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Is Greece Turning the Corner? A Theory-Based Assessment of Recent Greek Macro-Policy

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Abstract

We use a macro-theory framework of analysis to assess Greek macro-policy with emphasis on the period of the Greek debt crisis. The latter is mainly the result of misguided past internal policies deviating from the policy lessons of modern macroeconomics. The current policy, however, provides a credible platform for sustainable growth. Greece has entered the process of economic recovery but this is fragile and exposed to risks. We conclude that although a country's currency is not per-se determining growth, supply-side reforms and institutional performance are; and for Greece both are better served within the EMU rather than outside.

JEL-Code: B220, E000, F400.

Keywords: macroeconomics, Greece, euro.

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1. INTRODUCTION

Since 2009 Greece has been experiencing the most challenging economic crisis of its modern history: In 2013 the Greek economy recorded a sixth consecutive year of recession; an unemployment rate of 27%; and a general government debt to GDP ratio of 173%. The crisis has raised questions on the country's position in the European Economic and Monetary Union (EMU) with influential observers calling for a Greek exit from the euro to kick-start economic recovery (see e.g. Weisbrot, 2011). Greek authorities, however, have rejected euro-exit calls. Instead, and in close co-operation with the European Commission, the European Central Bank and the International Monetary Fund, they follow policies aiming to achieve fiscal consolidation, higher competitiveness and improved institutional performance within the euro area.

The chronology of the Greek debt crisis, causes, triggers and channels of transmission have been discussed by studies including Featherstone (2011), Arghyrou and Tsoukalas (2011), Gibson et al. (2012), Darvas (2012), Dellas and Tavlas (2012) and Mourmouras (2013). This paper offers a new perspective to the Greek crisis and the policies used to overcome it by bringing together macroeconomic theory and Greek macro-policy in a way accessible to the informed but not necessarily macro-specialist reader. More specifically, our analysis: (a) provides an eclectic overview of historic developments in macroeconomic theory and the economics of the single currency; (b) maps Greek macro-policies to the evolving mainstream macro-paradigm and (c) uses this mapping to assess their suitability in meeting their objectives.

The remainder of the paper is structured as follows: Section 2 presents our macro-theory overview. Section 3 uses it to assess past Greek macro policies, with emphasis to the period following Greece's accession to the euro. Section 4 discusses the present Greek macro-policy. Section 5 concludes.

2. MACRO-THEORY AND THE SINGLE CURRENCY

2.1. The neoclassical school

The main research question in macroeconomics is the causes and management of economic fluctuations, defined as changes in output and employment. Prior to the Great Crush of 1929 the mainstream economic school was the neoclassical one (see e.g. Marshall (1920) and Fisher, (1930)). In neoclassical economics firms and households pursue profit and utility maximisation respectively; prices and wages are fully flexible; free competition results in full employment; and output is always at its highest possible level, the natural output. The above imply that: state intervention is harmful, as it distorts optimal market outcomes; given constant labour supply, output can only increase through higher capital or exogenous technological progress (see Solow, 1956); and, hence, monetary policy does not affect output. Therefore, in neoclassical economics a single currency is neither beneficial, nor harmful: it is indifferent (the money neutrality proposition)

2.2. Keynes

In 1936 John Maynard Keynes published his *General Theory of Employment, Interest and Money*, a book that changed drastically macro-analysis and policy-making. Two prominent features of traditional Keynesian analysis are market imperfections and investors' "animal spirits", the combination of which may cause unemployment and market output lower than its natural level. Keynes advocated that such negative output gaps can be closed through demand-management policies, particularly fiscal ones as in periods of recession monetary interventions cannot increase demand (the liquidity trap proposition). Keynes attributed the post-Great Crush recession to a misguided tight fiscal policy and supported fiscal activism to which he attributed high multiplying effects on output and employment.

2.3.The monetarist critique to Keynes

Keynes's views were strongly questioned by Milton Friedman in his 1964 book with Anna Schwartz *"A Monetary History of the United States, 1867 – 1960"* where they highlighted a strong link between money supply and output growth. They argued that the post-Great Crush depression was due to a misguided monetary policy that did not restore the fall in money supply caused by bank failures. Friedman questioned the link between consumption and output on which the multiplicative properties Keynes attributed to public expenditure were based. Instead, Friedman (1957) argued that consumption is determined by permanent income which does not respond to temporary fiscal stimuli. Hence, he was highly sceptical towards government intervention as a means of managing economic fluctuations. As a defence mechanism against the latter Friedman (1968) proposed a permanent rule calling for a constant annual increase in money supply.

2.4. The neoclassical synthesis and the theory of optimal currency areas

In the 1950s and 1960s mainstream economists, Paul Samuelson (1967) being a prominent example, adopted the neoclassical synthesis, combining elements from both the Keynesian and monetarist schools. A central feature of the neoclassical synthesis was its belief in the capacity of monetary and fiscal activism to equalise market and natural output. Another was the Phillips curve postulating a negative link between inflation and unemployment. The Phillips curve was rejected by Friedman (1968) who predicted (rightly as it turned out) its demise. However, developments in the 1950s and 1960s were consistent with its predictions leading to its widespread acceptance among policy-makers.

By considering monetary policy an important output determinant the neoclassical synthesis rejected a single currency unless introduced under specific conditions. These were analysed by the theory of optimal currency areas (TOCA) developed in the 1960s by Mundell

(1961), McKinnon (1963) and Kennen (1969). According to the TOCA a successful single currency requires participating countries to have symmetric economic fluctuations, or/and fully flexible markets so that asymmetric shocks are neutralised by market forces.

2.5. The rational expectations revolution

The oil shock of the early 1970s caused stagflation, i.e. high inflation and unemployment, a phenomenon inconsistent with the predictions of the Phillips curve. Attempts to address stagflation through demand management policies proved futile: expansive fiscal policies resulted in excessive public debt; and accelerated money growth fuelled inflation further without reducing unemployment. The neoclassical synthesis could not solve the Gordian knot of stagflation: macroeconomics was a field in deep crisis.

The intellectual impasse was broken by the rational expectations revolution pioneered by authors including Lucas (1972), Sargent and Wallace (1975), and Barro and Gordon (1983) who highlighted as intractable weakness of the neoclassical synthesis its failure to account for rational expectations about future economic outcomes based on efficient information processing. Rational expectations models produced the following key theoretical results:

First, the Lucas (1976) critique according to which economic relations valid within a certain economic environment are not valid under a different economic environment.

Second, the time inconsistency property of discretionary monetary policy. As Friedman (1968) had advocated, the Philips curve does not exist: expansive monetary policies within a high-inflation environment only cause higher inflation without employment gains. This harms long term growth by reducing the effectiveness of the price system as an effective mechanism of resources' allocation.

Third, economic performance is determined by the strategic interaction between the government and the fully rational private sector. Governments should introduce policy rules anchoring private expectations to low inflation and public debt sustainability. An example of such a welfare-improving rule is the delegation of monetary policy to an independent central bank aiming to achieve price stability.

2.6. The new classical school

Rational expectations provided the platform for the new classical school developed in the late 1970s by economists such as Kydland and Prescott (1977). This school is characterised by two prominent features. The first is methodological. New classical economists specify models based on microeconomic foundations in which firms maximise profits and workers maximise utility resulting from consumption and leisure. The second concerns the field of ideas: New classical economists return to the neoclassical view that economic fluctuations are the result of changes in the level of natural output. These features are the premises of real business cycle theory, a lasting contribution of new classical economics to modern macroeconomics. Another was the triggering of the new (endogenous) growth theory (see Lucas (1988), Barro (1991) and Romer (1994)). This established the vital for economic growth importance of factors such as human capital, financial development, research and development, market competition and institutional performance.

2.7. The new Keynesian school

Despite the significant theoretical and methodological advantages of new classical models, their performance in explaining real-world economic fluctuations was at best average. This motivated the creation of the new Keynesian school of economics (see e.g. Taylor (1979), Mankiw (1985) and Blanchard and Kiyotaki (1987)). New Keynesians adopt

the methodological premises of new classical models to which they introduce market imperfections caused by nominal rigidities, asymmetric/imperfect information and credit rationing (see Mankiw and Romer, 1991). Imperfections cause output gaps which can be closed through government intervention. New Keynesians mainly favour monetary rather than fiscal activism. However, accepting that the traditional Philips curve does not exist, they favour monetary interventions only as long as they do not change inflation expectations.

2.8. The new classical/new Keynesian synthesis

Since the late 1990s mainstream macro has moved towards the New Classical/New Keynesian Synthesis (NCNKS). Methodologically its models, known as dynamic stochastic general equilibrium (DSGE) models, adopt the rational expectations and microeconomic foundations of the new classical school to which they add New Keynesian market imperfections (see Woodford 2003), leading consensus on the following points (see Chari and Kehoe, 2006, Mankiw, 2006, Corsetti and Pesenti, 2007):

First, monetary and fiscal expansions cause short-run increases in output and employment. In the medium run, however, these return to their natural level.

Second, expectations, institutional performance, human capital, and competition are vital for economic growth as they affect the natural levels of output and employment. Excessive money growth and unsustainable fiscal deficits impact negatively on long-term growth through their effects on inflation and taxation expectations.

Finally, some economic fluctuations are due to market imperfections, others however are due to changes in natural output. Optimal macro-management presupposes knowledge of the source of the shocks hitting the economy. If shocks are linked to market imperfections, demand-management policies can be effective in stabilising output around its natural level; if shocks originate from the supply side, demand-management policies are ineffective.

The NCNKS has significant implications for the economics of monetary integration (see Beetsma and Guiliodori, 2010). The first is that abolishing the national currency involves costs as the government loses monetary policy as a pool useful to stabilise output around its natural level. This highlights the importance of symmetry and flexibility highlighted by the TOCA. The second is that in the long-run a single currency is cost-free because money, eventually, is neutral. For countries with a tradition of high inflation, high public debt to GDP ratio and unsatisfactory institutional performance joining a monetary union of low inflation, fiscal discipline and institutional stability can increase natural output through improved expectations. Overall, the NCNKS implies that joining a single currency is the result of a comparison between (i) the potential welfare benefits of increased natural output; and (ii) the welfare losses due to higher output volatility caused by the abolition of stabilisation-enhancing national monetary policy. Authorities make their optimal decision (join or not join) under the constraints set by society's preferences between consumption and leisure on the one hand; and current and future consumption on the other.

3. A THEORETICAL MAPPING OF GREEK MACRO POLICY

3.1. Following the international macro-mainstream: 1950-1980

Post-war Greek macro history can broadly be divided in three periods. The first covers 1950-80, when Greek macro-policy was part of the international neoclassical synthesis mainstream. Over 1950-73 Greece participated to the Bretton Woods system of fixed exchange rates, achieving high growth rates and low unemployment, inflation and debt. By contrast, during the early *Metapolitefsis*[1] period 1974-80 Greece, like other western countries,

[1] The term *Metapolitefsis* is used in Greece to denote the transition from military dictatorship to democratic politics in July 1974.

experienced stagflation and the failure of demand-management policies to address it (see Mourmouras and Arghyrou, 2000).

3.2. Departing from the international macro-mainstream: 1981-2011

3.2.1. 1981-1989

In the 1980s Greece followed a traditional Keynesian policy involving major fiscal and monetary expansions. The resulting deterioration in expectations, combined with reduced competition and flexibility resulted in low growth rates, high inflation and increasing unemployment/public debt. Greece was not the only western country entering the 1980s following traditional Keynesian policies. Other governments, including the first Mitterrand government in France, were using similar policies but abandoned them early in light of their failure to address stagflation (such as France's *tournant de la rigueur* in 1983). By contrast, Greece continued to follow them up to the end of the 1980s. The result was for Greece to find itself at the brink of bankruptcy in 1989 (see Mourmouras and Arghyrou, 2000).

3.2.2. 1990-2000

In the 1990s Greece made a partial turn towards the emerging international macro-mainstream of the NCNKS. This was the result of two factors. First, the near-bankruptcy caused by the policies implemented in the 1980s. Second, Greece's effort to join the euro by meeting the nominal convergence criteria set by Maastricht Treaty. This policy shift, however, was incomplete. The main reason was that with the exception of 1990-93 Greek governments pursued stabilisation through a restrictive monetary policy without applying sufficient micro-oriented policies to increase flexibility and competition in the markets for labour, goods and services. Therefore, although Greece achieved enough progress to secure its accession to the euro in 2001, it maintained a weak supply side, not well-prepared for

euro-participation (see Arghyrou, 2006). To a large extent the same holds true for the remaining countries of the European periphery (see Lane, 2012), highlighting the limitations of the Maastricht Treaty to lay the TOCA foundations necessary for a successful EMU.

3.3.2001-2009

During the first decade of its euro-participation Greece reverted to policies similar to the traditional Keynesianism of the 1980s. Their main features were the following (see Dellas and Tavlas 2012, Darvas, 2012): First, lack of progress in promoting structural reforms. Second, significant increase in public-sector wages and employment (see Figure 1), causing a substantial increase in the public expenditure to GDP ratio (see Figure 2). With public revenue stagnant this resulted in increased public deficits putting Greece's public debt on an upward path before the global credit crunch of 2008-9 (see Figure 3).

High wage growth in the public sector caused increases in private wages (see Afonso and Gomes, 2014) resulting in excessive aggregate wage growth. A useful benchmark determining wage increases compatible with the economy's production capacity is the sum of inflation and productivity growth (Tobin 1995). Table 1 shows that over 2001-9 the cumulative increase in nominal employees' compensation in Greece was 47%, the highest in the EMU. The sum of productivity and prices' growth was only 37.6%. Excess wage growth over 2001-9 took place in the majority of EMU countries; in Greece, however, it was more than double the EMU average. Note the contrast with Germany, where nominal compensation growth undershot its benchmark value by a factor of 2. Wage developments are directly linked to declining competitiveness and go a long way towards explaining the growing intra-EMU current account imbalances (see Figure 4 and Arghyrou and Chortareas, 2008).

Overall, the lack of supply side reforms combined with a significant increase in demand driven by increased public expenditure, excessive wage growth and the reduction in

real interest rates following Greece's accession to the euro (see Arghyrou et al, 2009), resulted in positive output gaps whose cumulative size over the period 2001-9 is in the range of 40 percentage points (see Figure 5). In other words, the past decade saw the creation of a bubble in the real sector of the Greek economy driving market output way above natural output for a period of time unparalleled to modern global macroeconomic history (see also Sinn, 2014). This was enhanced by the lack of a credible European macro-surveillance mechanism and private expectations that no euro zone country would be left to default, irrespective of the state its fundamentals (see The Economist 2010, Arghyrou and Tsoukalas 2011).

From that point of view, the onset of the Greek debt crisis in late 2009 and the deep recession which followed are not surprising: to a large extent, they are an equilibrium phenomenon restoring Greek output to its natural level. The trigger was the global financial crisis in 2008-9 which deprived Greece from easy access to borrowed funds in a sudden-stop fashion. Having said so, the Greek recession was aggravated by the following factors:

First, major internal policy mistakes over 2009-11, when Greek authorities did not realise that the sudden drop in economic activity was not only the cause but also the symptom of the crisis. Although the international credit crunch of 2008-9 was the crisis' trigger, and operated as a major factor reinforcing the recession (see section 4.5 below), the crisis' roots lie in Greece's supply side weaknesses and low institutional performance in key areas such as bureaucracy, judicial efficiency, tax collection (see Artavanis et al, 2012) and corruption (see Transparency International, 2012). During 2010-11 Greek authorities hesitated to address these fundamental problems (see Lynn, 2012), while their effort to restore fiscal dynamics was primarily based upon emergency tax-collection measures of limited effectiveness.

Second, the lack of a credible EMU plan to address the Greek debt crisis and the failure on behalf of Greece's EMU partners to provide markets a credible reassurance that Greece will stay in the euro (see Bohn and de Jong, 2011).

The interaction of these two factors operated as a second negative shock, as they caused a significant deterioration in markets' expectations leading to a collapse of the Greek bonds' market (see Arghyrou and Tsoukalas, 2011); increased capital flight from the Greek banking system (see Bloomberg, 2012) and the mutation of the Greek debt crisis into a banking crisis suppressing consumption and investment spending (see Mourmouras, 2013).

4. THE END OF *METAPOLITEFSIS*: 2012 ONWARDS

4.1. Milestones towards recovery

The second half of 2012 saw three milestone events, namely the following:

First, the general elections of June 2012 produced a coalition government which immediately sent markets a previously-lacking signal that Greece was determined to implement the policies necessary to maintain its euro participation.

Second, the Eurogroup meeting of November 2012 provided a credible commitment that EMU countries will assist Greece stay in the euro by: resuming the financing of Greece's assistance programme (previously suspended due to lack of progress towards meeting fiscal and reforms targets); reducing Greece's debt burden through extending the maturity of loans to Greece and reducing their interest rates; and promising to consider further debt assistance if certain fiscal targets were met in 2013-14.

Third, the external environment improved significantly due to the ECB's commitment in September 2012 to intervene with unlimited liquidity, through the Outright Monetary Transactions (OMT) programme, to stabilise European sovereign bonds markets, provided

that the affected EMU member-states agree with their partners a suitable adjustment programme.

Economic recovery involves a virtuous circle comprising of: appropriate policy interventions; improved expectations; improving macro-indicators, and, eventually, higher growth and employment. The sections which follow assess the evidence relating to these stages following the milestone events discussed above.

4.2. Policy interventions

The founding stones of current Greek macro policy are fiscal consolidation and structural reforms. It is impossible to measure progress in structural reforms with full precision. However, a quantitative measure extensively used for this purpose is the Ease of Doing Business Index (EDBI) published by the World Bank. Table 2 suggests that in 2010 Greece's performance was disappointing. Two years into the crisis (2012) with Greek authorities hesitant to promote reforms, very little had changed. In 2013 and 2014, however, Greece topped the list of the Adejustment Progress rankings published by The Lisbon Council, with the speed of reform accelerating sharply (see Table 3). This resulted in a marked improvement of 37 places in Greece's EDBI ranking from 109 in 2010 to 72 in 2014.

Nevertheless, Table 3 suggests that reform has not been equally spread across all areas; and despite its recent climb, Greece's 2014 EDBI ranking (72) remains well below the average EMU-country ranking (41). In a recent report OECD (2013) identified 555 problematic regulations and 329 law provisions hindering competition and flexibility, prerequisites which the TOCA has highlighted as *sine qua none* for successful EMU participation. Since this report's publication Greece has passed legislation addressing some of these distortions, the process, however, has not been completed.

Regarding fiscal consolidation, after many years of deficits in 2013 Greece achieved a primary budget surplus projected to increase further in 2014 (see Figure 3). An important difference with 2010-12 was that in 2013-14 deficit reduction was mainly pursued through lowering public expenditure rather than taxation increases (see Figure 2), a key future of successful, growth-inducing fiscal adjustment programmes (see Alesina and Ardagna, 2010). Finally, in April 2014 Greece placed successfully, for the first time since the onset the crisis, a five-year bond issue for 3 billion euros achieving an interest rate just below 5%. Further bond issues, including one for a 7-year maturity, are planned for 2014.

Admittedly, this fiscal improvement has not yet been reflected in the public debt to GDP ratio (Figure 3). Public debt dynamics, however, are also determined by real interest rates on public debt and the rate of economic growth. Along with unemployment, the latter is the last variable to respond to policy interventions. It is therefore not surprising that the public debt to GDP ratio has not yet been stabilised. However, provided that the current growth trends (see below) are maintained; given that more than three quarters of Greek public debt is held by official lenders; and, given that current interest rates on officially-held debt range in the area of 0.7% to 2%, it is very likely that starting from 2014 Greece will meet the technical definition of public-debt sustainability.[2] However, Greece's high public debt to

[2] The condition for stabilising the public debt to GDP ratio is given by $b = (r\text{-}x)B = (t\text{-}g) + m = 0$. All fiscal variables are expressed as shares to GDP; b denotes the rate of growth of public debt, r the real interest rate (nominal interest rate minus inflation) on public debt, x real GDP growth, B the stock public debt, t government revenue, g government expenditure excluding interest payments and m seignorage revenue. In the absence of seignorage revenue ($m = 0$) the condition for debt stabilisation under a balanced budget ($t\text{-}g = 0$) is $r = x$. If the real interest rate exceeds the real growth rate, $(r\text{-}x) > 0$, public debt sustainability requires a primary surplus ($t\text{-}g$)>0 matching the positive ($r\text{-}x$) differential. For 2014 and 2015 respectively, the latest IMF projections (World Economic Outlook, April 2014) in percentage terms are: growth, 0.6 and 2.9; inflation, -0.4 and 0; and primary

GDP ratio implies that the latter's trajectory will be vulnerable to shocks (see Darvas and Huttle, 2014). Hence, it is plausible to investigate further ways of lightening Greece's debt burden, as per the decisions of the Eurogroup meeting of November 2012.

4.3. Improvement in expectations

Since the second half of 2012 a number of indicators suggest improving expectations regarding Greece's future economic performance. These include: Substantial reduction in Greece's 10-year government bond yield spread against Germany (see Figure 6);[3] the end of capital flight from Greek banks taking place until June 2012 and a modest recovery ever since (see Figure 7); a similar reversal for the Athens Stock Exchange index (see Figure 8); and a marked improvement in confidence indicators (see Figure 9).

4.4. Competitiveness gains and current account improvement

In addition to fiscal consolidation, the external sector has also improved. Figure 10 shows that real effective exchange rates calculated using unit labour cost suggest that Greece has achieved substantial competitiveness gains nearly eliminating the competitiveness losses

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surplus, 1.5 and 3. Assuming a 2% nominal interest rate on Greek public debt, Greek public debt will be very close to meetin the stabilisation condition in 2014 and enter a downwards trajectory in 2015.

[3] This reduction is related to the announcement of the OMT programme in September 2012 and the subsequent expansionary monetary policy followed by the ECB. However, it is not due to these factors only: If it were, Greek spreads should have dropped in a discrete step-fashion in September 2012; instead, they dropped gradually over 2013-14. Furthermore, if the OMT programme was the single determinant of spreads in the euro-area, all periphery EMU countries should have the same spread-values, which they do not. Overall, in addition to EMU-wide systemic-risk conditions, markets determine spreads taking account improving national macro-developments (see e.g. Arghyrou and Kontonikas, 2012).

of 2001-9. These, however, are not so pronounced when measured using CPI-based real effective exchange rates (see below).

Competitiveness gains are reflected in a marked improvement in the current account balance: From a record deficit of 15% of GDP in 2008, in 2013 Greece registered a current account surplus for the first time since 1948 (see Figure 4). This reversal is related to the reduction in imports following the fall in disposal incomes caused by the six-year recession. However, it is also due to improved exporting performance, particularly in the services sector (see Figure 11). Overall 60% of the current account's reversal is attributed to imports' reduction while 40% comes from the exports' side.[4]

This improvement can be substantially extended, as it is the result of an imbalanced adjustment process. In that respect, Figure 10 is highly informative. The external-sector's adjustment has mainly relied on labour costs and much less on reducing monopolistic mark-ups maintaining high consumer prices. Table 1, Panel B repeats the exercise discussed in section 3.2 extending the sample period to 2013. Nominal wage reductions over 2010-13 have completely reversed the excessive wage growth of 2001-2009, to the extent that nominal compensation growth now undershoots substantially its benchmark value given by the sum of inflation and productivity growth. Although this has improved Greek competitiveness, with consumer prices not falling equally fast it has also reduced substantially the purchasing power of Greek households. For an economy with unemployment rate 27% and no room for fiscal manoeuvre it is unrealistic to expect that this wage gap can be closed by increases in nominal compensation. A more realistic approach is to increase CPI-based competitiveness, for which Figure 10 suggests the existence of a large margin. Putting downward pressure on

[4] In 2009 the balance of external trade of goods and services was a deficit of 26.5 billion euros. In 2013, this was down to 4.9 billion, a deficit reduction of 21.6 billons. Out of these, 13.2 billion was due to imports' reduction and 8.4 billion to exports' increase.

prices without further reduction in nominal wages is possible only through reducing profit mark-ups.[5] This brings us back to the necessity of structural reforms discussed above.

4.5. Growth and unemployment trends and the importance of credit developments

Figure 12 shows that starting from 2012Q4 the negative growth pattern Greece had entered in late 2009 has been reversed. This reversal took place in deeply negative territory; however, in 2014 the Greek economy is projected to grow. A similar picture emerges from Figure 13 depicting the percentage change in the Greek unemployment rate. Following fast acceleration over 2009Q1-2012Q2, unemployment growth has entered a steep downward path and is projected to become negative in 2014.

This is evidence that the progress made in policy interventions, expectations and macro-outlook has started trickling in output and employment performance. However, with a projected output gap of -9% for 2014 and unemployment at 27% much remains to be done. Under the circumstances, the policy recipe of the NCNKS would be to support demand through increased credit/liquidity. Indeed, as monetarist economics predicts, Figures 12 and 13 show that credit growth in Greece is strongly correlated with output and unemployment growth, with the correlation coefficients being 0.82 in both cases.

Bank credit to the private sector decelerated sharply following the onset of the Greek debt crisis and collapsed after the Public Sector Involvement (PSI) scheme in February 2012. This resulted in a substantial write-off of Greek public debt held by private investors (53.5% and 73% in face- and net present-value terms respectively), resulting into total losses for Greek

[5] Within a standard DSGE model (see e.g. Corsetti and Pesenti, 2007, equation (5), p. 70) prices are given by a mark-up over marginal costs, $P = (\theta/\theta\text{-}1)(W/Z)$. Marginal costs are given as the ratio of nominal wages (W) to labour productivity (Z), while the mark-up is a negative function of competition, captured by the elasticity of substitution between firms' products (θ). Prices can fall either through lower marginal costs (W/Z), i.e. lower nominal wages decrease and/or higher productivity; or lower mark-ups due to higher competition (θ).

banks of 37.7 billion euros, an amount equivalent to 170.6% of their Core Tier 1 capital and 10.1% of total assets (see Bank of Greece, 2012, Table II.1, p. 14). Greek banks were subsequently cut-off from international money markets; excluded from ECB's low interest rate long-term refinancing operations (LTRO) programme due to the lack of eligible collateral; and relied for the best part of 2010-2013 on the expensive Emergency Liquidity Assistance (ELA) mechanism to continue their operations (see Sinn, 2014). These combined with the sharp reduction in private bank deposits (Figure 7) transformed the Greek debt crisis into a banking crisis placing major obstacles to recovery (see Mourmouras, 2013).

Therefore, Greece's growth and employment performance can improve substantially if normal credit conditions are restored. To that end significant progress has been made: In May 2012 the European Financial Stability Fund (EFSF) contributed 50 billion euros (in EFSF bonds) towards the recapitalisation of Greek banks. This helped the latter to attract (in 2013-14) significant volumes of private funds for recapitalisation purposes, disengage completely from the ELA financing scheme, place successfully new bond issues in capital markets and regain access to the ECB LTROs. At the same time, a number of bank mergers took place, resulting into improved capital requirements ratios and a return to profitability for three out of four Greek systemic banks in 2014 (see Bank of Greece, 2014).

These positive developments have decelerated credit contraction however they have not yet delivered the necessary credit growth. Similar problems exist in other euro zone countries prompting the ECB to reduce its reference interest rates to almost zero levels and adopt non-conventional policy measures to boost credit. Greece can take further action to that direction through completing the recapitalisation of Greek banks (estimated in the area of 6 billion euros); and passing legislation (a) eliminating uncertainty regarding the legal treatment of the substantial volume of non-performing loans (see Bank of Greece, 2012); and (b) reducing the time delays and costs associated with resolving insolvency, an area in which Greece's

performance deteriorated in 2013-14 (see Table 2). As long as these problems exist, effective collateral will remain low and the moral hazard perceived by lenders high. This, according to Stiglitz and Weiss's (1981) classic contribution, will continue to cause credit rationing, maintain high lending interest rates and prevent the necessary for recovery credit expansion.

5. CONCLUSIONS

This paper provided an eclectic overview of historic developments in macroeconomic theory and the economics of the single currency and used it to assess the compatibility of Greek macroeconomic policy with the evolving international macro-mainstream. We concluded that the Greek debt crisis is mainly the result of misguided past internal economic policies, deviating substantially from the policy lessons of mainstream macroeconomics. By contrast, the current Greek macro-policy is consistent with the latter. As such, it provides a credible platform to achieve sustainable economic recovery.

Since mid-2012 Greece has made significant progress towards this objective. Fiscal adjustment and structural reform have been accelerated. Expectations, public finances, competitiveness and the current account are improving. Negative growth/employment trends have been reversed and, following six years of succession, Greece is projected to register positive growth in 2014. All these indicators which back in 2008-9 were pointing towards a significant economic downturn now point towards the opposite direction. There is evidence to argue that Greece is turning the corner.

Nevertheless, not all adjustment policies have been optimal or well-executed (IMF, 2013). Fiscal adjustment has relied too heavily on taxation, while progress in rationalising expenditure and reducing tax evasion has been less than anticipated. Competitiveness gains have mainly come through disproportional nominal wages adjustments while excessive monopolistic mark-ups have only recently started to decline. Finally, despite significant

achievements in restructuring the Greek banking sector, credit conditions remain too tight. These are areas in which Greece can achieve substantial progress to improve its macro-performance further but also spread the burden of adjustment among its citizens in a more equitable way.

The eventual success of the adjustment programme is not guaranteed, as it faces two sources of risk. The first is internal political risk. Reforms are opposed by influential vested interests with significant incentives to suspend the, even at the expense of a Greek exit from the euro (see Arghyrou, 2014). At the same time, the crisis has caused serious economic hardship for a substantial portion of the Greek population. This implies that the adjustment programme is pursued within an environment of limited social tolerance.

The second is external risk. This takes three forms. First, a prolonged period of low growth in the euro area. As long as the Greek recovery does not have the advantage of a favourable external environment, the internal risks discussed above will be reinforced. Second, given the existing high stock of public debt, the latter's dynamics will be vulnerable to unpredictable shocks. Finally, there is rescue fatigue in creditor countries (see e.g. Reuters, 2013). This implies that in the event of adverse external shocks causing further assistance requirements or political developments in Greece reversing the adjustment programme, it will be challenging for governments of creditor countries to maintain assistance to Greece.

Managing these risks is not an easy task. With regards to the internal ones, Greek authorities need to fine-tune their policies in ways addressing the imperfections discussed above. With regards to external risks, the best way forward is for Greece to achieve maximum input in setting up firewalls preventing economic crises in the EMU area spiralling out of control. To that end, a step specific to Greece would be to pursure further lightening of its debt burden, as per the decisions of the November 2012 Euro group. This can take the form of extending maturities and reducing interest rates on Greece's official loans; and

defining fiscal targets with reference to the structural rather than cyclical deficit, as suggested by Mourmouras (2013). The latter will provide Greece fiscal space to reduce taxation which would be beneficial both for closing the negative output gap, as well as for improving Greece's supply side through the reduction of the distortions created by excessive taxation.

A second step applying to the whole of the euro zone would be to complete the new euro-governance architecture, involving a European banking union, a higher degree of fiscal integration and a lender of last resort capacity for the ECB (see Elliot, 2012; Buiter and Rahbari, 2012; De Grauwe, 2012; Allen et al, 2013). Reforming the EMU's governance system is necessary to achieve two targets: First, upgrade the EMU's monitoring/prevention capacities to minimise the chances of a crisis such as the current one occurring again. Second, to ensure that if a crisis does occur, there is credible infrastructure in place to avert the rapid deterioration in expectations and a collapse in the markets' confidence to the euro, which occurred in 2010-12.

Within this context, it is plausible to envisage EMU countries reaching an agreement involving on the one hand mutualisation of a significant proportion of the existing stock of sovereign and banking debts; and on the other (i) successful conclusion of adjustment programmes in crisis countries; (ii) harmonisation of national economic policy objectives, taxation systems and labour/financial legislation; and (iii) creation of a new European fiscal authority with institutional independence and executive powers comparable to those the ECB holds in the field of monetary policy. Such an agreement could be reflected in a revision of the European Union Treaties, the trigger for which can be developments either within the EMU or in European Union countries outside the euro area (for example, changes in the terms of the UK's participation to the European Union).

Unavoidably, moving towards a more intergrated euro-governance framework implies loss of national discretion in some areas of economic policy. For Greece, however, this may

be a price worth paying. Modern macroeconomics suggests that growth and employment are in the long-run determined by supply-side characteristics and institutional performance. The experience of Greece and other periphery EMU countries in the 2000s confirmed that the introduction of a single currency per-se is not enough to eliminate systemic risk caused by problems in these areas; by contrast, it can cause significant problems with far-reaching negative externalities (see Sinn, 2014). For these to be addressed within the euro, it is necessary to have a combination of internal reforms and an external environment promoting real (i.e. micro-based) rather than nominal (i.e. macro-based) convergence. The experience of Greece since 2012 provides evidence that despite implementation imperfections, such a combination can set in motion the process of sustainable economic recovery. It is doubtful that this progress would have been achieved under discretionary national economic policies.

This is the fundamental reason that makes our analysis, ultimately, to come down in favour of Greece's continued participation to the EMU: Although a country's currency is not per se a determinant of long-term economic prosperity, supply-side characteristics and institutional performance are. And recent events have shown that Greece's policy credibility and institutional stability, and by extension economic prosperity, are better served within the single-currency area rather than outside.

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Table 1: Excess nominal compensation growth, 2001-2009 and 2001-2013

	(a) Nominal compensation per employee growth	(b) Harmonised Consumer price index (HCPI) growth	(c) Person-based labour productivity growth	(d) Sum of labour productivity and CPI growth, (b) + (c)	(e) Excess Nominal compensation growth, (a) - (d)
Panel A: 2001-2009					
Greece	**47.0**	**28.8**	**8.8**	**37.6**	**9.4**
Ireland	42.9	22.0	9.3	31.2	11.6
Spain	33.8	25.9	3.6	29.5	4.2
Portugal	28.5	20.3	5.2	25.5	2.9
Finland	27.9	13.3	5.1	18.4	9.5
Luxembourg	26.1	23.3	-3.8	19.5	6.5
Netherlands	25.4	16.5	5.4	21.9	3.5
France	25.0	16.1	4.9	21.0	4.0
Belgium	22.7	17.2	4.3	21.5	1.2
Austria	20.1	15.5	5.4	20.9	-0.8
Italy	19.3	20.0	-5.8	14.2	5.1
Germany	7.2	13.9	1.9	15.8	-8.6
EMU12 Average	**27.1**	**19.4**	**3.7**	**23.1**	**4.0**
Panel B: 2001-2013					
Finland	41.8	25.5	9.0	34.5	7.3
Luxembourg	39.5	37.6	-5.6	32.0	7.5
France	36.3	24.8	9.1	33.9	2.4
Belgium	36.1	28.7	6.4	35.1	0.9
Ireland	36.0	24.4	14.9	39.3	-3.3
Spain	35.1	37.7	12.7	50.4	-15.3
Netherlands	33.8	27.0	6.8	33.8	0.0
Portugal	32.0	30.4	12.0	42.4	-10.4
Austria	29.4	27.4	6.5	33.9	-4.4
Italy	25.2	31.2	-5.2	26.0	-0.9
Greece	**24.5**	**39.3**	**6.3**	**45.6**	**-21.1**
Germany	18.3	22.5	6.9	29.4	-11.1
Average EMU12	**32.3**	**29.7**	**6.6**	**36.4**	**-4.0**

Note: Countries ranked by nominal compensation growth. *Data Sources*: Nominal compensation per employee and person-based labour productivity: ECB. Harmonised Consumer Price Index, total economy: Eurostat.

Table 2: Greece's Ease of Doing Business Index ranking

	2010 (out of 183)	2012 (out of 183)	2014 (out of 189)
Starting a business	140	135	36
Dealing with construction permits	50	41	66
Employing workers	147	n.a	n.a
Getting electricity	n.a	77	61
Getting credit	87	78	86
Protecting investors	154	155	80
Paying taxes	76	83	53
Trading across borders	80	84	52
Enforcing contracts	89	90	98
Closing a business	43	n.a	n.a
Resolving insolvency	n.a	57	87
Ease of Doing Business Index	109	100	72
Distance to Frontier	59.28	58.15	61.23

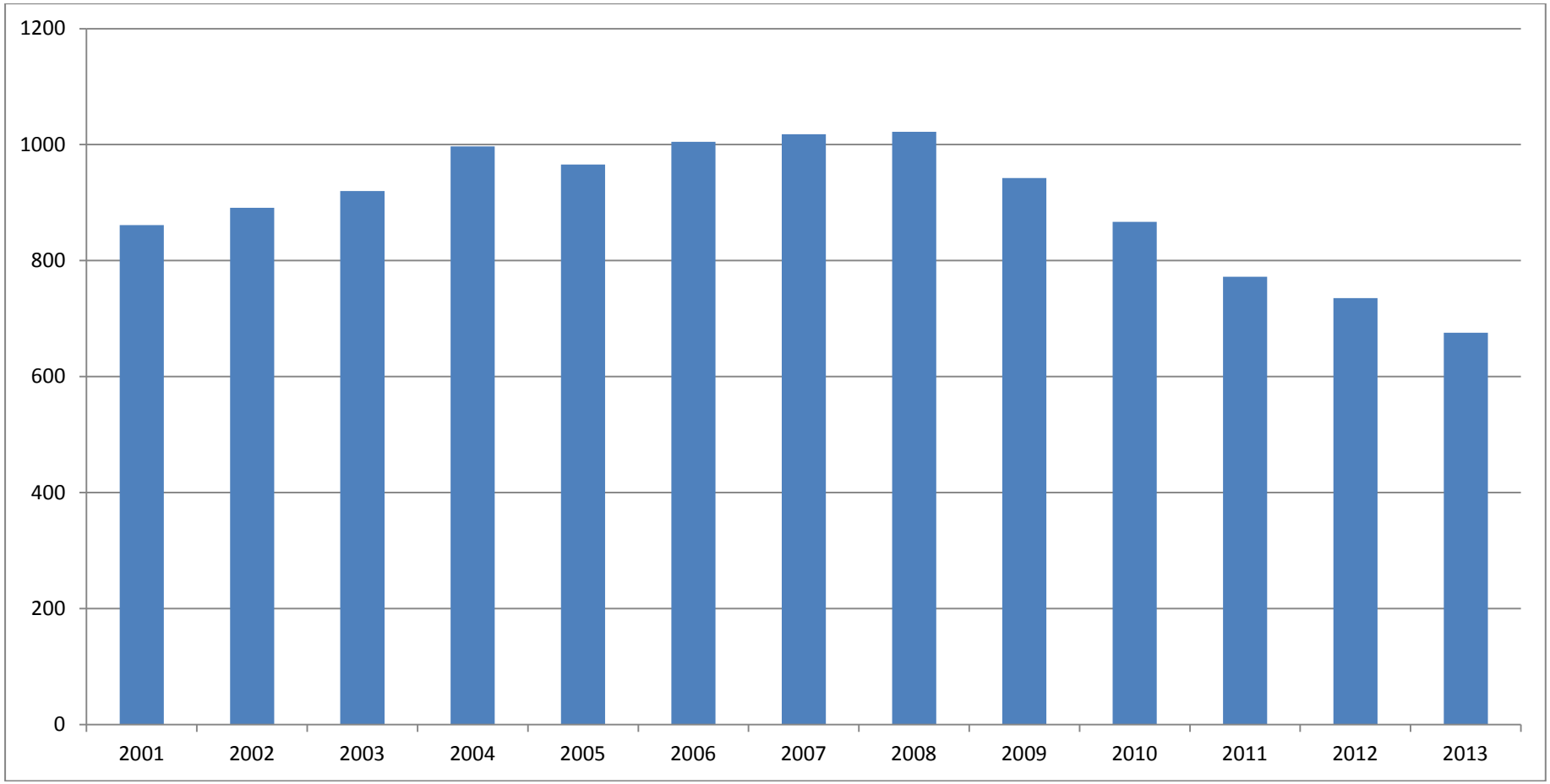
Source: Doing Business Reports 2010, 2012 and 2014. Distance to frontier is measured on a scale from 0 to 100, where 0 represents the lowest performance and 100 the highest. An increasing Distance to Frontier score indicates improvement in the economy's performance.

Table 3: Lisbon Council Economic Adjustment and Reform Progress

	2014		2013		2012		2011	Average 2012-14	
	Total score	Reform drive	Total score	Reform drive	Total Score	Reform drive	Total score	Total score	Reform drive
Greece	**8.7**	**10.0**	**8.6**	**10.0**	**8.2**	**10.0**	**6.6**	**8.5**	**10.0**
Ireland	8.1	8.5	7.7	8.2	7.4	7.7	6.5	7.7	8.1
Spain	6.9	7.9	6.9	7.7	6.5	9.0	5.7	6.8	8.2
Portugal	6.8	7.8	6.7	7.7	6.5	7.0	4.9	6.7	7.5
Slovakia	6.3	5.5	6.3	5.5	5.0	2.8	5.0	5.9	4.6
Estonia	6.2	8.3	6.2	8.8	6.5	n.a.	8.4	6.3	8.6
Cyprus	5.2	n.a.	6.1	n.a	4.3	n.a.	2.9	5.2	n.a
Poland	4.9	5.4	5.0	6.1	5.4	6.9	n.a.	5.1	6.1
Slovenia	4.7	3.6	4.3	2.2	4.3	n.a.	3.6	4.4	2.9
United Kingdom	4.6	6.1	4.6	5.8	4.4	6.9	n.a	4.5	6.3
Italy	4.5	5.0	4.6	5.2	4.6	4.7	3.3	4.6	5.0
Euro-17	**4.3**	**5.2**	**4.2**	**5.0**	**4.0**	**4.9**	**3.2**	**4.2**	**5.0**
France	3.5	3.7	3.3	3.5	3.2	3.6	2.5	3.3	3.6
Netherlands	3.4	2.4	3.4	2.4	3.6	4.3	4.0	3.5	3.0
Malta	3.3	n.a	3.6	n.a	4.4	n.a	6.4	3.8	n.a
Austria	2.9	5.1	3.2	6.1	2.5	4.7	2.1	2.9	5.3
Germany	2.7	2.4	2.5	1.5	2.0	0.0	2.2	2.4	1.3
Finland	2.4	5.1	2.4	4.7	2.7	6.1	3.8	2.5	5.3
Belgium	2.3	1.8	2.1	1.6	1.6	1.3	2.6	2.0	1.6
Luxembourg	1.9	1.2	2.0	0.6	2.3	2.3	4.0	2.1	1.4
Sweden	1.7	4.0	1.9	4.3	3.5	5.8	n.a	2.4	4.7

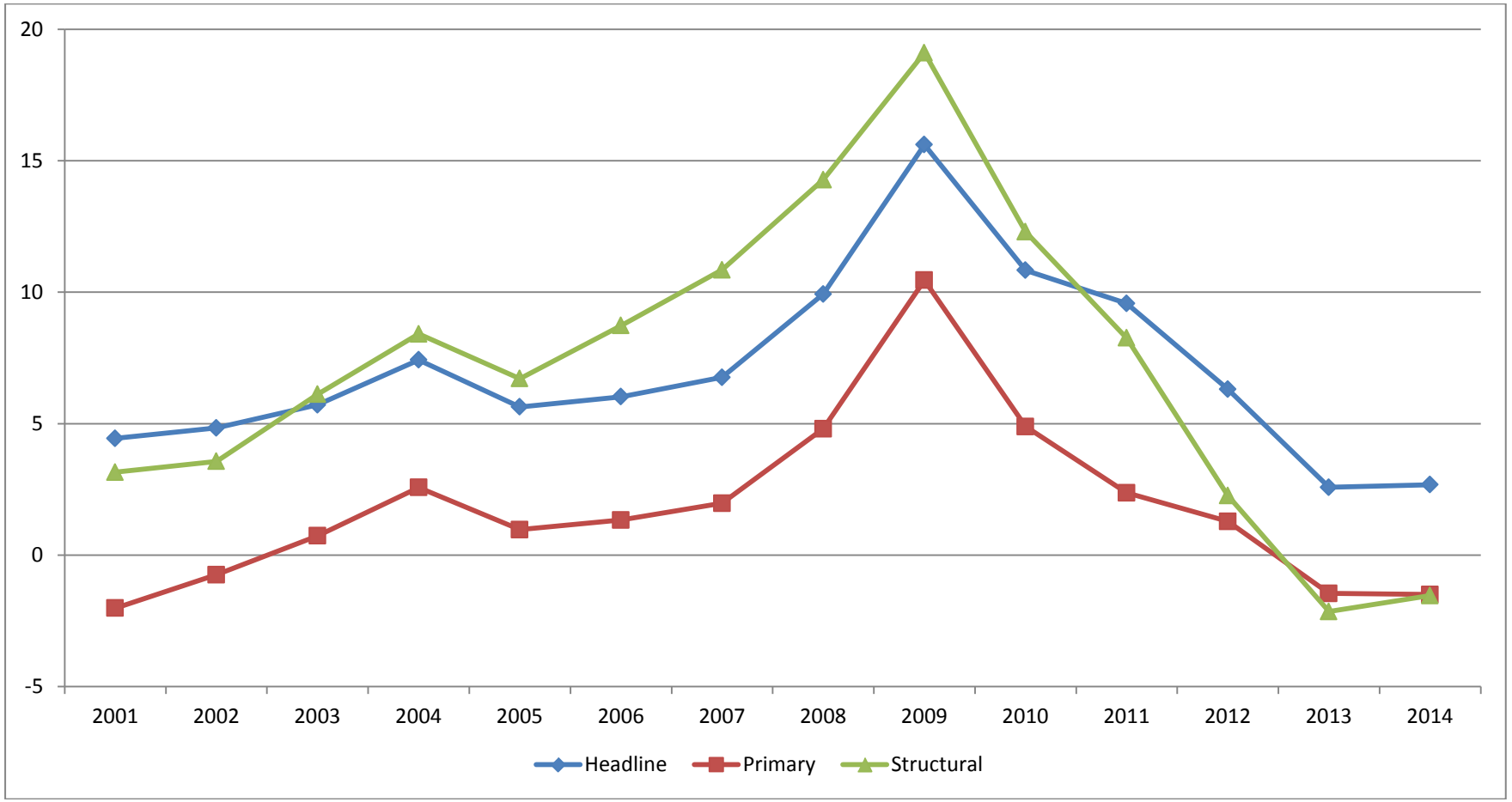
Sources: Table 1 in Euro Plus Monitor, The Lisbon Council for years 2011 (p.3), 2012 (p.4), 2013 (p. 4) and 2014 Spring Update (p.3). Notes: Countries ranked according to 2014 Total Score value. The reported Total score for 2012, 2013 and 2014 is the average of four sub-scores given for the following categories of adjustment: External adjustment, Fiscal adjustment, Labour Cost adjustment and Reform drive, all on a scale of 10 (best) to zero (worst possible). The Total score year 2011 is calculated using only the first three categories (Reform drive scores were not available for 2011).

Figure 1: Employment in the Greek Public Sector (in thousands)



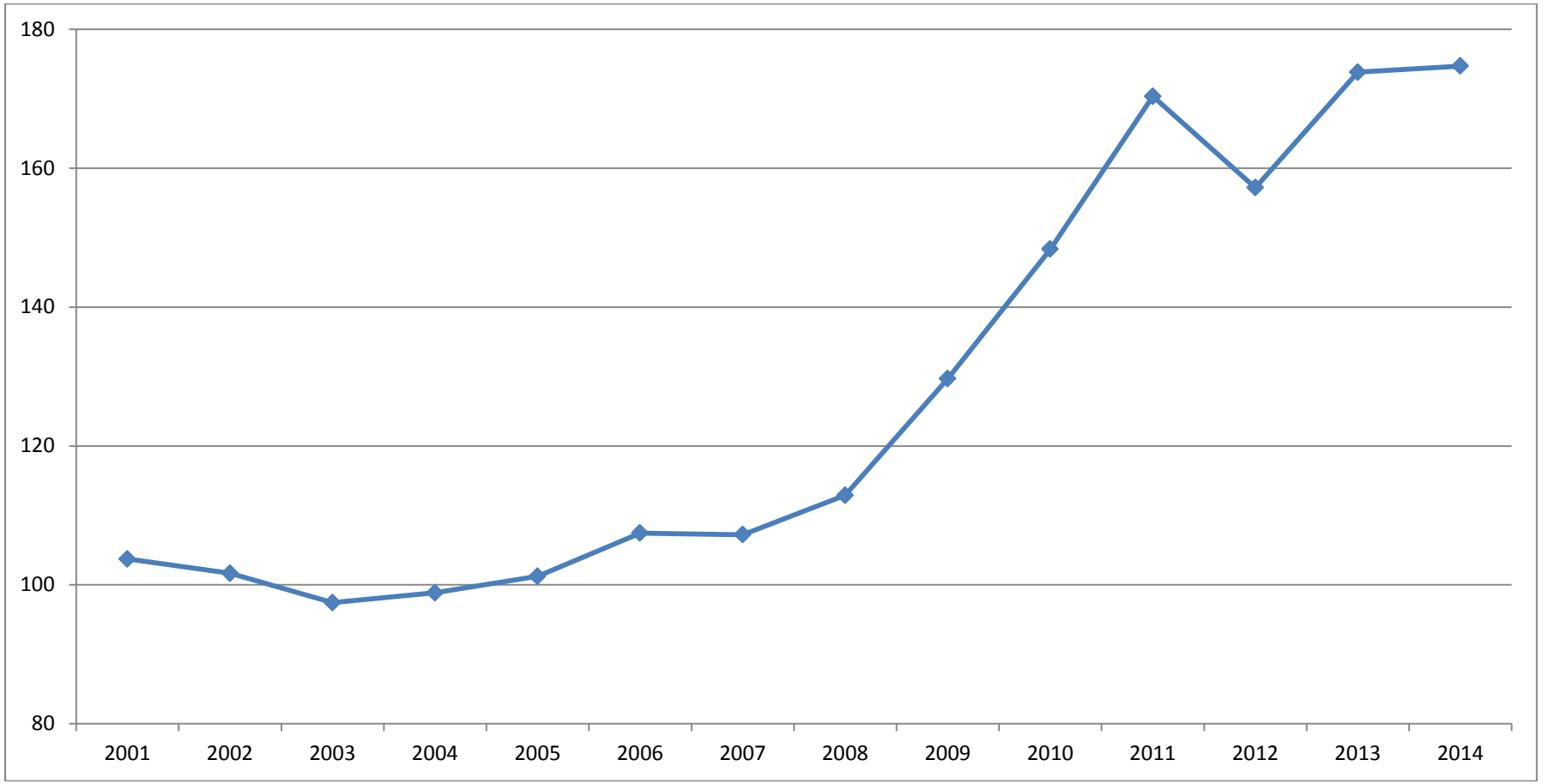
Source: For years 2001/08 LABORSTA, International Labour Organisation; for years 2009/13 Registry of Payees of the Hellenic State. Quoted figures include employment in central government and legal entities of private law (permanent and termporary contracts). They do not include employment in state-owned enterprises and the Hellenic Armed Forces.

Figure 2: General government deficit (% in GDP)



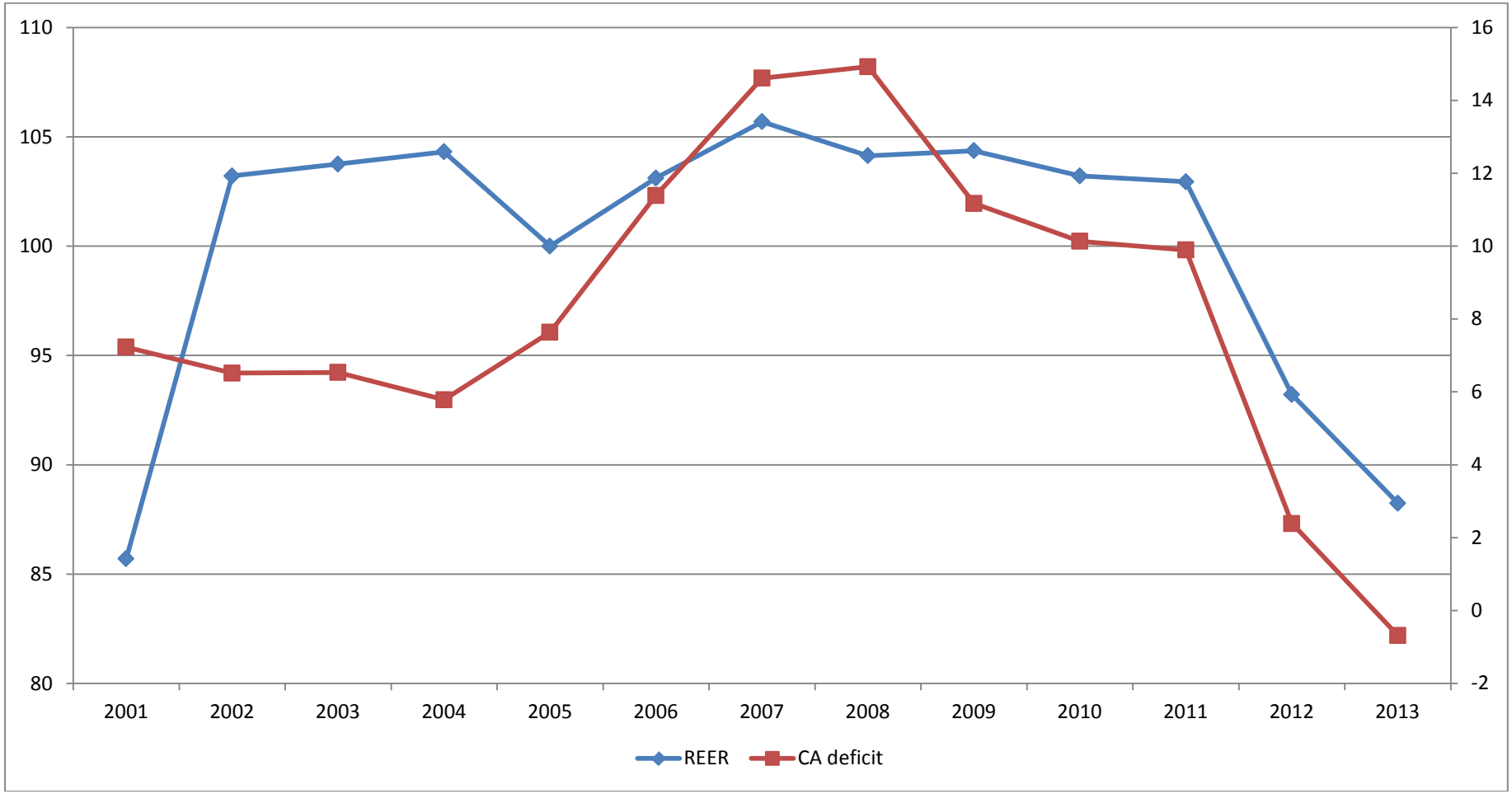
Source: International Monetary Fund, World Economic Outlook, April 2014. *Note*: Positive (negative) values denote deficit (surplus)

Figure 3: General government public debt (% in GDP)



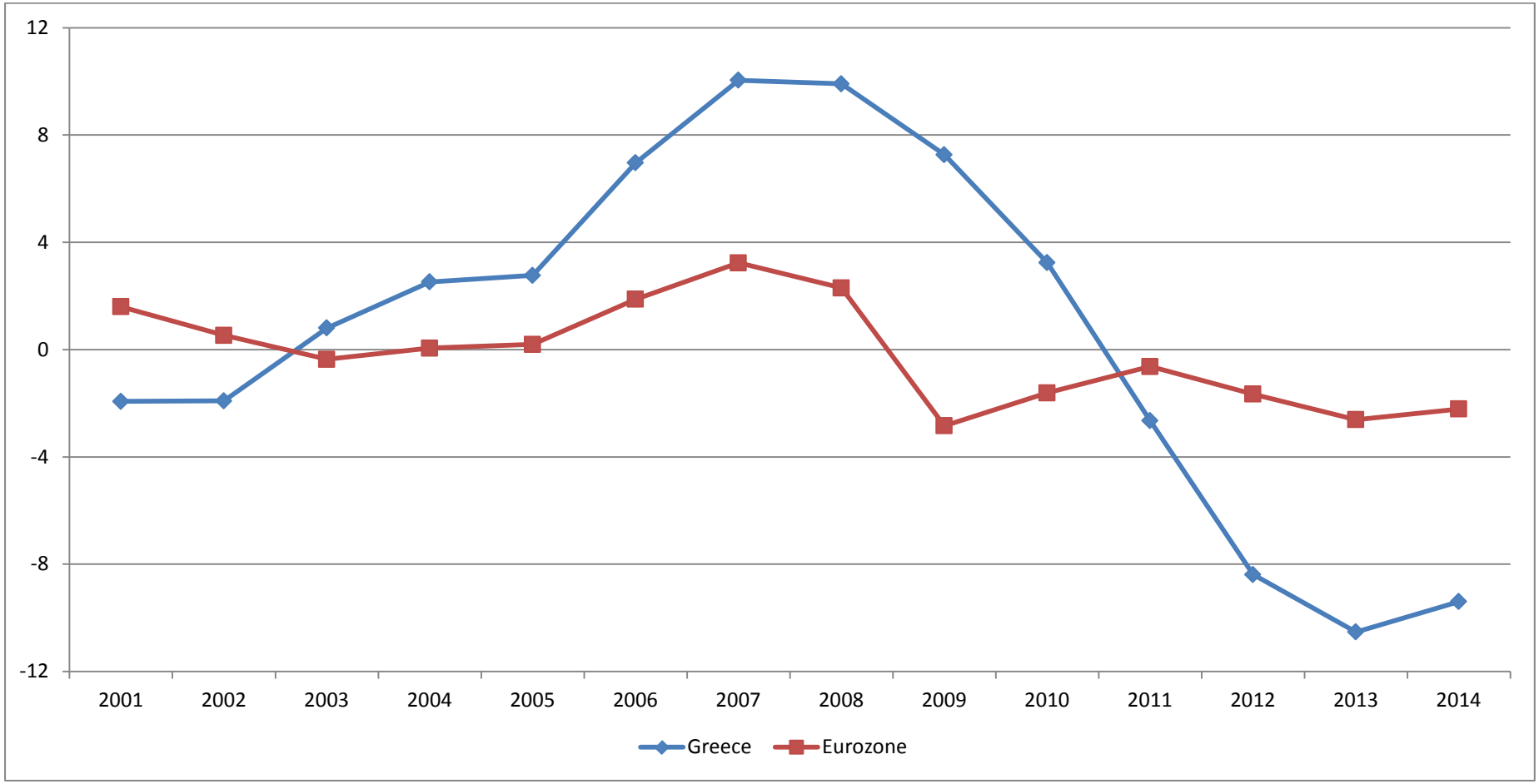
Source: International Monetary Fund, World Economic Outlook, April 2014.

Figure 4: Current Account deficit (% in GDP) and Real Effective Exchange Rate (ULC-based)



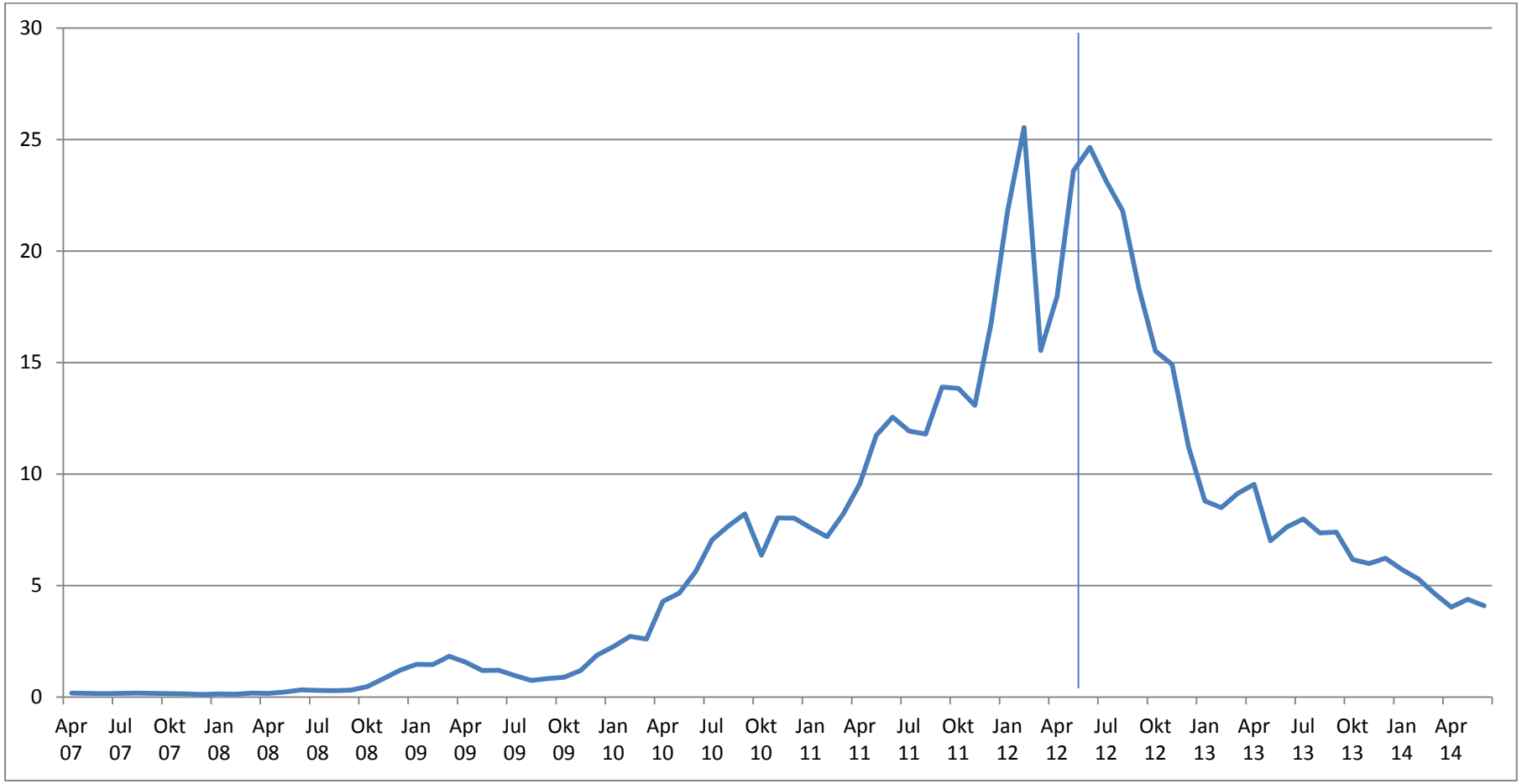
Source: International Monetary Fund, World Economic Outlook (April 2014). *Notes*: REER measured on lef vertical axis. Current account deficit measured on right vertical axis. Positive (negative) values denote deficit (surplus). An increase in REER denotes real appreciation.

Figure 5: Output gap (percentage points)



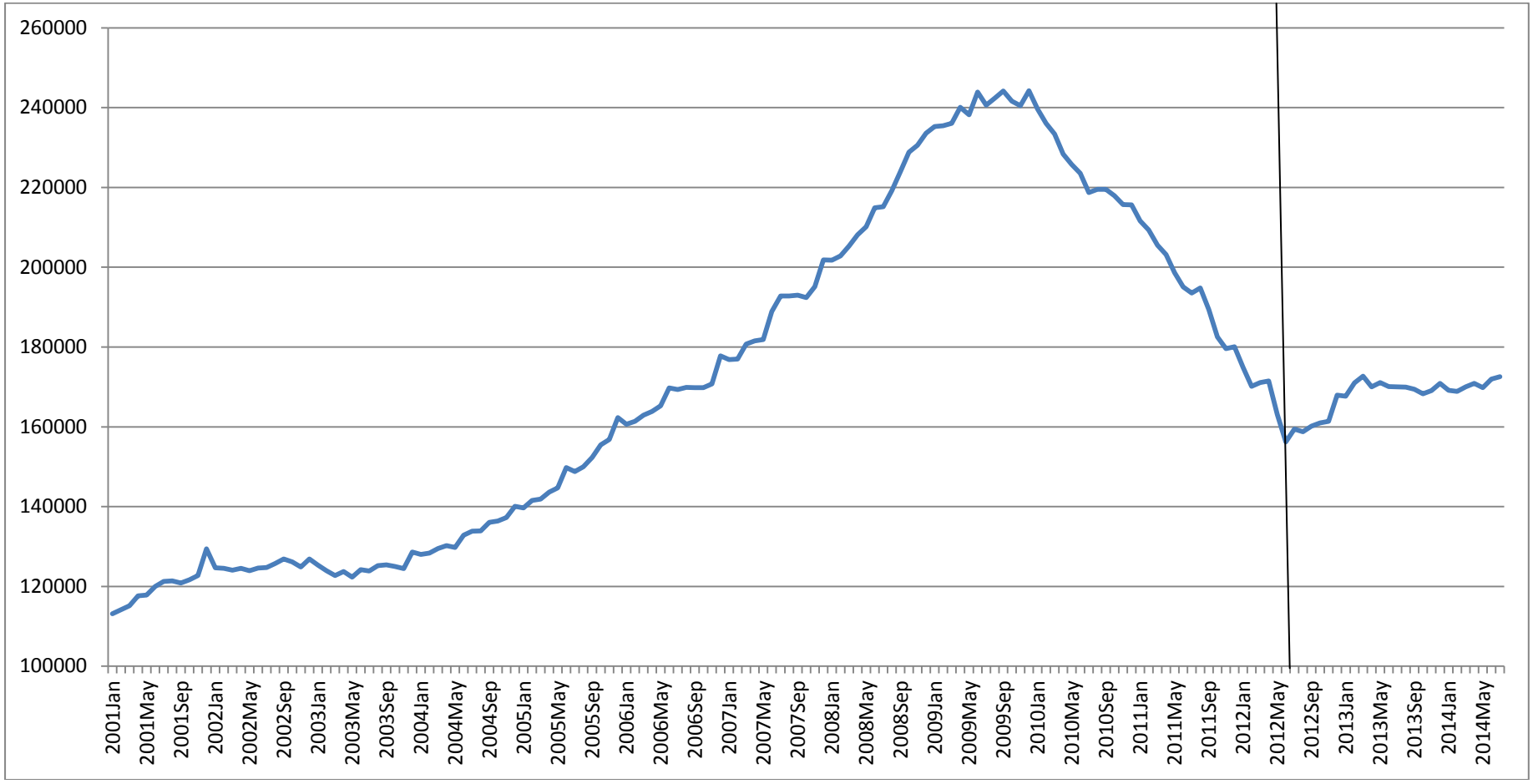
Source: International Monetary Fund, World Economic Outlook (April 2014)

Figure 6: 10-year government bond yield spread against Germany



Source: European Central Bank. The solid vertical line denotes June 2012.

Figure 7: Private-sector Greek bank deposits (in millions of euros)

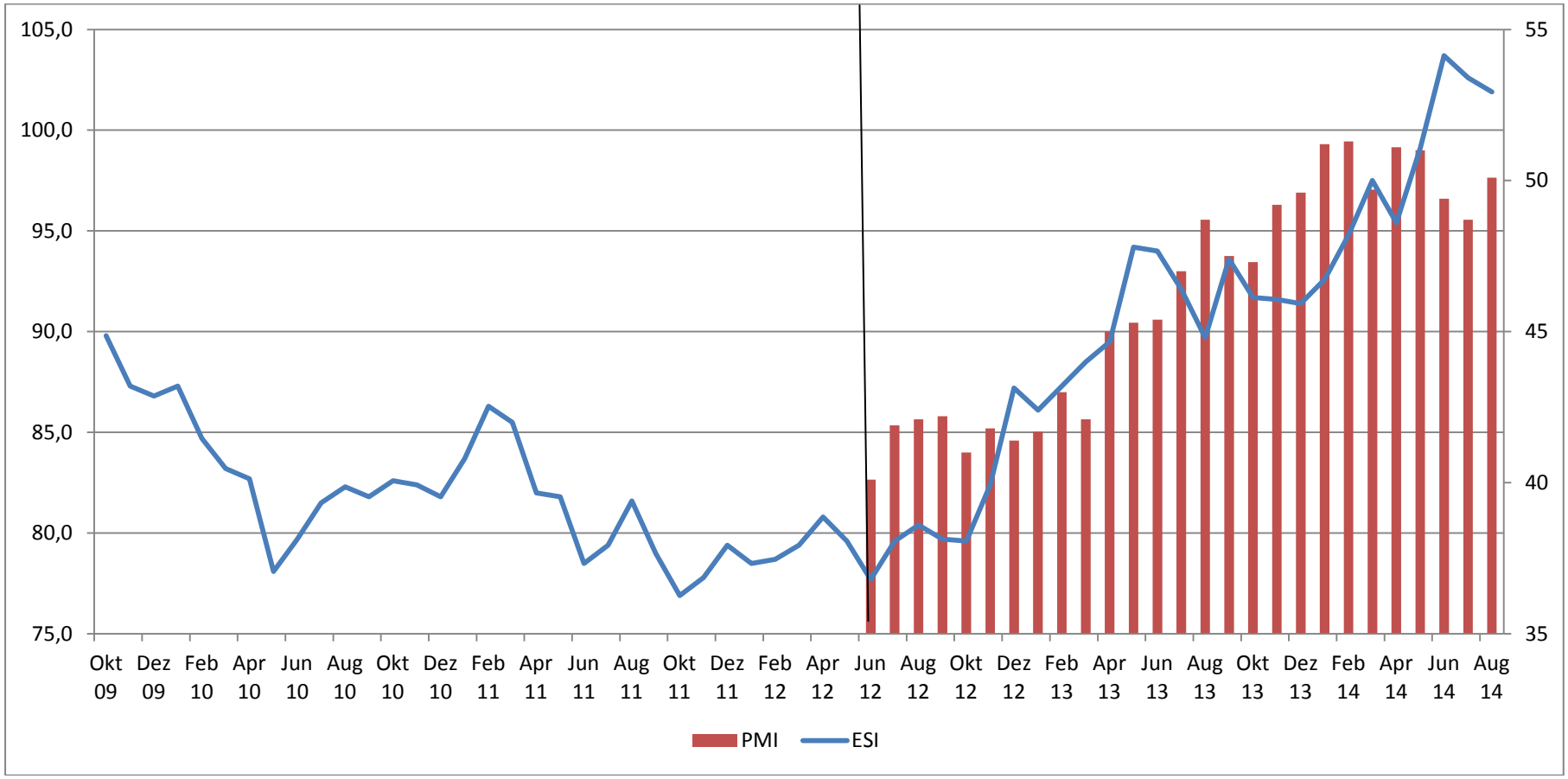


Source: European Central Bank. *Note*: Series' definition: Deposit Liabilities of Monetary Financial Institutions (MFIs) against non-MFIs excluding Central Government. The solid vertical line denotes June 2012.

Figure 8: Athens Stock Exchange Index

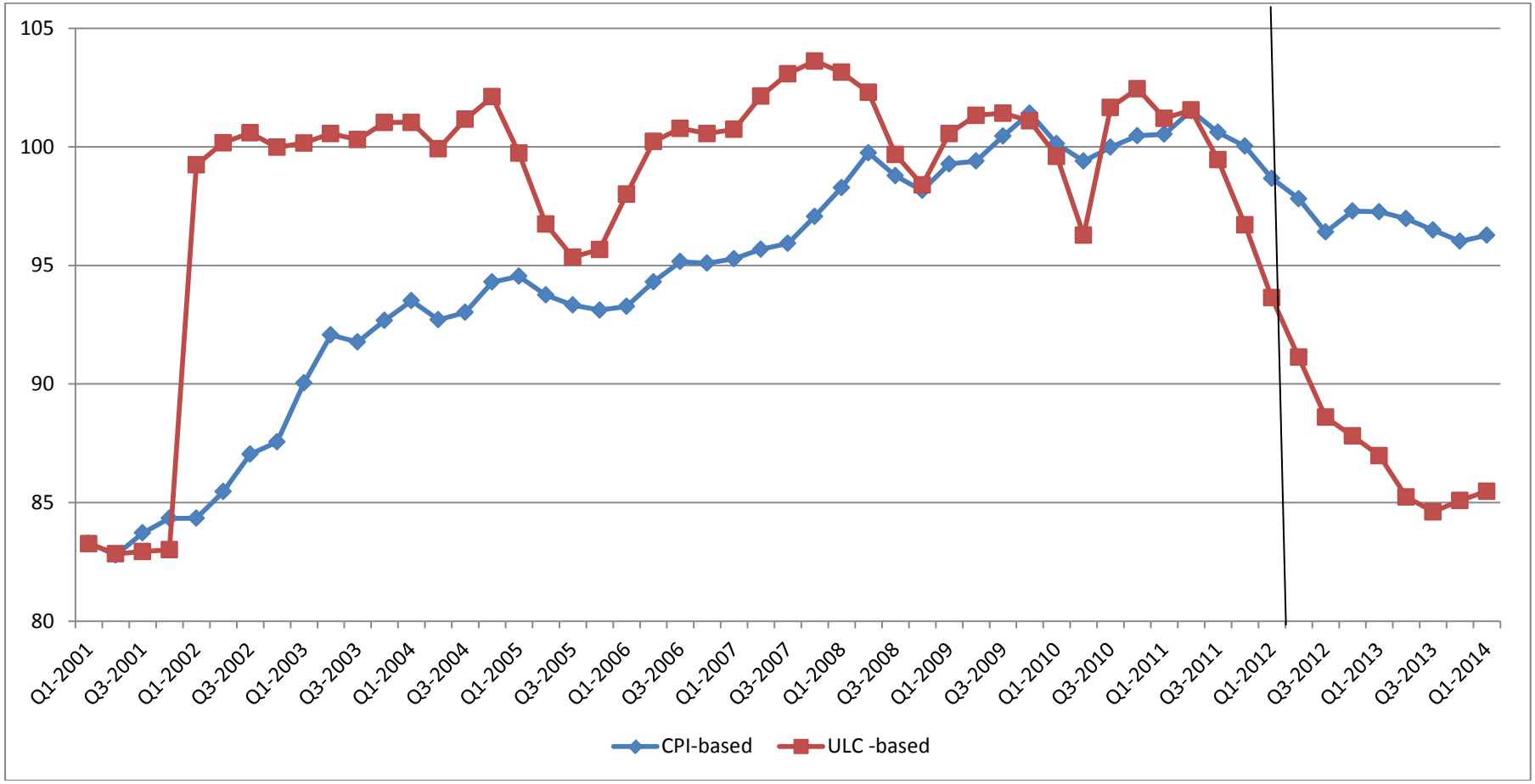
Source: International Monetary Fund, International Financial Statistics. *Note*: The solid vertical line denotes June 2012.

Figure 9: European Commission Economic Sentiment Index (ESI) and Markit manufacturing Purchasing Manager Index (PMI)



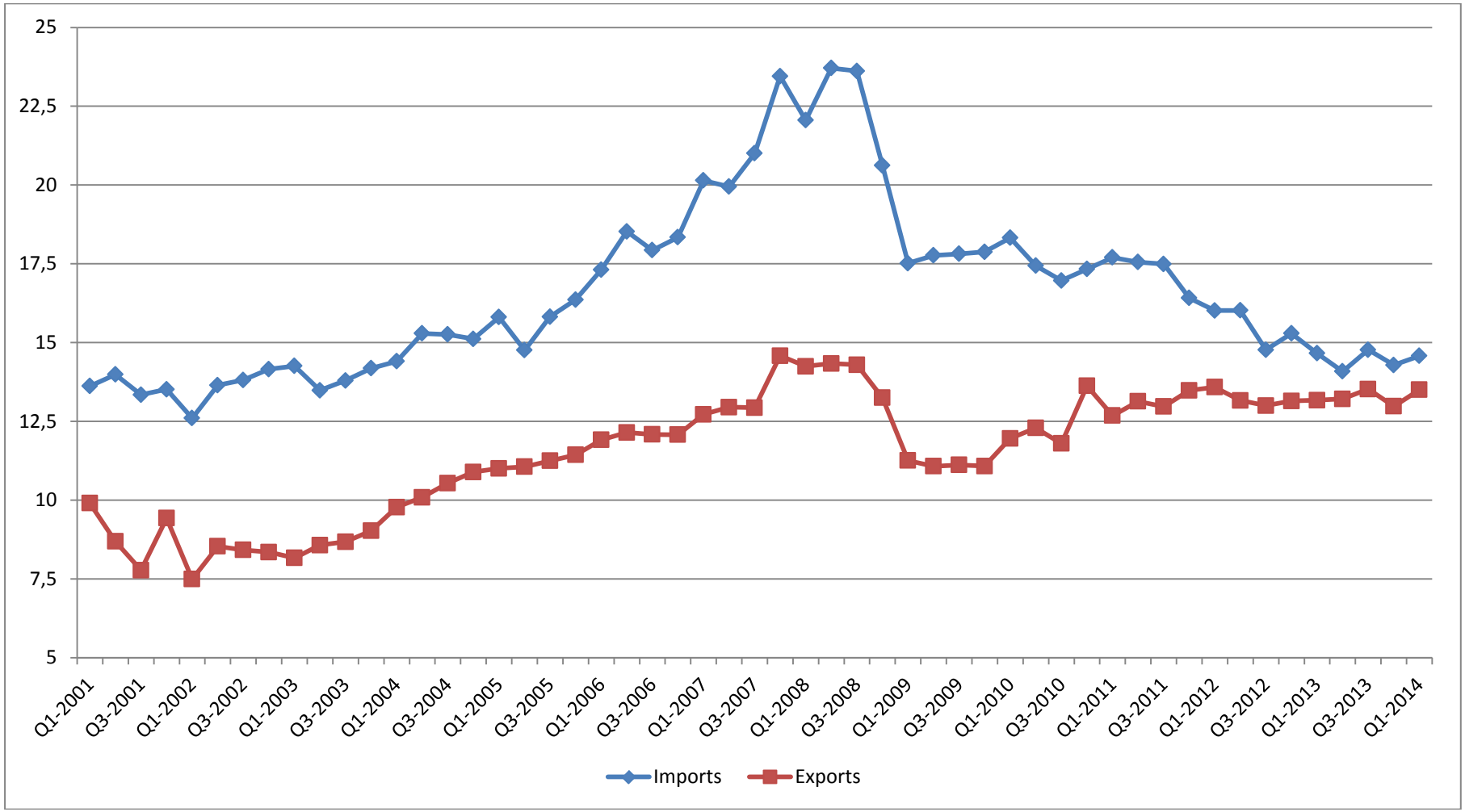
Source: ESI: Eurostat. PMI: Markit Economics Press Releases. *Notes*: ESI measured on left vertical axis. PMI measured on right vertical axis. PMI values lower (higher) than 50 denote expected contraction (growth). The solid vertical line denotes June 2012.

Figure 10: Real Effective Exchange Rates



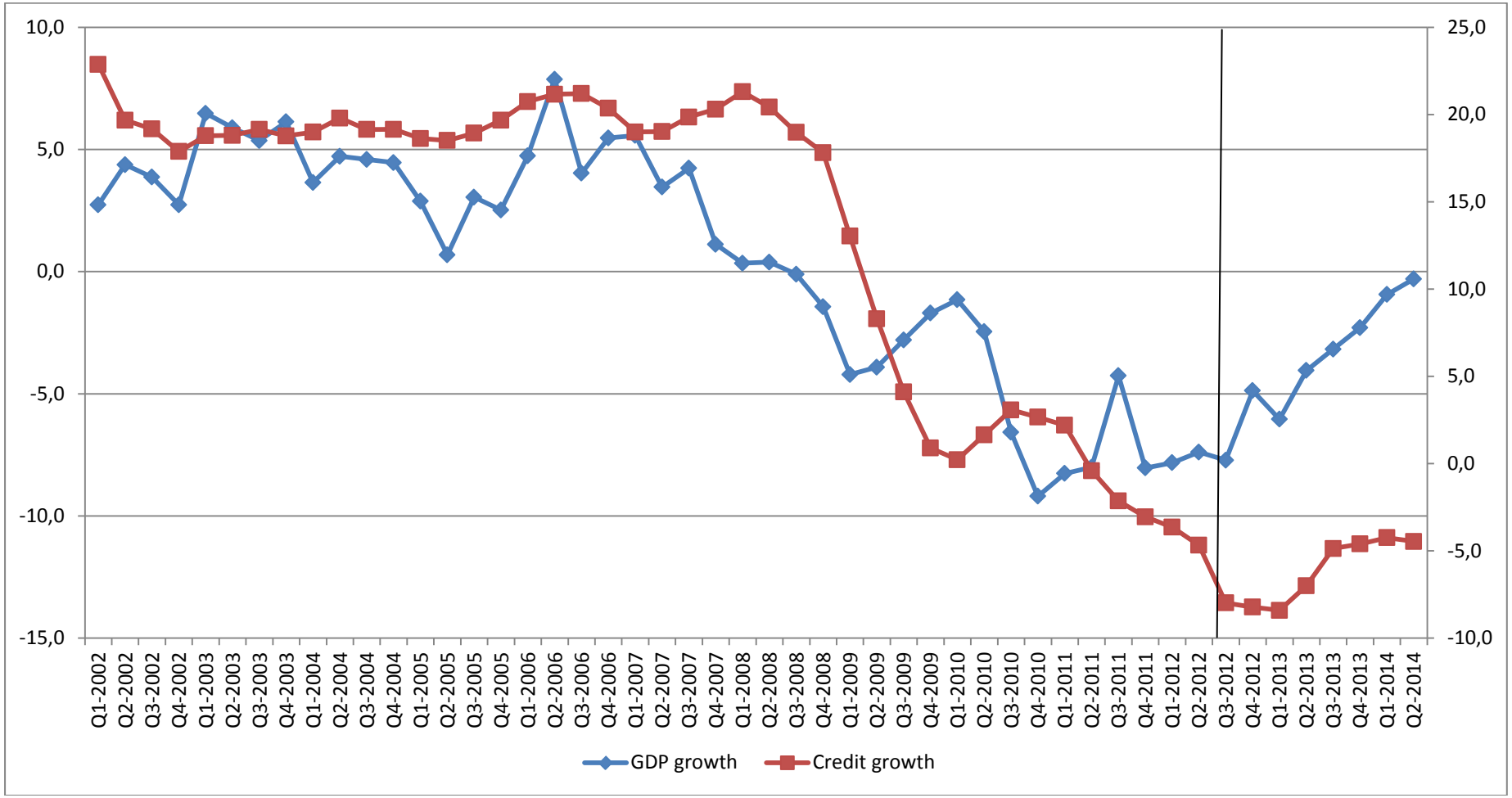
Source: International Monetary Fund, International Financial Statistics. *Note*: The solid vertical line denotes June 2012.

Figure 11: Imports and exports of goods and services (billions of euros)



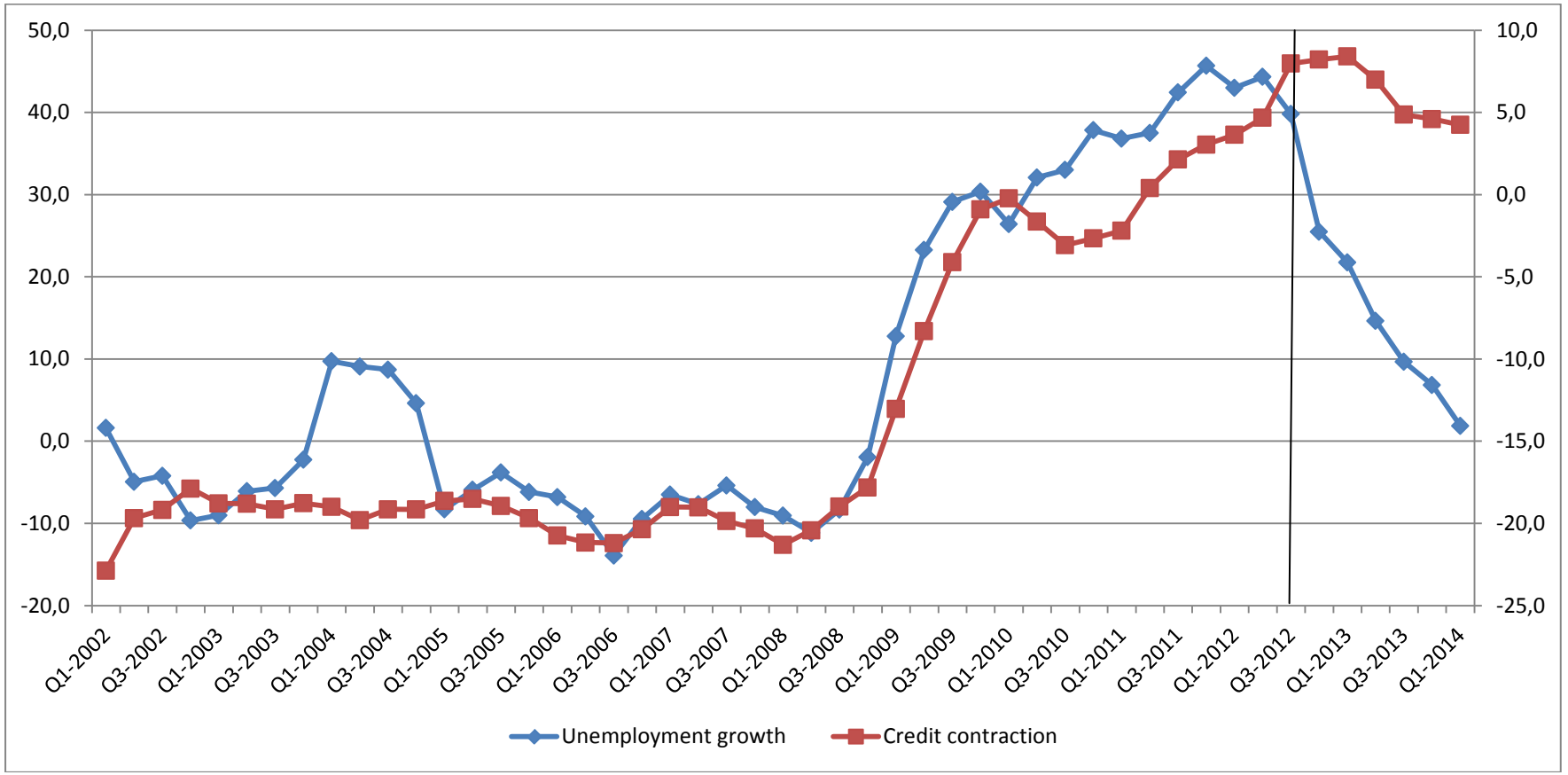
Source: International Monetary Fund, International Financial Statistics.

Figure 12: GDP v credit growth (annual percentage growth rates)



Source: GDP volume: International Monetary Fund, International Financial Statistics. Credit: Bank of Greece. *Notes*: Credit series' definition: Credit to domestic non-MFI residents by domestic MFIs excluding the Bank of Greece. GDP volume growth measured on left vertical axis. Credit growth measured on the right vertical axis. The solid vertical line denotes June 2012.

Figure 13: Unemployment growth v credit contraction



Source: Unemployment rate: International Monetary Fund, International Financial Statistics. Credit: Bank of Greece. *Notes:* Credit series' definition: Credit to domestic non-MFI residents by domestic MFIs excluding the Bank of Greece. Unemployment growth is measured on the left vertical axis. Credit contraction is measured on the right vertical axis. Unemployment growth is the percentage change between the unemployment rate observed each quarter and the unemployment rate of the same quarter in the previous year. Credit contraction is the product of credit growth depicted in Figure 12 times minus one. The solid vertical line denotes June 2012.