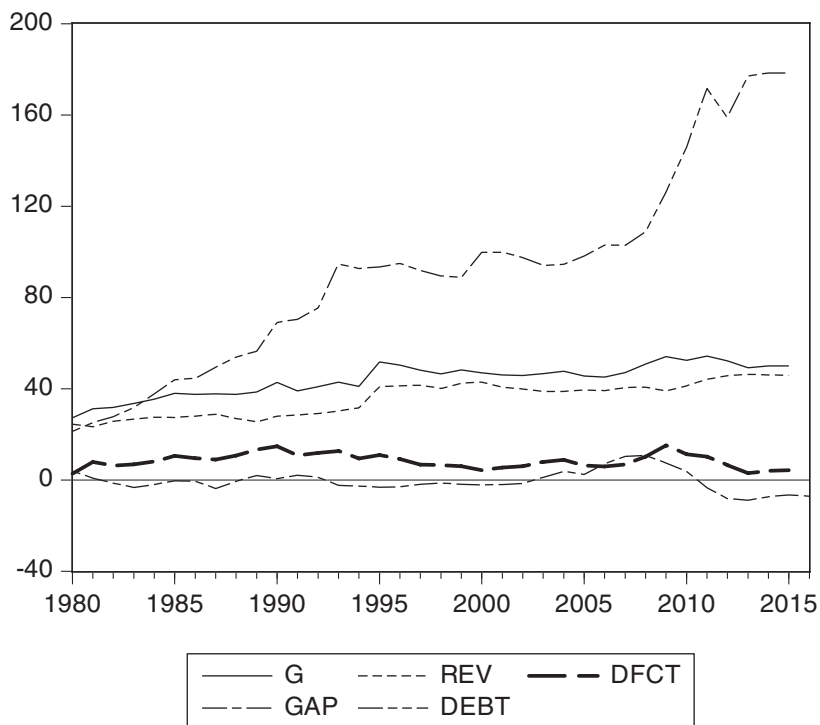
Fig. 7.1 Government expenditures, revenues, deficit, debt and the output gap (Percentage of GDP)

(ii) Public finances: Greece

Figure 7.1 shows the evolution of Greece's fiscal position since 1980. For the whole period both government expenditures and revenues have increased as a percentage of GDP; in 1980 they were 27% and 24%, respectively, and by 2015 they had increased to 50% and 46%. By comparison, over the same period, government expenditures in Germany fell from 47% of GDP to 44%. The size of the Greek public sector has therefore caught up with and overtaken that of Germany.

There appear to be three phases in the development of the Greek fiscal position. From 1980 to 1994 there was a steady increase in both expenditures and revenues as a percentage of GDP. In 1995, there was a sharp increase in both of roughly 10% of GDP. From then until the financial crisis both were fairly stable. Prompted by the severe fiscal retrenchment demanded by the Troika (the ECB, the EC Commission and the IMF), from 2009, there has been a remarkable change: government expenditures as a proportion of GDP have fallen by 4% points (i.e. by 8%) and revenues have increased by 7% points (i.e. by 29%).

Throughout the whole period expenditures exceeded revenues. The average fiscal deficit was 8.3%. It reached 14.7% in 1990 as a result of lower revenues and increased from 2007 to a peak of 15.2% in 2009 due to a combination of increased expenditures and falling revenues. Thereafter, the deficit fell by 11% points.

Three main factors determine a country's fiscal stance: government choices, the level of economic activity and the cost of financing debt. The lowest line in Fig. 7.1 is the output gap; a positive value is the percentage that output is below trend. Both expenditures and revenues (in effect, the average tax rate) vary with economic activity. Higher growth and a lower output gap tend to raise total revenues, while lower growth and a larger gap, which cause unemployment, tend to raise expenditures. It was only after the crisis that growth became negative. Figure 7.1 shows that the fall in revenues as a percentage of GDP between 2000 and 2009 coincides with the increase in the gap which reached over 10% in 2007 and 2008 due to the recession in the euro area. However, when in 2011, Greek growth reached its lowest value during the whole period, namely—9%, revenues as a percentage of GDP (the average tax rate) increased. Between 2008 and 2013 GDP fell by 30% which makes the increase in revenues and fall in the deficit since 2009 even more remarkable as it shows the extent of the austerity measures that were imposed.

In order to explain why the Greek fiscal stance changed so much and to determine how best to improve them, it is helpful to consider the causes. Was it due to discretionary policy changes or to economic forces beyond the control of policy makers? Some idea of the relative

Table 7.1 Economic   and   political   influences   on   fiscal   policy
$y_t(i) = \alpha + \beta(i)gap_t(i) + \gamma(i)t + e_t(i)$

		Expenditures	Revenues	Primary revenues
	α	30.61***	24.93***	18.46***
1980–1994	$\beta(1)$	−0.265	−0.389**	0.090
	$\gamma(1)$	0.809***	0.304***	0.153*
1995–2009	$\beta(2)$	−0.549***	−0.683***	−0.309***
	$\gamma(2)$	0.790***	0.713***	0.681***
2010–2015	$\beta(3)$	0.407*	−0.250**	−0.409**
	$\gamma(3)$	0.679***	0.555***	0.576***
	R^2	0.869	0.962	0.976

* denotes the t-statistic is greater than 1
** denotes the t-statistic is greater than 2
*** denotes the t-statistic is greater than 3

importance of the effects on the fiscal deficit of the contributions of discretionary fiscal policy, economic activity and debt interest payments may be obtained from Table 7.1 in which expenditures, revenues and primary revenues (revenues less debt interest payments), all as a percentage of GDP, are related to the output gap and to the underlying upward trend in the role of government in the economy. Interest payments average 6.9% of GDP over the whole period; their maximum value is 12% in 1995 and there are further peaks in 1985 (10%) and 2011 (7%).

The gap variables reflect the effects of economic activity and the trend variables the effects of discretionary fiscal policy. The equation is estimated for the whole sample 1980–2015 but the effects of the output gap and discretionary policy are allowed to be different in each of the three sub-periods (i = 1980–1994, 1995–2009, 2010–2015). Multiplicative dummy variables on the coefficients are used to achieve this. While the coefficients are different in different sub-periods, all are significant, or highly significant, in nearly all sub-periods. Nonetheless, the trend variables explain at least three times more than the gap variables, especially in the first and third sub-periods. This shows that discretionary fiscal policy has had much more influence than fluctuations in economic activity on both expenditures and revenues. This is not surprising given the large expansion of the Greek public sector as it catches up with other European economies.

The main differences in the results are in the estimates of the coefficients of the output gap in the expenditure and primary revenue equations for the sub-period 1980–1994: neither is significantly different from zero. This may reflect the rapid growth of the public sector during this period and the high cost of borrowing both of which appear to have over-shadowed the state of economic activity. After 2009, primary revenues responded more strongly to economic activity than total revenues. This may be because Greece's costs of borrowing were reduced by the ECB's emergency measures.

These results suggest that the problem for the Greek public finances, although primarily due to discretionary policy, is not only the large expansion of the public sector, but also the failure of tax revenues to match expenditures. The resulting persistent deficits caused the debt-GDP ratio to increase from 21% in 1980 to 178% in 2015 and brought on the debt crisis.

(iii) The effect of the euro

A contributory factor to the indebtedness of several eurozone countries—such as Ireland, Italy, Portugal and Spain—has been the opportunity to borrow at much lower rates than previously. This is also true of Greece. Due to the euro, all of these countries were able to borrow at virtually the same rate as Germany. In Ireland and Spain, in particular, this resulted in massive private sector borrowing for construction. In Greece and Italy, the benefits were more for government borrowing. Cheap credit and high borrowing resulted in larger growth rates. This greater economic activity caused higher inflation which caused real interest rates to become negative and made borrowing even more attractive.

Figure 7.2 shows German and Greek short rates (GERIRS and IRS), the real interest rate in Greece (REAL) and the spread between Greek and German long rates (SPREAD). The convergence of Greek short rates to those of Germany after Greece joined the euro in 2002 is evident. Previously, the cost of borrowing for Greece was very high.
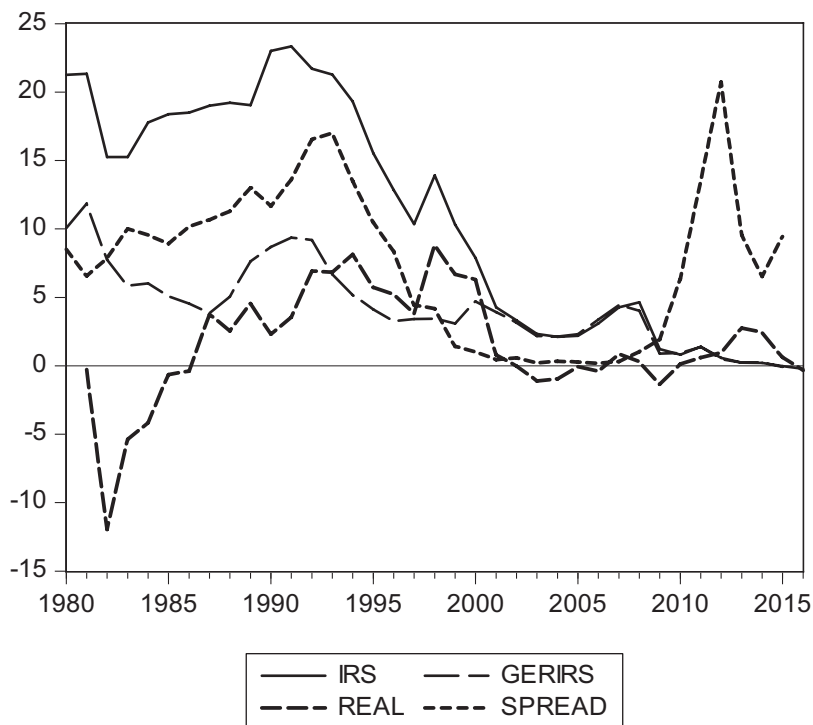
Fig. 7.2 Short term interest rates for Greece and Germany, the Greek real rate and the long spread between Greece and Germany

Moreover, as soon as Greece could borrow at German rates, its real interest rate became negative or close to zero.

In contrast, Greek long rates—10-year bond rates—have been very different from those of Germany. Figure 3 shows the spread between them. This peaks in 1993 and 2012, just after the Greek debt-GDP ratio is at its highest, when the spread is over 20%. The slope of the yield curve (the difference between long and short rates) mainly reflects expected future inflation and the risk premium (the average expected risk over the remaining life of the bond). As the difference between German and Greek inflation rates is at most 3% points, and

the German risk premium is low, the spread is mainly a measure of the Greek risk premium. It is clear from the graphs that the spread is strongly affected by the level and changes in the debt-GDP ratio.

This is confirmed by Gibson et al. (2015) who have carried out an econometric examination of which variables best explain the spread from 2000. The most significant is the debt-GDP ratio and the fiscal deficit; other significant variables include measures of fiscal news and political stability. They also find that their effect is stronger after the financial crisis than before. Although they provide no structural explanation of these findings, it is clear that these variables are largely capturing the Greek risk premium.

(iv) Fiscal sustainability

A central question in fiscal policy is whether the current fiscal stance is sustainable. The conventional way of determining this used by academics and by the IMF is to examine the past time series data on deficits and debts to determine whether or not they are stationary. If they are not stationary then the fiscal stance is deemed not sustainable, see, for example Hamilton and Flavin (1986) and the extension by Wickens and Uctum (1993). Trehan and Walsh (1991) argue that the fiscal stance is sustainable when government expenditure and revenue are non-stationary but cointegrated, i.e. they do not differ systematically. Bohn (1995) shows that sustainability occurs when there is negative feedback from debt on the deficit, i.e. when there is a fiscal policy rule that causes the deficit to decrease when debt increases. In effect, this means automatically reducing expenditures or raising tax rates.

The drawback with basing fiscal sustainability on past time series behaviour is that a government can always say that it intends to change policy in the future. Polito and Wickens (2012) attempted to address this problem by devising an index of sustainability that is forward looking. The index estimates the proportion of existing debt that a country can finance on the basis of current policy by calculating the ratio of the present value of current and future primary surpluses to current debt. A value less than one implies that on current policies the fiscal stance is not sustainable and needs to be tightened.

At no point since 1975 has the value of the index for Greece been above 1. The average value of the index for Greece since 1975 is 0.72. Its lowest values are in the 1980s when it was around 0.5. From 2000 until the financial crisis it was about 0.92. Immediately after the crisis, it dropped to around 0.78. These findings show that Greece's fiscal stance has not been sustainable since 1975, but in the years just before the financial crisis, it was close to being sustainable.

(v) Credit ratings

Financial markets measure the sustainability of fiscal policy through the cost of debt—especially CDS (swap) prices—and through credit ratings. The two are closely related. The cost of debt is determined by two factors: price risk and default risk. Price risk reflects the capital losses possible due to uncertainty about the future price of bonds. Default risk reflects the probability that a country will default on its sovereign debt and the bond holder will receive less than the face value of the bond. The greater the spread with a safe asset, the greater is the risk to buying and holding the bond. The higher the debt-GDP ratio, the greater the default risk premium as the more likely it is that financial markets will doubt the ability of a government to repay its debt and to default instead. This is reflected in a country's sovereign credit rating.

Greece's official credit rating fell from an average of just above Baa, prior to the financial crisis, implying a 0.15 probability of expected default, to its current value of around CCC, which implies a probability of default of 0.4. The lower is the Greek sovereign credit rating, the more costly it then becomes to finance the deficit, and the more likely it is that Greek debt will continue to grow.

Official credit ratings are provided by the three main credit rating agencies: Fitch, Moody's and S&P. The problem with these ratings, as noted by Polito and Wickens (2015), is how they reach their assessments is not transparent. In an attempt to improve transparency—as well as the cost of producing credit ratings—Polito and Wickens (2015) proposed a new measure of sovereign credit ratings based on what readily observable fiscal variables predicted would be the debt-GDP ratio in the future and the probability that a country could raise sufficient

(possibly additional) tax revenues to pay for its projected expenditures. They argue that due to Laffer curve effects, which limit the amount of tax that can be raised, there is a threshold (maximum value) to the level of debt that a country can finance. They calculate a credit rating based on the probability that forecast debt exceeds this threshold.

The credit rating for Greece calculated by Polito and Wickens for the period 1999—2015 is C. This contrasts with the official credit ratings which only fell from Baa to CCC after 2007. Hence, basing Greece's credit rating solely on the probable future evolution of its fiscal stance, indicates that, even before joining the euro in 2001, there were compelling grounds for thinking that it would face a debt crisis. This evidence therefore strongly supports the findings from the index of sustainability reported earlier.

7.3   What Is Needed to Avoid Default?

The aim must be to convince current and potential holders of Greek debt—especially the Greek non-bank private sector and foreign investors, including the ECB and the IMF—that Greece is able and willing to avoid default and to service its debt. So far Greece has clearly demonstrated a willingness not to default; does it also have the ability not to default? Possible alternatives are partial default, thereby reducing, but not eliminating, its debt obligations or deferring service payments.

The Greek government has proposed that its creditors write-down its debt. But its main creditors, Germany, the Netherlands and Finland, have for political reasons ruled this out. Although Greece recently missed payments to the IMF(part of the Troika), which caused the IMF to refuse to make further loans to Greece until they were paid, it is now siding with Greece on the issue of write-downs. It is recommending that creditors either write off part of the eurozone debt or allow Greece to make no payments for 30 years. In the short term, Greece needs to keep paying its bills by increasing its borrowing. The IMF has estimated that because of the steady deterioration of the Greek economy as much as €60 billion might be required. In July 2015, the European authorities agreed a rescue package amounting to a total of 86 billion euros to be paid gradually until June 2018. There was also an agreement to

disburse $8.4 billion in fresh funds to Greece immediately to cover current payments.

Further loans to Greece, such as these payments depend on the longer term ability of Greece to repay them. As we have seen already in the index of fiscal sustainabilty and in the calculation of credit ratings, this is not easy to assess, not is it without controversy. Both of these measures were based on projecting the government budget constraint forwards. The government budget constraint expressed as proportions of GDP which relates the debt-GDP ratio to the primary deficit and the past debt-GDP ratio can be expressed as

$$\frac{B}{Y} = \frac{G-T}{Y} + \frac{1+R}{1+\pi+\gamma}\frac{B}{Y}(-1),$$

where B is nominal debt, G is nominal government expenditures excluding debt interest payments, T is nominal revenues, Y is nominal GDP, R is the average nominal interest rate on debt, π is the rate of inflation, γ is the rate of growth of GDP. The equation (an accounting identity) implies that if the rate of growth γ is greater than the real interest rate (R-π) then over time the debt-GDP ratio will decline steadily, eventually paying off debt. If there is a primary surplus (T > G) and the rate of growth is less than the real interest rate then again over time the debt-GDP ratio will decline steadily. But both could take a long time.

In 2015, Greece's debt-GDP ratio was (B/Y) = 178% and it had a primary surplus ((T-G)/Y) = 0.6%. Assuming in addition that R = 3.8% (the estimated official long-run rate of the IMF), π = 2% (the ECB target) and γ = 1.5% then after 30 years the debt-GDP ratio would have fallen to only 175%. In order to bring Greece's debt-GDP ratio down to 100% after twenty years, it would be necessary to have a primary surplus of just over 4%. Clearly, these calculations are extremely sensitive to assumptions about the interest rate, inflation and the rate of growth of GDP. For example, higher rates of inflation and growth would increase the speed with which the debt-GDP ratio falls. So far in 2016, the rate of inflation is zero. This shows the effects of austerity, but it makes reducing the debt-GDP ratio that much harder.

There are considerable economic and political difficulties in achieving and sustaining such policies over a long period of time. For example,

Polito and Wickens (2015) estimate that the maximum revenues that Greece could raise through income taxes would be little different from current levels. There are also considerable uncertainties surrounding interest rates, inflation and growth in the long term. Politically, there has already been much opposition to the austerity measures already introduced. Even harsher measures, in order to reduce the debt-GDP ratio faster, would be very likely to increase this opposition. In recognition of these problems, there have been proposals designed to make Greece's financial burden more bearable.

One solution would be for the ECB to buy Greek government debt and to do so at low interest rates. This would, of course, entail other euro area countries taking on part of Greece's financial risks. However, the ECB is precluded from buying debt directly from euro area governments; it can only buy debt indirectly from the private sector. In the case of Greece, this mainly means the Greek commercial banking system who are the principle holders of national debt. This is why a sovereign debt crisis in Greece has also become a banking crisis. Instead of buying Greek government debt, the ECB provides special loans to Greece. These loans are by the European Financial Stability Fund (EFSF), by the European Stability Mechanism (ESM) and are euro area bilateral country loans to Greece (GLF). The loans are designed to help replace (rollover) maturing bonds and to provide temporary assistance to help cover interest payments. Although not part of the stock of government bonds, they are an increasing component of Greece's sovereign debt.

The IMF (2016) has suggested three measures to relieve the Greek financial burden: maturity extensions of special loans, payment deferrals and fixing interest rates. The IMF has proposed an extension of maturities of up to 14 years for EFSF loans, 10 years for the ESM loans, and 30 years for the GLF loans. The IMF estimates that by 2060 this could reduce Greece's Financial Needs (GFN)— mainly its debt service payments—by about 7% of GDP and its debt-GDP ratio by about 25% of GDP. These numbers seem, however, to be quite large as interest payments in 2011 were only 7.2% of GDP and in 2015 were only 3.6%.

The IMF notes that these measures alone would be insufficient to restore sustainability, and that EFSF loans have already been extended

before, and ESM loans have been provided with long grace and maturity periods. Nonetheless, according to IMF estimates, extending the grace periods on existing debt ranging from 6 years on ESM loans to 17 and 20 years for EFSF and GLF loans, respectively, as well as an extending the current deferral on interest payments on EFSF loans by a further 17 years, together with interest deferrals on ESM and GLF loans by up to 24 years, could help reduce GFN by an extra 17%of GDP by 2040 and 24% by 2060. And by allowing Greece to benefit from low ESM interest rates for longer the debt-GDP ratio could be 84% of GDP lower by 2060. Even then GFN would exceed 20% by 2050, and debt would be on a rising path. To ensure that debt would remain on a downward path, the IMF thinks that official interest rates would need to be fixed at low levels for an extended period, and not exceed 1½% until 2040.

A fourth measure would be to write-down debt. If the write-down were large enough, this could remove Greece's financial problems at a stroke. In 2011, the ECB negotiated a 50% write down or "haircut" on Greek debt held by the private banking sector and in August 2015 an 86 billion euro bridging loan was agreed to by the European Commission under its ESM framework. However, neither the ECB nor the IMF would accept a write-down on the Greek debts that they held. One reason why there has been a reluctance in official circles to write off Greece's debt is that it is seen as removing the incentive for Greece to reform its fiscal policies to make them sustainable in the future. This has also been suggested as one reason why Greece did not unilaterally default on its debt for, had it done so, it would almost certainly have been required to leave the euro area. Another reason is that it might give the wrong message to other euro area countries with large debts and discourage them from reforming their fiscal stances.

7.4   Broader Considerations

In order to better understand the Greek financial crisis, it should be viewed in a broader context. We consider just two: the economic implications of the euro and how this has affected Greece; and what

economic theory has to say about how best to conduct fiscal policy and the implications of this for Greece. Another vital consideration, which will not be discussed in this chapter, which is a purely economic analysis, is the Greek political context.

(i) The euro

When Greece joined the euro (from 2001) it placed control of its monetary policy in the hands of the ECB. This meant among other things that it no longer had control of its exchange rate with other members of the euro area as the exchange rate was fixed—for ever. Given that subsequently, Greek prices rose faster than general euro prices it also meant that the only way that Greece could maintain competitiveness was through an internal depreciation brought about by reduced real wages and fiscal austerity. Between 2002 and 2010 the price level in Greece rose by 25% compared with 8% for Germany. Since 1980 Greek prices have risen 20-fold compared with German prices which merely doubled. Thus, unless Greece could achieve a major reform to the way prices had been rising, entering the euro was bound to have an extremely harmful effect on competitiveness and hence trade, the current account and growth.

Monetary policy in the euro area is based on keeping the average rate of inflation in the euro area below 2%. As the weights in calculating the average are based on the sizes of the euro economies, low inflation countries such as Germany have dominated. As a result, interest rates have been low and high inflation countries, such as Greece, Ireland, Italy, Portugal and Spain have been able to borrow at negative real interest rates. This was one of the attractions for Greece of joining the euro. It is also one of the main causes of the financial crisis in the euro area as, given such low costs of borrowing, all of these countries borrowed very heavily. When liquidity in the world banking system dried up following the world financial crisis in 2008, it immediately became very difficult for these countries to rollover their debts. Further, although this borrowing stimulated economic activity in these countries, it also caused higher rates of inflation which harmed their competitiveness.

Until the fundamental flaw in the euro system is solved, the EU will remain in crisis—a self-inflicted crisis. Rather than abandon the euro, in

order to make it sustainable, the European Commission is seeking more control over member countries' economic policies, especially fiscal policy. A blueprint for the future development of the euro area is provided by The Five Presidents' Report of 2015, Juncker (2015). This report has been prepared by the President of the European Commission, in close cooperation with the President of the Euro Summit, the President of the Eurogroup, the President of the European Central Bank, and the President of the European Parliament. Its main recommendations involve closer supervision of national fiscal policies, a banking union to spread national banking risks and a capital markets union to provide private financial sector support to ailing banks, Wickens (2017).

The key recommendation concerns fiscal policy. The aim is to avoid having to share financial risks among euro member countries by having to bailout member countries that get into financial difficulties. The likelihood is that this would result in the need for closer political integration. This entails member countries losing considerable independence in their own fiscal policies and possibly being asked to provide fiscal transfers to other members. Member countries would, therefore, want to have a say in how the fiscal rules are formulated and implemented.

Given the constraints imposed on Greece through its adoption of the euro, it could choose to leave the euro area, re-adopt the drachma—possibly by issuing one drachma for every euro. It would then have the option of reducing its debt burden at a stroke by defaulting. There would be both advantages and disadvantages to leaving. The advantages are likely to last a long time; the disadvantages are mainly short term. One advantage is that Greece could then restore its competiveness as financial markets would almost certainly bring about a depreciation of the drachma. The increased trade and tourism that this would produce would give a huge boost to the economy and a permanent improvement in the current account. A disadvantage is that it would raise the price of imports and hence cause a temporary increase in inflation.

Greece is unable to default whilst in the euro area and would be forced to leave if it did default. But there would be no impediment to defaulting if it did leave the euro. As Greek debt is denominated in euros and output would be priced in a depreciated drachma, Greece's debt burden would rise further. This is why the default would be likely

to accompany leaving the euro. The main advantage to defaulting is that it would immediately reduce the tax burden on future generations through having to meet the debt obligations of past generations. There would, therefore, be an intergenerational transfer of wealth. A disadvantage of defaulting is that investors would be likely to take fright and either stop lending to Greece entirely, or demand a much larger risk premium. Such an investor response would, however, be illogical as after default Greece would be in a much better financial position to avoid future default and to service its debt. In order to persuade international investors that default would be unlikely in the future and hence to continue to lend to Greece, it would also be necessary to put in place sustainable fiscal rules. Hence fiscal reforms would be required whether or not Greece remains in the euro area.

(ii) Fiscal rules

Although it seems most likely that, in order to allow the euro to survive, member countries of the euro area will finish up in something close to a political union, this is neither necessary nor inevitable. All the countries need to do is to follow the fiscal rules set out by economists, e.g. Wickens (2012). This would enable them to retain both their fiscal and political independence.

In such a fiscal framework, current government expenditures should be tax-financed over the economic cycle. Any deficits due to economic downturns may be bond-financed in the short term provided there are surpluses at other times that be used to redeem this debt so that in the longer term debt does not accumulate. Capital expenditures, for example on infrastructure and other investments, may be bond financed. To avoid debt accumulating, capital expenditures would need to generate sufficient tax revenues in the future to pay off this debt and to service it in the meantime. In other words, these expenditures would need to have a fiscal multiplier greater than unity. This would depend on the cost of borrowing and may need to be possibly considerably greater than one.

Expansionary fiscal policy through higher current expenditures or tax cuts is often advocated in order to raise GDP. However, this should only

be considered if the fiscal multiplier is expected to be greater than unity when it will pay for itself through higher tax revenues. This is only likely to happen when an economy is in recession and there are unemployed resources available to increase output. Otherwise, a fiscal expansion will probably just result in government consumption replacing private consumption, i.e. private expenditures would be crowding out.

For these purposes, as they are made each period, expenditures on, for example, education, health, pensions and defence should be classified as current expenditures, and hence tax-financed, even though they are investments in human capital and welfare.

7.5   Concluding Comments

Since October 2009 Greece has shown a remarkable willingness to put its finances on a secure basis despite the huge economic cost and political distress this has entailed. Almost entirely due to the austerity programme that has been imposed, output has fallen by 30%, unemployment at the end of 2016 is 23%, inflation is eliminated and the current account is in balance. This shows both the success of the austerity programme and its economic cost. Even so, debt is still rising and further emergency loans are being sought.

As argued above, part of the problem has been a consequence of its political choices, part a failure of fiscal policy and part the result of being in the euro. The political choice over the last nearly forty years was to raise the size of the public sector in Greece's quest to become more like those of its northern European neighbours. The unfortunate fiscal failure was that its tax revenues did not keep pace with its public expenditures which resulted in a huge increase in its level of debt. This made Greece very vulnerable as it tried to refinance itself in the financial crisis of 2008.

Another political choice was the decision to join the euro. As explained above, this has exacerbated the financial problems of Greece. Although the emphasis has been on the debt crisis, as it is of immediate concern, the longer term problem is Greece's competitiveness and the effect this has on economic growth and hence tax revenues. A high

debt-GDP ratio is not in itself disastrous. After the Napoleonic wars Britain had a debt-GDP ratio of 200%, and after World War II it was 250%, yet Britain did not default and was able to reduce its debt burden fairly rapidly. And Greece might take some comfort from a comparison with China which has a current debt-GDP ratio of 260% and is not in a financial crisis. Like several other euro area countries, the longer term economic problem it must solve is to find a way of restoring its competitiveness if it is not to suffer a prolonged period of austerity in order to achieve an internal devaluation.

To conclude, what are the economic choices facing Greece? At the height of its financial crisis, Greece railed against the Troika, and also against Germany. The irony is that because Greece was not economically more like Germany it found itself in such financial difficulties and, unless it becomes more like Germany, it will not be able to survive within the euro system. Greece has already done much to improve its fiscal stance by its large rise in tax revenues and cut in expenditures and has started producing primary surpluses (3.9% of GDP in 2016). It still needs to go further in making these large primary surpluses permanent: The current rescue package requires surpluses of the order of 3.5% of GDP for the medium term. This can be achieved by more cuts to expenditures and increased tax revenues. Having expanded the public sector very rapidly in recent years—but not being able to afford to do so—further reducing the size is an obvious step. Improvements in the rate of growth could generate much of the required additional tax revenues. The sort of assistance proposed by the IMF would help debt management in the short run. Write downs of debt would, of course, make the task of debt management easier.

In practice, the situation is very fluid—almost on a day-to-day basis. The IMF is increasingly extremely pessimistic about the prospects of the eventual success of the rescue effort. At the time of writing, emergency meetings are taking place which will determine whether the IMF pulls out of the rescue effort. To make matters worse, European loans depend critically on the agreement of Germany, and Germany's willingness to continue its support depends on the continued participation of the IMF.

The alternative is for Greece to leave the euro area and probably default on its debt. It would still need to carry out the same fiscal

reforms, and it would bring other short-term costs, but there would be considerable long-term benefits. These are tough choices but they are the only way that Greece can retake control of its economy.

References

Bohn, H. (1995). The Sustainability of budget deficits in a stochastic economy. *Journal of Money, Credit, and Banking, 27,* 257–271.

Gibson, H. D., Hall, S. G., & Tavlas, G. S. (2015). Fundamentally wrong market price of sovereigns and the Greek financial crisis. *Journal of Macroeconomics, 39*(part B), 405–419.

Hamilton, J., & Flavin, M. (1986). On the limitations of government borrowing: A framework for empirical testing. *American Economic Review, 76,* 808–819.

IMF Report on Greece. (2016). *Preliminary debt sustainability analysis-updated estimates and further considerations* (IMF Country Rep. No. 16/130).

Juncker, J-C. (2015). *Completing Europe's economic and monetary union.* European Commission.

Polito, V., & Wickens, M. R. (2011). Assessing the fiscal stance in the European Union and the United States, 1970–2011. *Economic Policy, 68,* 599–647.

Polito, V., & Wickens, M. R. (2012). A model-based indicator of the fiscal stance. *European Economic Review, 56,* 526–551.

Polito, V., & Wickens, M. R. (2015). Sovereign credit ratings in the European Union: A model-based fiscal analysis. *European Economic Review, 78,* 220–247.

Trehan, B., & Walsh, C. (1991). Testing intertemporal budget constraints: Theory and applications to US federal budget and current account deficits. *Journal of Money, Credit and Banking, 23,* 210–223.

Wickens, M. R. (2012). *Macroeconomic theory: A dynamic general equilibrium approach* (2nd ed.). Princeton, USA: Princeton University Press.

Wickens, M.R. (2017). Is there an alternative way to avoid another eurozone crisis to the Five Presidents' Report? *Journal of Empirical Finance,* forthcoming.

Wickens, M. R., & Uctum, M. (1993). The sustainability of current account deficits: A test of the US intertemporal budget constraint. *Journal of Economic Dynamics and Control, 17*(3), 423–441.