Fiscal and monetary policy in crisis

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Statement of originality

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I thank Dr James Juniper for his ongoing advice and encouragement.
Publications

This thesis comprises the following published and submitted research articles.

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Statement of contribution of others

I, Professor Martin John Watts, attest that Research Higher Degree candidate Timothy Paul Sharpe made a significant and original contribution to the joint publications included as part of this thesis.

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Additional publications

The following conference papers have relevance to the thesis but are not explicitly included herein. In most instances, refereed conference papers have been revised and subsequently published.


Watts, M.J. and Sharpe, T.P. (2011) All you need to know about debt dynamics but were afraid to ask, presented at the 10th Australian Society of Heterodox Economists Conference, December, Sydney: Australia.

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Summary

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Background

For many advanced economies, the early post-war period was characterised by full employment, modest inflation and economic prosperity. Under the guidance of the Keynesian model, fiscal and monetary policy was used for economic stabilisation and to achieve low levels of unemployment on a sustained basis.\(^1\)

During this time, newly available macroeconomic data and the development of applied econometric models, largely due to the work of Jan Tinbergen and Lawrence Klein, encouraged empirical analysis. Klein (1947) argued that the micro-foundations of Keynes’s aggregate relationships (e.g. the consumption function) should be established to underpin the large scale macro-models which were under construction. The search for micro-foundations combined with the Hicks-Hansen IS-LM representation of *The General Theory* defined the *neoclassical synthesis* which dominated post-war macroeconomic thought.\(^2\)

Extensive empirical analysis of inflation and unemployment dynamics ensued. In particular, Phillips (1958) observed an inverse relationship between money wage growth and unemployment in the UK, known as the *Phillips curve*.\(^3\) Samuelson and Solow’s (1960) analysis of the Phillips curve as an exploitable trade-off between inflation and unemployment gave it credence for policymaking.\(^4\) During the 1960s it was believed that a stable trade-off existed, so policymakers had a clear set of choices. Unemployment could be reduced via expansionary Keynesian demand-side policy but would likely result in higher inflation. Contractionary fiscal policy was seen as a solution to a supply-side inflation shock since it could move the economy along the Phillips curve. The Keynesian model provided all the necessary levers for economic stabilisation.

Friedman (1948) however was critical of the short-run nature of Keynesian analysis which he argued eschewed the long-run objectives of economic stabilisation policy. Friedman (1948:263) began to outline a ‘stable framework of fiscal and monetary action, [which] largely eliminates the uncertainty and undesirable political implications of discretionary action by governmental authorities’. Here, Friedman was critical of the long and variable lag time associated with fiscal policy in particular but of discretionary

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2. Concerns raised by members of the *Cambridge Circus* (e.g. Kahn, Robinson, Sraffa) about the use of aggregate production functions in the modelling of growth and income distribution were ignored with the development of large-scale, though single-sector IS-LM models.
3. Another important empirical relationship was Okun’s (1962) ‘law’ which reports an inverse relationship between unemployment and output. Ball et al. (2013) suggests that the ‘law’ continues to offer a strong and stable heuristic for most countries.
4. The empirical work of Phillips, which focused on the long-run relationship between unemployment and inflation, was inappropriately interpreted as an expression of a short-run policy trade-off to compensate for the obliteration of Keynes’ own approach to price and wage dynamics. The latter was set out in Keynes’ *Z* and *D* curve analysis in *The General Theory*, but had been obscured by debates over the nature of respective elasticities in the IS-LM model.
policy in general. Friedman’s framework however only promised reasonable full employment and a reasonable degree of stability.

While fiscal policy was generally emphasised over monetary policy by post-war (neo-) Keynesians, Friedman’s (1956) restatement of the classical quantity theory of money challenged Keynesian policy prescriptions and re-asserted the role of money and monetary policy (i.e. Monetarism). While distinct from Fisher’s (1911) earlier transaction version, Friedman argued that controlling the money stock was the most effective means of controlling inflation, and rejected any role for macroeconomic policy in stabilising real variables, such as output and employment in the long-run. Tobin (1972) recalls that Friedman had set out his theoretical framework using the widely accepted Hicks-Hansen IS-LM model. In doing so, debate regarding the role of fiscal and monetary policy was largely reduced to an econometric debate about empirical magnitudes (see Friedman and Schwartz 1963, 1970, 1982).

In the 1970s, global supply shocks, notably the 1973 oil crisis and the 1979 energy crisis, resulted in many economies experiencing stagflation, characterised by high unemployment and high inflation, following contractionary macroeconomic policies designed to reduce inflation. Stagflation was inconsistent with the Phillips curve trade-off which was already under attack by economists, particularly Edmund Phelps and Milton Friedman.

Phelps (1967, 1968) and Friedman’s (1968, 1977) hypothesis distinguished between nominal and real wages, and the short- and long-run outcomes of an unanticipated change in nominal demand. The latter would lead to conflicting perceptions among employers and employees regarding real wage adjustments which would permit a temporary deviation in the unemployment rate from its so called natural rate. Once inflation expectations are fully incorporated, however, the initial employment effects disappear as the unemployment rate returns to its natural rate. Expectations were formed adaptively, a notion which had been revived by Friedman’s (1957) work on the consumption function.

The key implications of the Phelps-Friedman natural rate hypothesis were that unanticipated inflation, not inflation per se matters; there is no permanent or stable trade-off between inflation and unemployment; and, unemployment can be kept below the natural rate only by accelerating inflation or above it only by accelerating deflation (Friedman 1977). Hence, the long-run expectations-augmented Phillips curve was vertical and unemployment would tend towards its natural rate. The latter is consistent with real forces and accurate perceptions. Lowering the natural rate would require policies which increased the competitiveness and flexibility of labour markets, such as reducing the power of trade unions, enhancing labour mobility, and minimum wage reforms. Keynesian demand-side policy could neither temporarily nor permanently reduce the natural rate.

The natural rate of unemployment (NRU) was later replaced by the non-accelerating inflation rate of unemployment (NIRU/NAIRU, see Modigliani and Papademos 1975). Full employment is now largely associated with the unemployment rate consistent with the NAIRU. But, unlike the Beveridge (1944) full employment definition of the early
post-war period, the NAIRU does not imply equality between the number of job
vacancies and the number of unemployed persons.

The anti-Keynesian revolution gained serious momentum following the stagflation
episode. Monetarists had established monetary policy as the dominant instrument for
economic stabilisation. According to Friedman and other Monetarists’, for example,
Allan Meltzer and Karl Brunner, the conduct of monetary policy should be guided by
simple, fixed rules. Targeting (narrow) monetary aggregates was recommended by
Monetarists who were critical of targeting market interest rates as suggested by the

Friedman’s views had been gaining traction among policymakers since, at least, the late
1960s (see, for example, Francis 1968). The US Federal Reserve, under the guidance of
Paul Volcker, implemented Monetarist theory in 1979 by targeting the growth in the
money supply. The apparent correlations between the money stock and inflation
however disappeared due to financial innovation and deregulation. The experiment was
subsequently abandoned in 1982.

The theoretical foundations of Keynesian macroeconomics were also under attack by
the New Classical economics of Lucas, Sargent and Wallace. Drawing on Muth’s
(1961) rational expectations, Lucas (1976) argued that aggregate relationships would
change with each policy initiative given adjustments to the decision problems of
individual agents (i.e. the Lucas critique; see also Goodhart 1975). The Lucas critique
had a profound effect on the direction of modern (mainstream) macroeconomics. In
particular, the simulation of policy outcomes using large-scale macro-models was called
into question; it encouraged the development of small formal macroeconomic models
(e.g. the ‘econometrics without theory’ approach of Sims 1980); and, it strengthened the
view that micro-foundations (e.g. tastes, technology) and forward-looking expectations
were essential to dynamic economic modelling.

Meanwhile, policymakers became increasingly concerned with the rising budget deficits
which followed the supply shocks. Academic debate largely echoed the political shift
towards deficit and debt reduction or fiscal discipline. The efficacy and sustainability of
government net spending came under intense scrutiny.

For Monetarists, restraint in government spending was considered important to avoid
the need for central banks to finance the deficits and, in doing so, generate excessive
money growth which would threaten price stability. Notwithstanding this, restraint in

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5 Monetarist views were particularly influential to the Carter and Reagan administrations in the US, and
Thatcher’s conservative economic agenda in the UK.
6 While the Monetarist experiment failed, the theory offered the blueprints for modern day central
banking. In particular, the argument that monetary policy can only target nominal quantities was the
foundation to inflation-targeting, which first began in New Zealand in the late 1980s and is now widely
practiced by central banks within advanced economies. In addition, the Monetarist argument that central
banks should be independent and guided by transparent rules remains pervasive. The notion of central
bank independence was reinforced by Kydland and Prescott’s work on time-inconsistency.
7 Keynes’ Z and D curve analysis was compatible with rational expectations regarding the short-run
proceeds from the sale of output. However, Keynes questioned the applicability of rational expectations
to long-run returns on financial and non-financial investments given fundamental uncertainty.

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government spending had been necessary due to government commitments to the Bretton Woods exchange rate system (1944-1971).

While balanced budgets over the cycle were considered broadly appropriate, the government budget constraint, an accounting identity, was interpreted as set of ex ante financing choices for government net spending (see Patinkin 1956; Christ 1968). That is, government could raise taxes, borrow or issue high-powered money (‘print money’). Monetarism had already warned against the latter, and the other financing options for government generated a revival of crowding-out theory and Ricardian equivalence.

Crowding-out could take various forms, yet Blinder and Solow (1972:3) asserted that financial crowding-out was ‘disputed by almost no one’. Drawing on classical loanable funds theory, it was argued that government debt would compete with private debt in financial markets, put upward pressure on interest rates and therefore reduce interest-sensitive private expenditures.

Barro’s (1974, 1989) Ricardian equivalence maintained that under a certain set of (restrictive) assumptions an increase in government spending would be offset by an increase in current private savings as the private sector anticipated higher future taxes. Thus national savings, real interest rates, investment, and the current account balance would remain unchanged. This was a special case of Modigliani and Brumberg (1954) and Friedman’s (1957) earlier work on the life-cycle theory/permanent income hypothesis.

The long-term consequences of budget deficits or fiscal sustainability was analysed in terms of the debt dynamics, which had already been presented by Domar (1944). While there was (is) no operational definition of fiscal sustainability, numerous econometric investigations of the so called present value budget constraint were developed to assess the sustainability of fiscal balances (see Hamilton and Flavin 1986; Trehan and Walsh 1988, 1991; Hakkio and Rush 1991). Most investigations focused on the US with mixed evidence in favour of fiscal sustainability. The policy implications however were limited since the estimates relied on historical data.

Instead, policymakers required forward-looking measures which motivated the development of fiscal indicators, such as primary gap, tax gap and net worth indicators. These methods, largely due to the work of Buiter (1985, 1995), Blanchard (1990) and Buiter et al. (1993), underpin the European Commission’s S1 and S2 fiscal indicators currently used to assess fiscal sustainability.

The 1981 tax cuts of the Reagan administration characterised the shift in political and economic opinion regarding fiscal policy. Drawing on the so called Laffer curve and emerging supply-side economics, the tax cuts were an attempt to increase tax revenue. The budget deficit, however, increased which precipitated the Gramm-Rudman-Hollings Deficit Reduction Act (1985) to formally constrain government spending.

By the end of the 1980s, inflation, high interest rates, and currency and debt crisis were all (theoretically) tied to ‘excessive’ budget deficits (see Fischer 1989). The mainstream
political and economic discourse was now firmly geared to budget restraint or *sound finance*, which did not necessarily imply balanced budgets over the cycle.

At this time, Williamson (1990) outlined the prevailing development model of the IMF, World Bank and US Treasury, known as the *Washington Consensus*. While the term ‘neo-liberal’ had already infiltrated economic and social policy dialogue, there was no operational definition. The Consensus became synonymous with the neo-liberal policy orientation which emphasised market-based reform such as trade liberalisation, financialisation, deregulation, and privatisation and restrained fiscal policy.

High and persistent unemployment among OECD members during the late 1980s and early 1990s motivated the OECD *Jobs Study* (1994) and subsequent *Jobs Strategy* (1995). Influenced by the McCracken Report (1977) and the analytical framework set out by Layard et al. (1991), the labour market outcomes were attributed to an inability to adapt to economic and social changes in view of market deregulation, and rapid globalisation and technological change. Unemployment was interpreted as an individual problem arising from supply-side deficiencies such as insufficient skills, training and education, poor attitudes, and rigid labour markets. The IMF embraced this policy orientation (see, for example, IMF 1999).

The introduction of the Euro as legal currency in 1999 marked *Stage Three* of the European Monetary Union (EMU) formation set out in the *Delors Report* (1989). The Report which followed the *Hannover Summit* (1988) recommended that monetary policy be conducted by a new independent institution (European Central Bank) charged with the primary task of maintaining price stability; the European Currency Unit should become the single currency in Europe (later called the ‘Euro’); and, budgetary discipline was necessary among member states to strengthen economic convergence. The notion of ‘sound’ budgetary positions was formalised as specific government deficit and debt rules within the so called *Maastricht criteria*, and monitored and enforced by the *Stability and Growth Pact* which incorporated financial penalties for non-compliant members.

The 1990s through to the early 2000s were characterised by relatively less volatile economic times, the so called *Great Moderation*. The apparent economic stability was largely attributed to monetary policy geared to low inflation, passive fiscal policy, and deregulated labour and financial markets.

New Consensus Macroeconomics (NCM) dominated mainstream macroeconomic research. NCM models, such as dynamic stochastic general equilibrium (DSGE) models...
had been developed in response to the Lucas critique (see Woodford 2003). Drawing on the contributions of real business cycle theory (see Kydland and Prescott 1982) and New Keynesian principles (see Mankiw and Romer 1991), the models were driven by individual agents exhibiting optimising behaviour in the presence of market failures, such as incomplete markets, imperfect competition and asymmetric information. While monetary policy geared to price stability could ostensibly stabilise output and employment in NCM models (see Blanchard and Galí 2007), there was no distinct role for fiscal policy in economic stabilisation (see Fontana 2009).

Krugman (2001, quoted in Nevile and Kriesler 2001:1) asserted that ‘[a]lmost all economists agree that monetary policy, not fiscal policy, is the tool of choice for fighting recessions.’ Lucas (2003:1) declared that the business cycle had been solved, and that ‘the potential for welfare gains from better long-run, supply side policies exceeds by far the potential from further improvements in short-run demand management’ [emphasis in original]. Instead, government budgets were likened to that of a household which reinforced fiscal restraint. Buiter (2004:4) is clear:

‘The definition of (in)solvency of the state is, in principle, no different from that of the (in)solvency of any other economic agent ... The capacity to tax and to issue legal tender makes the state an unusual borrower, but below the surface, it is subject to the same pains and joys of borrowing experienced by private sector borrowers.’

Despite the apparent success of New Consensus Macroeconomics, the pre-GFC period was characterised by rapid private debt accumulation and real wage repression particularly in the USA which, according to the earlier work of Minsky (1975, 1986), precipitates financial instability. Households became increasingly reliant on tentative lines of credit as underwriting standards were largely eliminated under the so called originate-to-distribute model of modern banking (Wray 2008, 2010). Speculative ‘bubbles’ however were invisible to the NCM models which had been informed by the efficient market hypothesis.9

The Global Financial Crisis (GFC) largely emerged from the subprime mortgage crisis and subsequent liquidity crisis in the USA, following the housing market collapse. As lenders became increasingly risk adverse and tightened underwriting standards, the US short-term debt market practically disappeared (Wray 2010). A chain of events ensued, which in 2008 culminated in the US government takeover of Fannie Mae and Freddie Mac, the sale of Merrill Lynch, the collapse of Lehman Brothers and the bailout of AIG by the US Federal Reserve. However the financial crisis quickly became a real economic crisis, as consumer and business confidence diminished and the private sector began to net save to reduce burgeoning debt levels. The Great Recession enveloped the global economy.

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9 Macroeconomists have, for some time, acknowledged the possibility of speculative bubbles, that is, where asset prices deviate from their intrinsic values. While there are numerous theories of asset price deviations, such as rational growing bubbles, fads and information bubbles, there is no basis for determining when they might ‘burst’.
Low interest rate conditions, particularly in the Eurozone, and unscrupulous lending activities of poorly regulated financial institutions, particularly in the USA, ostensibly caused the GFC. A flawed theoretical framework however would severely compromise policymakers’ response to the crisis.
Abstract

The Global Financial Crisis and ongoing Eurozone crisis have posed a growing challenge to the implementation of mainstream macroeconomic stabilisation policies. This thesis develops an integrated and coherent theoretical and empirical framework for understanding the constraints on the post-crisis conduct of fiscal and monetary policy among Eurozone and advanced non-Eurozone economies. It is presented as a series of published and submitted research articles which are informed by the principles of Modern Monetary Theory.

The central contribution of the thesis is to highlight the policy freedoms of economies which enjoy full fiscal-monetary policy sovereignty. The implications are, first, government within sovereign economies are not adequately exploiting their inherent financial capacity to implement a full employment policy and advance the public purpose. Second, economies which do not enjoy policy sovereignty, such as Eurozone members, face a unique set of institutional constraints which have undermined not only policymakers’ attempts to address the deepening crisis, but the achievement of sustained full employment. The thesis is highly critical of these institutional arrangements and recommends that policy sovereignty is restored since it promotes flexibility in the design and implementation of fiscal and monetary policy, and eliminates the financial constraints vis-à-vis implementing a full employment policy, such as a Job Guarantee.
Overview

The Global Financial Crisis and ongoing Eurozone crisis have posed a growing challenge to the implementation of mainstream macroeconomic stabilisation policies.

With the displacement of active fiscal policy during the neo-classical counterrevolution of the 1970s, a policy preference for monetary stimulus was maintained despite many central banks lowering policy rates to (effectively) the zero nominal bound early in the crisis.

Temporary fiscal stimulus measures were then adopted, in part, due the limited capacity for further monetary stimulus as policymakers within advanced economies struggled to prevent a lasting recession. The use of fiscal measures for economic stabilisation however was guided by the medium-term pursuit of fiscal sustainability, which had underpinned a preference for sound rather than functional fiscal management.

Rising government deficit and debt to GDP ratios, largely due to the workings of automatic budget stabilisers, heightened the urgency of consolidation programs geared to fiscal sustainability. Fear of rising long-term interest rates and low economic growth via financial crowding-out effects and so called public debt threshold limits reinforced the policy directive.

Meanwhile, the largely reactive policy advice from major Inter-Governmental Organisations (e.g. IMF, OECD) made some important concessions but continued, for the most part, to espouse the neo-liberal model which had precipitated the crisis. The policy advice however has been severely compromised by the failure of these organisations to differentiate between those countries that can conduct independent fiscal and monetary policy, and those subject to institutional policy constraints, notably the Eurozone countries.

Amid the unfolding post-crisis events, this thesis develops an integrated and coherent theoretical and empirical framework for understanding the constraints on the conduct of fiscal and monetary policy among Eurozone and advanced non-Eurozone economies. It is presented as a series of published and submitted research articles which are informed by the principles of Modern Monetary Theory.

While the individual articles make a unique contribution to the extant literature (identified therein), the central contribution of the thesis is to highlight the policy freedoms of economies which enjoy full fiscal-monetary policy sovereignty. That is, where the consolidated government sector (Treasury and Central Bank) issues a fiat, non-convertible currency and operates with a flexible exchange rate (e.g. Australia, US, UK and Japan). A flexible exchange regime allows for discretion regarding foreign exchange interventions (i.e. monetary independence).

The implication is that government has a central policymaking role which no market-based rhetoric should undermine. Specifically, sovereign economies are not adequately exploiting their inherent financial capacity to implement a full employment policy and advance the public purpose. Economies which do not enjoy policy sovereignty, such as
Eurozone members, face a unique set of institutional constraints which have undermined not only policymakers’ attempts to address the deepening crisis, but also the achievement of sustained full employment. The thesis is highly critical of these institutional arrangements and recommends that policy sovereignty is restored since it promotes flexibility in the design and implementation of fiscal and monetary policy, and eliminates any financial constraints vis-à-vis implementing a full employment policy, such as a Job Guarantee.

The articles have been arranged into chapters and are presented chronologically to demonstrate a coherent progression of thought.

Chapter 1 critically assesses the evolution of policy advice from major Inter-Governmental Organisations during the crisis from a broad consensus about the need for modest fiscal stimulus measures in selected countries, to a general agreement that virtually all OECD countries must now adopt medium-term fiscal consolidation strategies in the pursuit of long-term fiscal sustainability.

Chapter 2 revisits the algebra of debt and deficit dynamics which underpins fiscal sustainability. The chapter is critical of the standard interpretation that neither the interest rate nor the growth rate is assumed to be affected by budgetary policy, per se. Given these ‘immutable laws’, debate has been confined to the timing of fiscal austerity measures, rather than their appropriateness for all countries, whether sovereign or operating within a monetary union.

Chapter 3 provides a theoretical and empirical investigation of the relationship between government deficit and debt ratios, interest rates and economic growth. It is presented in two parts. Part (a) investigates financial crowding-out which was claimed to reinforce the urgency for fiscal austerity measures among all advanced economies. An empirical approach is developed to examine financial crowding-out among advanced sovereign and non-sovereign (Eurozone) economies. Part (b) examines potential public debt threshold limits among Eurozone economies. In particular, a transmission mechanism linking high public debt ratios and low economic growth is unpacked.

Notwithstanding the so called expansionary fiscal contractions hypothesis, it was recommended that monetary easing accompany fiscal austerity to soften any contractionary effects. Yet conventional monetary policy channels became quickly exhausted as central banks reduced policy rates to (effectively) the zero nominal bound. Central bankers were charged with stimulating the economy which involved so called unconventional monetary measures such as quantitative easing and its variants.

Chapter 4 explores the origins of quantitative easing, its underlying objectives, how it has been implemented, and the ostensible theoretical and empirical arguments for its use. An evaluation of the available evidence and the policies of the Bank of England is undertaken to assess whether quantitative easing has fulfilled its stated objective(s).

With the Eurozone framework considered to be incompatible with policy sovereignty, Chapter 5 assesses the future of the European Monetary Union. It is presented in two parts. Part (a) critically assesses recent and proposed policy reforms within the
Eurozone. These are considered to be piecemeal and fail to restore policy sovereignty, which ultimately requires that member countries exit the Eurozone. Key issues associated with the latter are briefly discussed. Part (b) acknowledges that the modest policy proposals have been guided by what is feasible within the political and economic constraints of the Eurozone. Here a Job Guarantee is examined as a policy option for periphery Eurozone economies, specifically Spain, faced with high rates of joblessness and deteriorating debt dynamics.

The final chapter, Chapter 6, defends the critical stance of the thesis which is informed by the principles of Modern Monetary Theory (MMT). Reflecting upon its proximity with post-Keynesian theory, and its contributions and critics, it is argued that the incorporation of MMT principles enhances the post-Keynesian framework, principally with respect to understanding the distinction between sovereign and non-sovereign economies, the role of the payments system and the implications for the conduct of macroeconomic policy. The merits of a Job Guarantee (or Employer of Last Resort) as a desirable full employment policy is also critically assessed.
The boom, not the slump, is the right time for austerity at the Treasury.

J.M. Keynes 1937
Policy advice in crisis

Following the severe impact of the Global Financial Crisis on output and unemployment in most developed economies since 2008, policymakers have been subjected to a continuous flow of macroeconomic and labour market policy advice from major Inter-Governmental Organisations, including the OECD, IMF, World Bank and the European Union. The objective of this paper is to critically assess the evolution of this policy advice from a broad consensus about the need for modest fiscal stimulus measures in selected countries, to a general agreement that virtually all OECD countries must now adopt medium-term fiscal consolidation strategies in the pursuit of long-term fiscal sustainability. It is concluded that the policy advice is severely compromised by the failure of these organisations to differentiate between those countries that can conduct independent fiscal and monetary policy, and those subject to voluntary policy constraints, notably the Eurozone countries.
1.1 Introduction

Since the 1970s, key Inter-Governmental Organisations (IGOs), notably the International Monetary Fund (IMF) and the Organisation for Economic Cooperation and Development (OECD), have subscribed to neo-liberal orthodoxy. This was evident, for example, in the labour market and macroeconomic policy prescriptions of the OECD Jobs Study (1994) and the IMF’s imposition of structural adjustment policies during the Asian Financial Crisis (Feldstein 1998).

Has the Global Financial Crisis (GFC) made a fundamental difference to the policy advice of these IGOs? The GFC heralded the worst recession since the Great Depression (IMF 2009) and continues to pose a major challenge to policymaking. Most developed economies have been adversely affected through sustained below-trend or even negative growth accompanied by rising unemployment. Budget deficits have grown significantly mainly due to the operation of automatic stabilisers, but also marginally as a consequence of modest fiscal stimulus measures in countries, including Australia, the USA, Japan, Korea and China and also Eurozone members, including Spain and Luxembourg.

Since the advent of the crisis there has been a flood of policy documents, from the OECD, IMF, World Bank and also the European Union (EU), concerning the conduct of macroeconomic and labour market policy. By 2009, these institutions had all acknowledged that short-term fiscal stimulus measures were appropriate in some countries, albeit with some qualifications, but sound public finance was advocated through the medium-term pursuit of fiscal consolidation (ECB 2009; Freedman et al. 2009; OECD 2009a, 2009b, 2009c, 2010a, 2010b; IMF 2010a, 2010b, 2010c; World Bank 2011). In addition, the IMF has been actively involved with the EU in the provision of bailout funds to Eurozone countries, including Greece, Ireland and Portugal.

\(^{10}\) We define these concepts more formally in Section 1.3.
In this article we provide a synthesis of these policy documents which serves as a basis for addressing two questions: (1) to what extent have these IGOs departed from neo-liberal principles in constructing their policy advice during the GFC? (2) Irrespective of the answer to the first question, is their policy advice based on a coherent theoretical framework? Our answer to (2) will be informed by the principles of Modern Monetary Theory.

Notwithstanding a brief period in 2008-2009 when fiscal stimulus measures were advocated for some advanced economies, we argue, first, that the IGOs, in particular the OECD and IMF, have adhered closely to neo-liberal principles by advocating fiscal consolidation measures, albeit with some qualifications in 2011 in the light of poor growth projections for Eurozone and some advanced economies, including the UK and USA. These IGOs also continue to advocate structural reforms of labour markets, despite these policies, which were articulated in the OECD Job Study (1994), being largely discredited.

Second, our analysis indicates that there are serious flaws in the policy advice of these IGOs, which in part reflect their collective failure to differentiate in their policy documents between Eurozone countries and those (sovereign) countries which operate with their own fiat currency and flexible exchange rates, and face no *ex ante* fiscal budget constraint. Eurozone countries are subject to fiscal budget constraints through the Stability and Growth Pact (SGP) (which will be strengthened under the new EU Treaty forged in late 2011) and are required to borrow Euros to fund their deficits. Since the advent of the GFC, the operation of automatic stabilisers has undermined these budget rules, forcing many Eurozone economies to adopt pro-cyclical fiscal policy, which is an extreme form of neo-liberal economic policy. Also, member countries have limited capacity to influence monetary policy and, for small countries, in particular, the nominal exchange rate is insensitive to their economic circumstances.

Notwithstanding the seriousness of the GFC with respect to the long-term welfare of citizens of developed and developing economies, the conduct of fiscal policy and, in particular, the imperative for fiscal consolidation is viewed as an accounting exercise by
these international organisations, rather than being guided by clearly defined principles of public purpose (Mitchell 2010a).11

The IGOs’ policy framework has been largely unchallenged by the international academic literature, although Stiglitz advocated further fiscal stimulus, and warned of the risk of austerity measures producing a ‘Japanese-style malaise’ (CEDA 2010).

This article is organised as follows. The next section provides background on the policy frameworks of the IMF and OECD prior to the crisis and their relationship to neoliberalism. Details of the IGOs’ policy responses to the ongoing GFC are then presented. Next the principles of Modern Monetary Theory are utilised to critique the collective failure of the IGOs in their policy advice to distinguish between sovereign and non-sovereign governments. We then summarise the main arguments of the article and offer some concluding remarks.

1.2 Background

The International Monetary Fund (1944) was one of many international institutions established immediately after World War 2. A consensus had emerged that an international clearing union should be established to support the development of the post-war global economy. Since countries were moving away from the gold standard, the main objectives for Keynes and White, the key drafters of the IMF documentation, ‘was to engender postwar economic growth by establishing an institution that would prevent a relapse into autarky and protectionism, not just to avoid a recurrence of the depression’ (Boughton 2004:5). The IMF (2010e) views its current mission as assisting in the achievement of stability in the international economic system by ‘keeping track of the global economy and the economies of member countries; lending to countries with balance of payments difficulties; and giving practical help to members.’ However, the

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11 This terminology was originally used by J.K. Galbraith, but more recently has been used by Mitchell to refer to pursuit of full employment. Mitchell (2009a:11) outlines the broad charter for advancing public purpose, which includes, ‘full employment and price stability, poverty alleviation and environmental sustainability...’ Here, full employment is defined as 2 percent unemployment, no hidden unemployment, and no underemployment (see also Mitchell and Muysken 2008).
IMF’s structural adjustment loans are usually accompanied by harsh policy constraints on recipient countries, which emphasise export-led growth, privatisation and deregulation (Mitchell 2011a), thereby promoting the neo-liberal globalisation agenda.

The Organisation for European Economic Co-operation (OEEC) emerged because the US and Canada were prepared to contribute to the Marshall Plan for the reconstruction of post-war Europe but wanted European countries to take responsibility for its implementation (Bainbridge 2000; OECD 2011a). The OECD superseded the OEEC in September 1961, and now has 34 member countries (OECD 2011a). The original aims were ‘to promote policies to secure the highest sustainable economic growth and employment, and thereby a rising standard of living, in member countries; to contribute to the expansion of world trade on a multilateral, non-discriminatory basis; to promote social and economic welfare in the OECD area by coordinating member countries’ policies’ (Bainbridge 2000). Both organisations initially espoused Keynesian economics.

Following the inflation breakout initiated by the oil price shocks of the early 1970s and the subsequent stagflation and accumulation crisis, the OECD commissioned the McCracken Report. McCracken (1977) argued that demand management should be used to fight supply-side inflation, despite its origins, and also that government regulation be reduced via supply-side reforms. The Report contributed to the OECD’s shift towards more market oriented policies which followed the policy shift already under way in macroeconomics, led by Milton Friedman and Ed Phelps. The IMF’s policy orientation was profoundly affected by Friedman’s seminal work on floating exchange rates and Monetarism.

Neo-liberal policies are designed to facilitate the unfettered operation of the market, based on the belief that a private sector dominated economy is the most efficient. State intervention must be minimised since ‘the state cannot possibly possess enough information to second-guess market signals [relative price movements] and because powerful interests will inevitably distort and bias state interventions (particularly in democracies) for their own benefit’ (Harvey 2007:23). By broadening the private
market sphere, neo-liberalism has reconfigured the political, economic and social fabric of modern economies.

Neo-liberalism was conceived as a means of restoring class power to the top end of the income distribution (Duménil and Lévy 2001). The share of national income accruing to the richest was declining and under increased (political) threat with socialist and communist parties gaining widespread support in the post-war period until the 1970s (see Harvey 2007). The oil shock and subsequent stagflation throughout the 1970s led to a crisis of capital accumulation.

The principles of neo-liberalism had materialised in Chile following the military coup in 1973. The Chilean ‘experiment’ orchestrated by ‘the Chicago boys’, a group of economists heavily influenced by Friedman’s Monetarist views, advocated privatisation, and the exploitation of natural resources, while promoting inward foreign direct investment (FDI), free trade and export-led growth (Harvey 2007). These polices informed the decision making of the Thatcher and Reagan administrations and underpinned the subsequent Washington Consensus.

Williamson (1990) outlined ten policy instruments, known as the Washington Consensus, which represented a synthesis of the prevailing policy recommendations of the IMF, World Bank and the US Treasury. Fiscal discipline was included, since sustained fiscal deficits were viewed as an important source of inflation, balance of payments deficits and capital flight. Williamson (1990) suggested that the ‘standard economic objectives of growth, low inflation, a viable balance of payments, and an equitable income distribution’ should motivate the design of these policies. Their implementation has been shaped by IGOs but their economic advice often takes the form of broad principles rather than being contextualized (Watts 2010).

The role of the OECD in the design and dissemination of labour market and macroeconomic policy gained momentum after member states commissioned the Jobs Study to explain their persistently high unemployment in the early 1990s. The reforms canvassed in the report were based on the imperative to remove the institutional fetters
allegedly inhibiting the operation of markets, in particular labour markets (LaJeunesse et al. 2006). Unemployment was seen as mainly structural, so it was considered to be in part an individual problem, arising from a skills mismatch, but the Jobs Study also signalled the need for supply-side reform. Recommended reform measures included greater wage price flexibility; reform of employment security provisions; introduction of active labour market policies; and reform of unemployment and related benefit systems and their interaction with the tax system (OECD 1994). The imperatives of sound public finance and price stability were reasserted with no suggestion that there had been a systemic failure of macroeconomic policy:

‘Macroeconomic policy has two roles in reducing unemployment: over the short term it limits cyclical fluctuations in output and employment; and over the longer term it should provide a framework, based on sound public finances and price stability, to ensure that the growth of output and employment is sustainable, inter alia through adequate levels of savings and investment’ [emphasis added] (OECD 1994:3b).

The IMF also ‘gradually abandoned the view that persistently high unemployment was due to weak demand and increasingly focused on rigid labor markets and other supply side issues as the source of the problem’ (Boughton 2004:17).

Prior to the GFC, the IMF had expressed concern about the conduct of fiscal policy due to long lead-lag times, general operational constraints, and its link with the political process. Thus, monetary policy ostensibly geared to the achievement of low and stable inflation was favoured by policymakers. The inflation objective tended to override concerns about the level of economic activity, per se, because low inflation was regarded as the most effective means for reducing the output gap (Blanchard et al. 2010). This key role for monetary policy, along with concerns over the efficacy of fiscal policy which was expressed by other variants of mainstream theory (see Barro 1979), led to the latter’s marginalisation within the IMF’s policy agenda. Furthermore, financial regulation was considered a microeconomic intervention which was conducted at the institutional level, with little regard for the broader macroeconomic environment.
Thus, prior to the GFC, both IGOs (i) emphasised the need to remove obstacles to participation and job creation via supply-side initiatives; and (ii) reaffirmed the importance of sound budget balances for the conduct of macroeconomic policy and gave priority to monetary policy in the pursuit of low inflation.

**1.3 Policy proposals in response to the GFC**

**1.3.1 Fiscal stimulus measures**

In response to slowing growth and rising unemployment in 2008, the IMF advised policymakers to ease monetary policy, particularly in advanced economies. Also the use of fiscal policy was justified by its stabilising role, but the emphasis remained on the operation of automatic stabilisers. Any ‘stimulus must be timely, well targeted, and quickly unwound’ (IMF 2008a:xvi). By the end of 2008 the IMF was considering stimulus measures more seriously. However, the multiplier effects of discretionary measures were ‘found to be quite low’ and sometimes negative (IMF 2008b:xiii). Consequently policymakers were encouraged to strengthen the cyclicality of automatic stabilisers.

The European Central Bank (2009) cautioned that, while fiscal policy action was ‘largely justified’, EU countries had obligations under the Treaty and SGP to conduct fiscal policy ‘within a predictable, medium-term oriented framework’. OECD (2009b:10-11) differentiated between countries with ‘a weak initial fiscal position’ and those with ‘most scope for fiscal manoeuvre’, but ‘[f]or others, action would only be warranted in case activity looks to turn out even weaker than projected’. ‘The scope for further stimulus depends on the degree of government indebtedness….Evidence shows that adverse reactions in financial markets are likely in response to higher government debt and that such reactions may depend on the initial budget situation’ (quoted in Watts 2010).

The IMF echoed the OECD’s concerns about the prospect of financial crowding-out, and stressed the imperative for fiscal space and fiscal discipline to ensure that a temporary stimulus did not compromise fiscal sustainability, particularly given the
prospect of rising health and social spending in those advanced economies with ageing populations (Freedman et al. 2009; see also World Bank 2011, which provided similar advice to developing/emerging economies).

Thus, the IGOs claimed that, if stimulus measures were not implemented with a credible plan for their eventual withdrawal, higher interest rates would exacerbate concerns over fiscal sustainability, and thus necessitate more severe consolidation measures (Freedman et al. 2009; Blanchard et al. 2010; IMF 2010c).

As the GFC worsened, central banks continued to ease interest rates, in addition to ‘bail-out’ offers and deposit guarantees in an attempt to maintain confidence in the banking system and to counter contagion. Once nominal policy rates approached zero, the IMF favoured unconventional monetary measures such as altering the size and composition of central banks’ balance sheets via quantitative or credit easing, notwithstanding the weak inducement to invest in many countries due to the depressed economic climate.

Despite its earlier opposition, the IMF (2009:xix) now maintained that ‘past experience suggests that fiscal policy is particularly effective in shortening the duration of recessions caused by financial crisis’. Further, ‘consolidation should not be launched prematurely’ and ‘it is now apparent that the effort [fiscal stimulus] will need to be at least sustained, if not increased, in 2010, and countries with fiscal room should stand ready to introduce new stimulus measures as needed to support the recovery’ (IMF 2009:xix). This caution on the part of the IMF could be attributed to the criticism it received regarding the tight fiscal requirements it imposed on some East Asian countries following the Asian Financial Crisis (AFC) of 1996-7 (IMF 2000).12

The stimulus measures adopted by advanced and emerging economies in response to the GFC were considered essential to the restoration of global demand growth, which was

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12 Despite the AFC not being caused by profligate government spending, fiscal withdrawal was adopted to reduce domestic demand and current account deficits. In hindsight, the IMF (2000:5) conceded that the ‘initial fiscal objectives…were too tight’. However, notwithstanding the criticism, the IMF (2011b:2) maintains Asia’s ‘resilience’ to the GFC can be attributed to ‘the enduring, and often difficult, reforms undertaken over the past decade’.
estimated at 5.25 percent in the first half of 2010 (Freedman et al. 2009; IMF 2010b). These measures were estimated to have contributed 1 percent and 1.75 percent respectively to GDP growth in the USA and Asia in 2009 (IMF 2010a). Thus the major IGOs cautiously acknowledged the appropriateness of fiscal stimulus measures as a counter-cyclical device following a severe economic contraction. Also the IMF opposed ‘beggar-thy-neighbour’ policies such as trade and financial protectionism.

Notwithstanding this qualified support for stimulus measures, little space in policy documents was devoted to providing a rationale. Blanchard et al. (2010) suggested that fiscal policy was being advocated since monetary policy had largely reached its limits, and the recession was expected to be long lasting, so fiscal stimulus could be effective, despite implementation lags (see also OECD 2009a, 2009b, 2009c, 2010a, 2010b). However, at face value there was no scope for fiscal intervention in economies which were subject to cyclically invariant NAIRUs and exhibited strong equilibrating properties. However, the IMF (2010a:23) expressed concern regarding ‘the potential for temporary joblessness to turn into long-term unemployment and to lower potential output growth’, which implies a cyclically sensitive (hysteretic) NAIRU. This is an important theoretical concession.

1.3.2 Fiscal consolidation and fiscal space
While the limited role for monetary policy in many countries and the uncertainty surrounding unconventional monetary measures provided a rationale for short-term stimulus measures, the IGOs maintained that the latter had to be guided by the imperative of sound public finance, through the medium-term pursuit of fiscal consolidation which was defined somewhat vaguely as ‘a policy aimed at reducing government deficits and debt accumulation’ (OECD 2010c). The IGOs did not define sound public finance in an operational manner. However the algebra of debt dynamics

13 The Non-Accelerating Inflation Rate of Unemployment (NAIRU) is a controversial concept that indicates the rate of unemployment at which the inflation rate is stable. Conservative economists claim that it is cyclically insensitive and represents the lowest sustainable rate of unemployment. Supply-side reform policies are required to reduce it.
requires that, for fiscal sustainability, the present value of future budget surpluses, expressed as shares of prevailing GDP, is equal to the current debt to GDP ratio.\textsuperscript{14}

The IGOs have often drawn upon financial crowding-out theory to buttress their arguments for \textit{fiscal consolidation} measures. While the OECD (2009a:124) acknowledged that the impact of \textit{fiscal imbalances} (deficits) on long-term interest rates was ‘both mixed and controversial’, it reported research which found that ‘higher expected deficits increase long-term interest rates’ when the debt-to-GDP ratio exceeds 75%, but the impact was lower in Japan (OECD 2010b). Consequently, ‘a temporary fiscal injection may be more effective than a more sustained fiscal injection which is likely to significantly worsen the long-term fiscal outlook’ (OECD 2009a:128).

Fiscal space is the government’s residual capacity to respond to future economic uncertainties subject to its intertemporal budget constraint, so it defines the economic limits of future stimulus measures, ‘without endangering the sustainability of government debt’ (Freedman et al. 2009:16). Fiscal space can be expanded via a fiscal consolidation.

Due both to the operation of automatic stabilisers and rising risk premiums on some European government bonds, particularly those issued by Greece, Ireland and Spain, government debt was growing at an unprecedented rate in these Eurozone countries, so fiscal space was diminishing rapidly (IMF 2010b). Thus, fiscal consolidation was advocated for most advanced economies in 2011 (IMF 2010a, 2010b; and World Bank 2011 for developing economies), but the OECD claimed that consolidation should commence in 2010, with an earlier cessation of the stimulus measures.

IMF (2010b) found that a reduction of 10 percentage points in the debt to GDP ratio would increase output by 1.4 percent in the long-term and reduce real interest rates by 30 basis points (i.e. by 0.3 percent) in Japan, the Euro area and the USA, which, in turn, would increase the stock of physical capital by 2.1 percent in Japan, the Euro area and the USA and 1.6 percent elsewhere. The reduction in real interest rates was expected to

\textsuperscript{14} Given the policy orientation of this article, we do not outline the underlying algebra of debt dynamics but refer the reader to Watts and Sharpe (2013).
occur via higher saving rates and improved current account balances which, over time, would increase the supply of savings (IMF 2010b:111). This argument is based on the discredited loanable funds theory of interest rate determination. Also, it is impossible for all countries to simultaneously improve their current account balances.

By contrast, according to the IMF, in the short-term ‘a fiscal consolidation equal to 1 percent of GDP typically reduces GDP by about 0.5 percent within two years and raises the unemployment rate by about 0.3 percentage points and consumption and investment falls by about 1 percent’ (IMF 2010b:94). In the above simulations, fiscal consolidation, which results in a decline in the deficit to GDP ratio, is comprised entirely of spending cuts, since these adjustments are found to be less contractionary than tax-based adjustments (IMF 2010b; see also Alesina and Perotti 1995). So, 75 percent of these spending cuts consisted of permanent reductions in government transfers while 25 percent represented cuts to consumption (IMF 2010b). To ensure the debt to GDP ratio declined and stabilised at 10 percentage points below its initial level, ‘savings’ from lower interest payments would be used to ‘finance’ a cut in labour income taxes which was expected to increase labour supply and output (IMF 2010b).

Moreover, fiscal consolidation allegedly would promote currency depreciation and contribute 0.5 percentage points to GDP via net exports which would be enhanced by accommodative monetary policy (IMF 2010b). Clearly the reliance on exchange rate buffers was problematic when consolidation measures were being implemented simultaneously across countries. Also once interest rates were close to the floor of zero percent ‘the output costs of fiscal consolidation are much larger’ (IMF 2010b:110). On the other hand, the OECD (2010a:6, footnote 4) was bullish about the impact of fiscal consolidation on short-term output growth: ‘Even large fiscal contractions can be expansionary because they signal a permanent and decisive change in fiscal policy’.

The real effects of consolidation measures have been downplayed by the IGOs. For example, OECD (2010a:8-11) cites countries which ‘successfully’ undertook large multi-year adjustments to their fiscal positions. From 1993 to 1997, Spain reduced its deficit to GDP ratio by 4 percentage points to improve its chances of gaining access to
the European Monetary Union, but average unemployment rates were between 16 and 19 percent over this period (ILO 2010), which the OECD failed to acknowledge. Likewise, Ireland reduced its public debt to GDP ratio from 120 to 107 percent from 1986 to 1989 (Alesina and Perotti 1995), but registered unemployment averaged 18 percent over this period.\footnote{In Australia, the implementation of neo-liberal policies had its origin in the Hayden budget of 1975, which cut public sector spending and social welfare outlays, providing a template for the subsequent Federal governments to follow (Solidarity Magazine 2008). The current political imperative to return the budget to surplus highlights the ongoing identification of ‘responsible’ economic management with neo-liberal economic policy principles.}

A more cautious IMF (2010d:xi) contended that fiscal adjustment strategies must ‘strike a balance between addressing market concerns about fiscal fundamentals and avoiding an abrupt withdrawal of support to the nascent recovery’, and stressed that the level of private demand was important to the success of consolidation (IMF 2010b). Also, countries in stronger economic positions should ‘frontload’ fiscal consolidation measures since short-term (negative) multiplier effects are expected to be weaker, and there is greater scope for offsetting monetary policy (OECD 2010e; see also European Commission 2011a), but some mainstream economists questioned the pursuit of fiscal consolidation when economic growth remained weak (OECD 2010g). The IMF (2010d) warned that frontloading measures was very risky and should be avoided unless necessitated by market pressure, although some up-front fiscal tightening may be required to signal a commitment to future tightening.

Both IMF (2010b) and OECD (2010d) suggest that automatic stabilisers and exchange rate adjustments should be allowed to operate, except in countries facing considerable risks of losing credibility, usually characterised by rising risk premiums. However Eurozone countries faced difficulties on both fronts, given their inability to adjust the nominal exchange rate and the imposed pro-cyclical nature of fiscal policy, as policymakers attempted to constrain automatic stabilisers to satisfy the SGP requirements. The European Central Bank (2011a:7) was undeterred: ‘it is now essential that all governments fully implement their fiscal consolidation plans in 2011’. Trichet (former President of the ECB) linked sustainable economic growth to sustainable public
finances and also emphasised the importance of creating fiscal buffers, akin to the concept of fiscal space (OECD 2011c).

The US Congressional Budget Office (2011) revealed that fiscal stimulus measures did improve economic conditions, through higher output and employment growth. IMF (2010b:xiii) also acknowledged that ‘inventory accumulation and fiscal stimulus were driving the recovery’. In 2010, the IMF had admitted ‘we were wrong’ with respect to the importance of counter-cyclical fiscal policy (Blanchard et al. 2010:3-9). Furthermore, ‘[t]he crisis was not triggered primarily by macroeconomic policy. But it has exposed flaws in the pre-crisis policy framework…’ (Blanchard et al. 2010:16). The IMF (2011a) remained committed to pursuing fiscal credibility as ‘sovereign risk’ remains high, but with the uncertain growth in private consumption and investment, fiscal consolidation forecasts were downgraded in 2011 from 1 to 0.25 percent of GDP among advanced economies.

Thus both the OECD and IMF continued to advocate the importance of credible fiscal strategies to appease financial markets and enhance market sentiment, despite their problematic short and longer term effects on output and employment, particularly in developed economies which had been adversely affected by the GFC. The emphasis on fiscal consolidation measures was justified by the need to regain fiscal space to buffer near-term shocks and fund new priorities,16 thereby achieving more sustainable public debt positions (ECB 2009; Freedman et al. 2009; IMF 2010a, 2010b, 2010c; OECD 2009a, 2009b, 2009c, 2010a, 2010b; Blanchard et al. 2010; World Bank 2011). Further, it was claimed that greater fiscal credibility would improve the capacity to borrow, and relieve upward pressure on risk premiums (OECD 2010a). Thus the major IGOs have not departed from their core neo-liberal principles of sound finance and the primacy of monetary policy.

1.3.3 **Structural and institutional reform**

A sustainable recovery following the GFC was alleged to require structural labour market reforms to improve job skills and competitiveness, even though the policy

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16 At a time of extreme economic hardship, it is curious to argue that restraint is required now to generate additional fiscal space to finance priorities which may arise in the future.
priority was job creation (OECD 2010f). Furthermore, ‘[w]hile fiscal consolidation is an essential pre-requisite for growth, it is not sufficient to drive growth’ (European Commission 2011a:2). As the OECD has asserted: ‘[A] combination of structural and fiscal reforms thus constitutes the best strategy to reduce the risks that the weak growth observed in many OECD countries in the post-crisis period will turn into stagnation’ (OECD 2011e:249; see below).

The proposed reforms include: ‘active labour market policies, with a priority being given to ensuring strong activation measures for job seekers; rebalancing employment protection towards less strict protection for regular workers…scaling back crisis-related improvements in benefit generosity and tightening eligibility criteria for benefit measures that might otherwise be used as pathways out of the labour force’ (OECD 2010d:69). Increasing the retirement age is viewed as essential, while sustaining public investment and spending on R&D is also emphasised (OECD 2011e).

In addition to restoring confidence in institutions and re-establishing sound public finance, the OECD policy agenda focuses on ‘ways to foster and support new sources of growth through innovation, environmentally friendly ‘green growth’ strategies and the development of emerging economies’ (OECD 2011d). These reforms are expected to increase resilience to stagnation, promote growth and improve the fiscal position (OECD 2011e).

Since its influential Jobs Study report (OECD 1994), the OECD has emphasised the primacy of supply-side reform in addressing persistent unemployment in the context of largely passive fiscal policy and monetary policy designed to control inflation. However, OECD (2006a) acknowledged that no single combination of policies and institutions was required for good labour market performance. Rather, market reliant countries were differentiated from Nordic countries which emphasised ‘coordinated collective bargaining and social dialogue’. Nordic countries achieved a higher average

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17 The OECD is a heterogeneous organisation, with, for example, the Directorate for Employment, Labour and Social Affairs promoting inclusive or innovative liberalism, rather than neo-liberalism which is advocated by the Economics Department (Mahon and McBride 2008).
employment rate, lower income inequality but at a higher budgetary cost (OECD 2006a:18-19), which revealed that there was no efficiency/equity trade off (Watt 2006). Despite these concessions, the OECD (and the IMF) continued to encourage the adoption of this neo-liberal (market) model, rather than the Nordic model (Watt 2006; Watts 2010). The underlying premise was that unemployment was the manifestation of market failure, rather than insufficient aggregate demand, which explained the focus on supply-side reform, and the need to sustain potential output growth. Limited attention has been paid to the factors which adversely affect the components of aggregate demand. This point is particularly relevant for those advanced economies with both public and private sectors being highly indebted, following the GFC.

Broad institutional reforms have also been advocated by the other major IGOs. European Council (2010) developed proposals to achieve more effective economic governance in the EU and the Euro area, with a particular focus on fiscal discipline through a stronger SGP, which appears likely to occur. The Eurozone established the European Stability Mechanism (ESM) and associated European Financial Stability Facility (EFSF) which offered permanent crisis management and relief mechanisms (IMF 2011a).

The IMF (2011a) argues that credible plans must be established for the medium-term which requires transparent fiscal and budgetary institutions. Despite the difficulty in establishing evidence of causality between fiscal performance and fiscal institutions, improving the latter is considered ‘a precondition to enforcing fiscal frameworks and rules’ (Gutiérrez and Revilla 2010:17). The IMF (2010a, 2010b) supports the strengthening of fiscal rules for nations facing limited fiscal space or sustainability pressures (see also OECD 2010e; IMF 2011a), but ‘[t]argeting an overall balance rule is not considered a good practice for countercyclical fiscal policy…nor does it allow automatic stabilisers to function freely over the cycle…’ (Gutiérrez and Revilla 2010).

In February 2010, the IMF canvassed the issue of capital controls to counter the impact of speculative flows on emerging economies. This represented a major departure from their pro-globalisation agenda which was pursued during the Asian Financial Crisis.
The IMF argued that ‘those countries that deployed capital account regulations were among the least hard-hit during the worst of the global financial crisis’ (Gallagher 2011). In April 2011, the IMF provided a set of guidelines for the use of capital controls, advocating that countries only deploy such measures as a last resort – after measures, including building up reserves, letting currencies appreciate and reducing budget deficits had been introduced. On the other hand, at the G20 meeting in October 2011, host President Sarkozy was clear that ‘the use of capital controls...is now accepted as a measure of stabilisation.’ Also an independent task force, co-chaired by Gallagher, argued that ‘consigned such measures to ‘last resort’ status would reduce the available options precisely when countries need as many tools as possible’ to address crises. We do not canvass the merits of capital controls here (but see Mitchell 2010c). We note that the IMF has exhibited recalcitrance, despite being receptive to G20 opinion earlier in the crisis.

1.3.4 Projections - towards growth?
In the light of sluggish world growth, the OECD and IMF have become increasingly concerned about the prospects for recovery. With some major qualifications, the OECD (2011e:229, Box 4.1) developed a stylised long-term scenario in which the GFC reduces the level of potential output with no permanent adverse impact on its rate of growth, despite fiscal consolidation, although demographic factors reduce it marginally. However, the IGOs retain an almost exclusively supply-side focus with no serious analysis of aggregate demand components.

With some exceptions, output gaps are generally assumed to close by 2015 due to a sustained average above-trend annual growth rate of 3 percent over the period 2010-15 (OECD 2011e:232, Table 4.2), which is faster than the 2½ per cent per annum pre-crisis average between 2000 and 2007 (OECD 2009c:227 displays similar optimism). Output grows in line with potential thereafter. Also, countries are expected to return to targeted inflation once output gaps close. No explanation is provided as to why output gaps appeared during the GFC, when private sector expenditure fell sharply in many countries, yet fiscal consolidation measures are assumed to be accompanied by above trend output growth.
Once output gaps close, any remaining unemployment is, by definition, structural, which warrants further supply-side reform. Over the post-crisis period the structural unemployment rate was apparently subject to hysteresis effects but is then assumed to return to pre-crisis levels, albeit at a speed reflecting labour market flexibility, with the unemployment rate in some countries being above pre-crisis levels until 2026 (Guichard and Rusticelli 2010, quoted in OECD 2011e:229). The area-wide unemployment rate is expected to fall from 8¼ percent in 2010 to just over 6¼ percent by 2015 and just under 6 percent by 2026. The unemployment rate is expected to fall from 13.5 to 10 percent in Ireland by the end of 2015; from 20.1 to 14.5 percent in Spain; from 5.1 to 4.1 percent in Japan; from 7.9 to 5.7 percent in the UK; and from 9.6 to 5.3 percent in the USA.

Most countries are expected to have a higher ratio of gross liabilities to GDP in 2026 than in 2010, even those Eurozone countries which have negotiated new stringent borrowing arrangements. Ireland’s ratio is posited to rise from 102 to 131 percent; Spain from 66 to 78 percent; UK from 82 to 109 percent; and the USA, from 94 to 148 percent. Increasing public indebtedness would be accompanied by significantly higher 10 year government bond rates in 2026 as compared to 2010 for sovereign and Eurozone countries, with the OECD average increasing from 3.5 to 6.2 percent. Reference is again made to the controversial literature about the sensitivity of bond yields to expected deficits (OECD 2011e:238).

The OECD (2011e:226) presents an ominous picture for Japan and the USA, which do not have official medium-term fiscal plans, requiring a 10-11 percentage point improvement in their primary balances as a share of GDP from 2010 to stabilise their debt to GDP ratios by 2025. Other vulnerable countries, including Greece, Ireland, Portugal and the UK, require consolidations of 6 to 8.5 percentage points of GDP. The typical OECD country needs a further offset of 3 percentage points to meet increased health and pension expenditures.

The prospect of prolonged stagnation due to ‘large fiscal imbalances’, is also canvassed by OECD (2011e). Stagnation is defined as potential output per capita growth of less than 1 percent for 6 or more years. Because the slow pace of consolidation and resulting
high debt levels are likely to be unsustainable in some countries, the rate of fiscal consolidation must be increased if debt to GDP ratios are to be reduced, rather than merely stabilised. The accounting benefits of such a reduction are emphasised, with lower debt levels and associated interest rates alleged to promote economic growth, as well as creating fiscal space.

The OECD area is said to require an improvement in primary balances of 13 percentage points of GDP to reduce the debt ratio to pre-crisis levels by 2026. This figure is compared to the 7 percentage points that would be necessary merely to stabilise the ratio (OECD 2011e; see also the estimates by IMF 2010c). These projections are worse than those presented by OECD (2010d:11). OECD (2011e:237) acknowledges that rapid consolidation creates the likelihood of larger cumulative adverse effects on GDP than a gradual consolidation, particularly given the inability to implement offsetting changes to monetary policy.

Based on this empirical work and the OECD’s debt projections, a reduction in the trend GDP growth rate of ½-¾ percentage points is expected, due to higher interest rates and the crowding-out of private investment and R&D expenditure, which would reduce trend productivity growth. There are, however, difficulties in isolating a one-way causal relationship between trend growth rates and public debt, because causation also runs from slower growth to rising debt. Thus these estimates should be treated with caution (OECD 2011e:247). The OECD acknowledges, however, that their analysis of three stagnation episodes all revealed that stagnation was a cause, rather than a consequence, of the more rapid build-up in public debt.

Even though stimulus measures were briefly advocated, and some qualifications have been expressed about the timing and extent of fiscal consolidation measures in view of the extreme macroeconomic conditions, the major IGOs have continued to promote the principles of so-called sound finance. Their adherence to fiscal sustainability in the medium-term, in line with the algebra of deficit and debt dynamics, has not wavered. Also structural labour market reform is being advocated for many countries with renewed vigour, given the high rates of unemployment (OECD 2011b; ECB 2011a;
Thus the IGOs’ neo-liberal policy agenda has remained largely intact, despite fundamental shortcomings of their macroeconomic policy framework which are highlighted in the next section.

1.4 A critique of the IGOs’ policy prescription

1.4.1 Institutional arrangements

In their espousal of universal policy principles, albeit with somewhat vague qualifications, the IGOs fail to acknowledge that the conduct of fiscal policy is fundamentally different in Eurozone countries, because their governments are voluntarily budget constrained. The Eurozone countries have the formal requirement to finance deficits by borrowing within the debt and deficit limits imposed under the rules of the SGP, which are to be strengthened under the new Treaty initially proposed in December 2011.

By contrast, drawing on the principles of functional finance developed by Lerner, and Modern Monetary Theory (Forstater 1999; Wray 1998; Mitchell and Muysken 2008), a quite different analysis can be developed. Countries, including Japan, US, UK and Australia, which operate with their own fiat currencies under flexible exchange rates, are not budget-constrained because, as monopoly suppliers of the currency, they do not need to borrow to finance their expenditure (Mitchell and Muysken 2008). Further, by operating under a floating exchange rate, monetary policy in these countries is freed from the need to defend foreign exchange reserves.

Government spending by these sovereign countries is the source of funds that the private sector needs to pay its taxes and to net save. Ceteris paribus, if a national government runs a deficit, then the reserves in the domestic banking system increase, because the bank accounts of sellers of goods and services to government have been credited with additional balances. If the support rate, which is paid on excess reserves,

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18 The imposition of fiscal consolidation and structural reforms on Ireland (also Greece and Portugal) followed similar principles to those imposed on the Asian economies (e.g. Thailand and Indonesia) by the IMF during the AFC, although the economic circumstances were fundamentally different. Thus, for example, tight monetary policy was not enacted by the ECB (and sovereign governments), nor was it advocated by the IGOs.
is set below the target rate, then these excess reserves place downward pressure on short-term (overnight) interest rates which would threaten to compromise monetary policy (RBA 2012). By offering an attractive interest rate, the sale of bonds would remove the excess reserves. Thus bond sales do not finance net government spending (Mitchell and Muysken 2008). Likewise, taxpayers do not fund government spending in these countries (cf. OECD 2010a:5).

Fiscal space, like fiscal sustainability, is an elusive concept, but is also irrelevant for a sovereign economy operating with its own fiat currency. Government spending within sovereign economies is only constrained, at any point in time, by the availability of domestic real resources priced in the national currency (Mitchell and Muysken 2008).

The IGOs trivialise the conduct of fiscal policy by implying that, like prudent households, all national governments are budget constrained (Watts 2010). Fiscal sustainability, the overarching principle driving fiscal consolidation, is based on the flawed principle that net government spending in all countries is confined within the limits of, at best, an inter-temporal budget constraint or, at worst, an ex-ante budget constraint in the face of growing risk premiums and/or institutional constraints, such as the SGP within the Eurozone. In fact, if monetary authorities set the support rate equal to the target rate, sovereign governments do not need to issue debt, since excess reserves can accumulate without compromising monetary policy.

The targeting of a balanced budget over the cycle is considered appropriate by orthodox and some post-Keynesian economists, but this strategy is inconsistent with sustained full employment. Unless an economy can achieve persistently large trade surpluses \((X > M)\), the required budget surplus \((T > G)\) at full employment means that the private sector has a net deficit \((S < I)\), which translates into increasing private indebtedness, while full employment persists. This argument can be represented by the ex post macroeconomic identity (1):

---

19 The support rate is set 25 basis points below the target (cash) rate in Australia.
20 Debt issuance via ‘independent’ government bodies (e.g. the Debt Management Office in the UK and Australian Office of Financial Management in Australia) appears to break the nexus between monetary and fiscal policy. However, these institutions do not limit the capacity of their respective Treasuries to run deficits (Watts 2012).
\[(X - M) \equiv (T - G) + (S - I) \] (1)

where \(X\) is exports, \(M\) is imports, \(T\) denotes tax revenue, \(G\) is government expenditure, \(S\) is saving and \(I\) is investment. A balanced fiscal budget over the cycle cannot be construed to be a prudent universal policy, because in total there is balanced trade across the world, which precludes sustained full employment in all countries, unless their private sectors are to become increasingly indebted.

The claim by both the OECD and IMF that creditors will bid up risk premiums associated with all government debt, thereby undermining a recovery is fundamentally wrong (see Sharpe 2013a). In contrast to countries with their own independent fiat currencies, Eurozone countries must formally borrow to finance budget deficits, and so are exposed to bond market pressures and rating agency antics. These propositions are illustrated in Figures 1.1 and 1.2 which show relatively stable/declining long-term bond rates for countries with their own fiat currencies (Australia, US, UK, Japan and Canada) and rising rates for Eurozone countries facing rising debt ratios, particularly Greece, Ireland, Portugal and Spain.

For example, Japan currently experiences a gross debt to GDP ratio of about 200 percent, yet continues to borrow at long-term rates below 2 percent. Further, following the decision by US policymakers to increase the ‘debt ceiling’ (a political constraint on government borrowing), and despite the historical credit rating downgrade by credit rating agency Standard and Poor’s, the US continues to issue government debt at record low yields.

Notwithstanding volatility in the financial environment, claims that UK gilts are considered ‘secure’ due to confidence generated from the government’s consolidation measures is hard to justify, given the persistently low Japanese bond rates despite their apparent fiscal profligacy.
Figure 1.1 Long-term government bond rates: non-Eurozone economies

Data source: OECD (2012a)

Figure 1.2 Long-term government bond rates: Eurozone economies

Data source: OECD (2012a)
1.4.2 *The Eurozone countries*

The SGP rules which were revised in 2005 (see Alves and Afonso 2007) limit public deficits and debt of Eurozone members countries to 3 percent and 60 percent of GDP respectively. During a downturn, automatic stabilisers typically drive a country’s budget into deficit, sometimes exceeding the statutory target. An attempt to re-align the deficit (and/or debt) to its target ratio requires the imposition of fiscal austerity measures typically via expenditure cuts, even if the structural position was consistent with a balanced budget over the cycle. Targeting general government deficit and gross debt to GDP ratios in the Eurozone represents an attempt by policymakers to control allegedly profligate spending in these countries. These fiscal outcomes are, however, largely endogenous, in that they depend on non-government expenditure, that is private sector spending and the trade surplus. Thus adherence to these rules promotes pro-cyclical fiscal policy (see, in particular, Ireland and the projections in OECD 2011e) and represents a more extreme form of fiscal austerity than the pursuit of a balanced budget over the cycle. Breaches of the SGP requirements by members have occurred (e.g. Germany and France in 2003, and Bulgaria, Cyprus, Denmark, Finland and Luxembourg in 2010).

At the time of writing, policymakers within the EU have proposed changes to the Treaty which would strengthen fiscal sustainability requirements. A central element of the new Treaty is a ‘fiscal compact’ which reinforces the current SGP requirements and enhances reporting and surveillance of budget and debt issuance plans. A new fiscal rule is also proposed, whereby general government budgets must be balanced or in surplus, which is satisfied if the annual structural deficit does not exceed 0.5 percent of nominal GDP (European Council 2011).

Debt reduction requirements are also canvassed within the proposed changes. Generally, the difference between the prevailing gross government debt ratio and the 60 percent debt to GDP target must be reduced by 5 percent p.a. (the 1/20 rule). This requirement is likely to impose considerable adjustment cost in terms of economic growth, unemployment and social unrest. The OECD (2012a) projections of gross government
debt to GDP in 2012 imply that the majority of Eurozone economies, including France and Germany, will exceed the 60 percent requirement.

The major IGOs have been advocating such changes for some time, even though both the OECD and IMF have expressed major reservations about growth prospects, particularly in the light of the recommended austerity measures. Notwithstanding this, the IMF (2011c) supports the new measures, principally those which enhance fiscal discipline and accelerate the implementation of the European Stability Mechanism (ESM).

The problem is that the current trajectory of fiscal consolidation among Eurozone economies is both economically and socially unsustainable. Even harsher pro-cyclical fiscal policies would be required to satisfy these new, more stringent rules. During a period of subdued private demand growth, a universal policy of stimulating net exports cannot work, as argued above. Consequently, growth will stagnate and social unrest will persist. Elected policymakers who approve such austerity measures are shirking their responsibilities to advance the public purpose by filling the spending gap and achieving full employment over the business cycle (Mitchell and Muysken 2008; Mitchell 2010a).

Given that the Eurozone is a monetary union of non-sovereign economies, its policymakers face limited policy options in the face of stagnant growth. If a common currency is to be retained, the only (economically) viable option for Eurozone countries would be to scrap the SGP and introduce a supranational fiscal authority that could spend like a sovereign government (Mitchell 2010b). Under these circumstances, macroeconomic policy should be geared to the achievement of full employment in member countries, although all policy sovereignty would then be relinquished. However, given the prevailing EU attitudes to fiscal deficits and debts, it is unlikely that a commitment to full employment in the Eurozone would be made. Furthermore, a fiscal union may well intensify political and economic conflict between Eurozone member countries. If ratified, the proposed Treaty changes attempt to force a convergence of policies towards a ‘fiscal stability union’, not a fiscal union.
The common issuance of bonds (‘Eurobonds’ or ‘Stability-bonds’) could be viewed as a step towards fiscal union. While coordinated public debt issuance within the Eurozone dates back to the late 1990s, the GFC has renewed policymakers’ interest in these proposals. However, ‘Eurobond’ proposals rely on either explicit or implicit ECB support, yet it is clear from the ECB’s press statements and policy documents that it is unwilling to intervene like other central banks. For instance, the ECB’s Securities Market Program (SMP) is coupled with a ‘sterilization’ procedure in an attempt to delineate its actions from the interventions of other central banks, such as the Fed and BoE. Furthermore, the ECB is unwilling to ‘channel’ funds through the IMF to lend to member states as this would be inconsistent with the provisions of the Treaty (see ECB 2011b).

In the spirit of the Deutsche Bundesbank, the primary objective of the ECB is to maintain price stability. However, Article 282 of the Lisbon Treaty states, ‘without prejudice to that objective [price stability], [the ECB] shall support the general economic policies of the Union in order to contribute to the achievement of the latter’s objectives’ (quoted in Varoufakis and Holland 2011:3). Despite actions to support bank lending and money market activity, such as reducing the quality of eligible collateral for Euro-system operations, halving the required reserve ratio and conducting long-term refinancing operations (LTROs), the ECB is constrained by Article 123 of the Treaty which prohibits the monetary financing of governments.

Without ECB support, ‘Eurobonds’ would attract significant risk premiums which would conflict with their intent. Notwithstanding this, ‘Eurobonds’ fail to eliminate the need to issue debt to finance net government expenditure. Thus unlike a sovereign government, Eurozone economies remain ‘hostage’ to the bond market. While the mounting uncertainty and limited growth prospects within the Eurozone may force the ECB to increase the frequency and scale of its interventions, the institution’s relative unresponsiveness during the course of the GFC is unlikely to stimulate market confidence about its willingness to intervene decisively in the future.

21 See European Commission (2011b) and Varoufakis and Holland (2011) for details.
This discussion has illustrated that Eurozone policymakers face limited macroeconomic policy options under the current and proposed Treaty rules. The political and economic consequences of implementing these fiscal rules within the Eurozone are adverse, and represent an extreme form of neo-liberal macroeconomic policy.

1.4.3 Full employment policy

A sovereign government should run budget deficits to fill any spending gap at full employment (Mitchell 1998). The failure to run deficits of sufficient magnitude means that either an economy does not achieve full employment or its private sector becomes increasingly indebted, which ultimately leads to a harsh correction via reduced spending when the private sector decides to restore its balance sheets. This has been graphically illustrated by the impact of the GFC on many OECD economies.

Mitchell (1998) argues that the lowest fiscal stimulus required to achieve full employment is to guarantee all unemployed workers a job at the minimum wage. So once currency sovereignty for the Eurozone countries is restored, a Job Guarantee should be introduced, which is a solution that would best serve the public purpose. Elected policymakers should reflect upon their obligations and responsibilities to the populace. In 2012, unemployment rates are projected to average 10 percent among Eurozone members (reaching up to 22 percent in Spain) (see OECD 2012). Such forecasts reflect poor economic growth prospects and imply economic conditions that would seriously threaten social stability. Austerity measures must be abandoned which may require the dismantling of the common currency.

1.5 Conclusion

The main IGOs followed most of the economics profession by discarding Keynesian principles and embracing the neo-liberal paradigm in the 1970s. Despite the profound macroeconomic consequences of the GFC, the IMF and OECD, in particular, have not

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22 In contrast to intermittent fiscal stimulus measures, a Job Guarantee (JG) is perfectly calibrated to the level of unemployment, since a job is only created when an unemployed person seeks one. Thus debates over the timing and magnitude of stimulus packages and, in particular, when they should be phased out become irrelevant (Watts 2010). Also the JG incorporates a counter-inflation mechanism (Mitchell 1998).
departed in a meaningful way from their core neo-liberal principles. They continue to advocate the pursuit of sound public finance, monetary policy geared to low inflation, and energetic supply-side reform.

The IGOs generally supported the selective use of fiscal stimulus measures during 2008-2009 when the GFC deepened and monetary policy became constrained. The IMF and the OECD have remained adamant, however, that medium-term fiscal consolidation strategies were essential for those countries facing rising budget deficit and debt ratios. Following sluggish growth in many advanced economies in 2011, both the OECD and IMF now acknowledge the potentially detrimental impact of ongoing fiscal consolidation on economic activity and employment. Their policy advice is heavily qualified, however, so that its practical value for policymakers is minimal. The EU is committed to changes to the Treaty that reinforce the obligation of EU members to pursue fiscal discipline, which also has the support of the other IGOs.

The use of terminology, such as *sound public finance, fiscal consolidation* and *sustainability* and more recently *fiscal space and fiscal fatigue*, has been an important feature of the IGOs’ policy documents. Such language ‘conveys a sense of authority and impartiality about policy design, despite these terms never being defined in an operational manner and the social and economic consequences of their implementation rarely being explained’ (Watts 2010:3).

The worsening macroeconomic outcomes during the GFC have highlighted the inconsistency and incoherence of the IGOs’ neo-liberal policy framework. Moreover their proposed policy interventions have not been geared to restore employment, but rather serve the interests of bondholders and the broader imperative of accumulation within a globalised economic system.

The principles of Modern Monetary Theory, as outlined in the article, demonstrate the fundamental flaws within the IGOs’ theoretical framework. In their policy documents, IGOs fail to differentiate between countries which operate with their own fiat currencies and conduct independent monetary policy under flexible exchange rates, and those
which have voluntarily restricted their capacity to conduct independent macroeconomic policy. Moreover, by not challenging the principles underpinning the European Monetary Union, the IGOs have provided overt support for an extreme form of institutionalized neo-liberalism with respect to the conduct of macroeconomic policy. Furthermore, the imperative for supply-side reform made in the OECD Jobs Study is now largely discredited, given the limited reductions in average OECD unemployment rates from the mid-1990s until 2007 (Watts 2010). By sacrificing the welfare of their citizens and hence the advancement of public purpose in order to pursue meaningless accounting imperatives, sovereign governments have disengaged from their electoral obligations.

23 The Big Society policies of Cameron’s UK Coalition government have provided the means of reinvigorating Thatcher’s neo-liberal agenda, which is construed as representing responsible economic management (see Juniper et al. 2013a).
Fiscal sustainability and debt dynamics

In the aftermath of the Global Financial Crisis, the ostensible focus of medium-term macroeconomic policy in most advanced sovereign and non-sovereign countries has been the pursuit of fiscal sustainability through fiscal consolidation, which is often justified by reference to the algebra of debt and deficit dynamics (Blanchard et al. 1990; Buiter 2010a; Escalano 2010; Ley 2010). On the other hand, Modern Monetary Theorists, including Fullwiler (2006), reject the necessity of fiscal austerity in sovereign economies. In this paper, we revisit the algebra underpinning debt and deficit dynamics and critically assess the arguments for the imposition of austerity measures across all advanced economies that have experienced increases in deficit and debt ratios, since the advent of the GFC.
2.1 Introduction

The Global Financial Crisis (GFC) which originated within US housing and financial markets was transformed from a regulatory crisis, associated with the failure of some major financial institutions, into a real economic crisis that enveloped Western economies, including the USA, UK, Japan and Eurozone members. Consequently, business and consumer confidence rapidly declined, access to credit became increasingly difficult as underwriting standards tightened and the growth of private demand stalled.

Central Banks quickly responded by reducing policy rates and these low interest rates have been maintained. With conventional monetary policy channels largely exhausted and the global nature of the crisis eliminating the prospect of an export-led recovery, qualified support for discretionary fiscal stimulus measures began to emerge, particularly in the context of accommodative monetary policy (IMF 2009; Freedman et al. 2009).

‘[T]he optimal fiscal package should be timely, large, lasting, diversified, contingent, collective and sustainable’ (Spilimbergo et al. 2008:2). By 2008, both major Inter-Governmental Organisations (IGOs), the Organisation for Economic Cooperation and Development (OECD) and the International Monetary Fund (IMF), had provided qualified support for discretionary stimulus measures.24 The US, UK and Australia, and Eurozone countries, Spain and Luxembourg, enacted stimulus measures between 2008 and 2010 (see OECD 2009a).

However, orthodox thinking was rapidly reasserted by these IGOs through their advocacy of consolidation measures to achieve fiscal sustainability (OECD 2010a; IMF 2010a; see also Sharpe and Watts 2012). This was due to growing public debt and

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24 Little justification is provided by the IGOs as to why fiscal stimulus measures were warranted. However, the IMF (2010b:23) acknowledges that temporary joblessness can lead to ‘long-term unemployment and to lower potential output growth’, which implies a cyclically sensitive (hysteretic) NAIRU (Sharpe and Watts 2012).
deficit ratios in most advanced economies, resulting from automatic stabilisers and, for
some, stimulus measures.

The justification for fiscal consolidation was either asserted or reference was made to
the ‘immutable’ algebraic laws of debt and deficit dynamics. The failure of a country to
respond to its growing debt to GDP ratio was claimed to lead to insolvency. Even
countries which stabilised their debt ratios were vulnerable to poor economic
performance, due to empirical evidence of threshold debt ratios, above which GDP
growth was reduced (see Reinhart and Rogoff 2010a; Kumar and Woo 2010). There
were some sceptics, however, even prior to the GFC: ‘Debt sustainability has become
one of the most used and abused concepts in the recent discussion regarding
international financial architecture. The truth of the matter is that nobody knows what it
really means’ (Sturzenegger 2002:19).

The intention of this paper is to argue, first, that the algebra of debt dynamics must be
interpreted carefully to avoid drawing unwarranted conclusions. Second, the standard
algebra continues to drive most orthodox economic opinion, with differences being
confined to the timing of fiscal austerity measures, rather than their appropriateness for
all countries, whether sovereign or operating within a monetary union. Third, the
obsession with these accounting identities has meant fiscal policy has been divorced
from the advancement of public purpose, but, under their current institutional
arrangements, highly indebted Eurozone countries have limited scope for policy
manoeuvre.25

2.2 Algebra of debt dynamics

In his seminal work, Domar (1944) argues that fiscal sustainability requires a constant
total (interest-inclusive) deficit to GDP ratio. However, this condition was considered
too restrictive as it neglected the cyclical effects of automatic stabilisers. Hence

25 Mitchell (2009a:11) outlines a broad charter for advancing public purpose, including, ‘full employment
and price stability, poverty alleviation and environmental sustainability…’ Full employment is defined as
2 percent unemployment, no hidden unemployment, and no underemployment (Mitchell and Muyssken
2008).
maintaining a constant interest-inclusive deficit typically required pro-cyclical discretionary fiscal policy during economic downturns to sterilise the counter-cyclical workings of the non-discretionary components. The requirements of the Stability and Growth Pact (SGP) have created a similar problem for Eurozone members, particularly since the beginning of the GFC. Thus, breaches of these requirements have been common.

Buiter (1984) and Blanchard et al. (1990) argue that the debt to GDP ratio should converge to a desired level, but temporary deviations in the debt ratio are permissible given the impact of cyclical fluctuations. This means, in the limit, the present value of the debt ratio must be zero (see below). For algebraic purposes, the deficit is treated as the primary balance which excludes interest payments on the outstanding stock of debt. The starting point of the debt dynamics algebra is the ex post identity, which can be expressed in real terms (see, for example, Escalano 2010; Ley 2010):

\[ D_{t+1} = (1 + r_{t+1})D_t - B_{t+1} - \Delta M_{t+1} \]  

(1)

\( D_t \) denotes the real level of government debt at the end of period \( t \); \( r \) denotes the average real interest rate on public sector debt; \( B \) is the real primary budget surplus; and \( \Delta M \) denotes the increase in the real stock of base (high powered) money. Some writers argue that monetising the debt (\( \Delta M > 0 \)) is unsustainable due to the inflationary consequences of ‘printing money’ (see Auerbach et al. 2003; Ferguson and Kotlikoff 2003). However, the European Central Bank (ECB) Vice-President clearly states:

‘Central bank reserves are held by banks and are not part of money held by the non-financial sector, hence not, per se, an inflationary type of liquidity. There is no acceptable theory linking in a necessary way the monetary base created by central banks to inflation. Nevertheless, it is argued by some that financial institutions would be free to instantly transform their loans from the central bank into credit to the non-financial sector. This fits into the old theoretical view about the credit multiplier according to which the sequence of money creation goes from the primary liquidity created by central banks to total money supply created by banks via their credit decisions’ (Constancio 2011:5).
Certainly debt monetisation is not an option for individual Eurozone countries which cannot issue the Euro, even though it is used as the medium of exchange and accepted for payment of taxes. Initially, we follow Escalano (2010) and incorporate seignorage within the budget term. If \( g_t \) denotes real output growth, then (1) can be rewritten as:

\[
\frac{d_{t+1}}{y_t(1+g_{t+1})} = d_{t+1} = \frac{D_t(1+r_{t+1})}{y_{t+1}} - \frac{b_{t+1}}{y_{t+1}} = \frac{(1+r_{t+1})}{(1+g_{t+1})} d_t - b_{t+1}
\]

(2)

where lower case terms, \( b_t \) and \( d_t \) denote primary budget surplus and debt to GDP ratios, respectively. Thus, after dropping the time subscripts on the real growth and interest rates for simplicity:

\[
d_{t+1} = \frac{(1+r)d_t}{(1+g)} - b_{t+1} = (1+\lambda)d_t - b_{t+1}
\]

(3)

where \( \lambda = \frac{(r-g)}{(1+g)} \)

Equation (3) shows that the debt ratio can be reduced by raising the primary surplus to GDP ratio, increasing the growth rate, or reducing the interest rate on public debt. Then stabilising the current debt to GDP ratio, \( d_t \), requires that \( d_t = d_{t+1} = d_{t+2} \ldots \) which implies that future primary budget ratios must satisfy the following relationship:

\[
b_{t+i} = \lambda d_t = \lambda \bar{d} \quad i = 1,2, \ldots, j, \ldots
\]

(4)

Hence if the current real interest rate on debt exceeds the real growth rate (\( \lambda > 0 \)), the authorities must achieve a primary budget surplus in future time periods to stabilise the debt ratio. The difference equation (3) can be solved to obtain the debt ratio at time \( T(> t) \):

\[
d_T = d_0 \Pi_{t=1}^{T}(1 + r - g) - \sum_{t=1}^{T} [\Pi_{t+1}^{T}(1 + r - g)] b_t
\]

(5)

\((1 + \lambda \) has been approximated by \((1 + r - g)\), where \( r \) and \( g \) must now be defined as long run averages. The debt to GDP ratio at time \( T \) is equal to the initial debt to GDP ratio compounded for \( T \) periods by the interest rate, growth rate differential, minus the
sum of the compounded primary balance ratios projected over $T$ periods. Equation (5) can be readily solved for the constant primary balance ratio to achieve a target debt ratio, $d_T$, subject to known average real interest rates and output growth rates (Escalano 2010). Equation (5) can also be expressed in present value terms by discounting by $(1 + r - g)^T$:

\[
\frac{d_T}{(1+r-g)^T} = d_0 - \sum_{t=1}^{T} \frac{b_t}{(1+r-g)^t}
\]  

Equation (6) represents the intertemporal government budget constraint (IGBC) which underpins the principle of fiscal sustainability. The IGBC has been popularised by Buiter (1985, 1995), Blanchard (1990) and Buiter et al. (1993). The present value of the debt to GDP ratio at period $T$ is equal to the initial debt to GDP ratio minus the discounted present value of future primary balances.

McCallum (1984) used an overlapping generations model to argue that a government cannot engage in continual Ponzi financing as in the limit the government would not find any agent willing to hold its securities. However, this finding is problematic given the author assumed a closed economy with no population growth. Nevertheless, Blanchard et al. (1990) imposes a ‘no Ponzi’ condition to ensure that the debt cannot be infinitely ‘rolled over’. Thus, taking the limit of the LHS of (6) yields the so called transversality condition.

\[
\lim_{T \to \infty} \frac{d_T}{(1+r-g)^T} = 0
\]  

Equation (7) requires that the present value of the debt ratio converges to zero in the limit, so that, as $T$ increases, the debt ratio cannot increase at a faster rate than the discount factor. Substituting condition (7) into (6) and rearranging yields:

\[
d_0 = \lim_{T \to \infty} \sum_{t=1}^{T} \frac{b_t}{(1+r-g)^t}
\]  

\[
\lim_{T \to \infty} \frac{d_T}{(1+r-g)^T} = 0
\]
Equation (8) indicates that the present value of budget surpluses, as a ratio to GDP, must equal the initial debt ratio. An infinite number of debt and primary budget ratio trajectories satisfy the transversality condition and hence (8), including, for example, a steadily growing debt ratio at a rate of less than \((1 + r - g)\). Furthermore, under the special case of a constant budget surplus to GDP ratio, \(b\), then \(b = \lambda d_0\) implies a constant debt ratio, see equation (4).

Assuming \(r > g\), equation (8) demonstrates that ‘a government which has debt outstanding must anticipate sooner or later to run primary surpluses’ (Blanchard et al. 1990:12). Conversely, if \(r < g\), ‘[t]he government could even run permanent primary deficits \([b < 0]\) of any size, and these would eventually lead to a positive but constant level of debt, \(-b/(g - r)\)’ (Blanchard et al. 1990:15, quoted in Fullwiler 2006). But if bond markets doubt the fiscal sustainability of a particular (non-sovereign) country, market sentiment will drive up interest rates and reduce economic activity, which creates self-fulfilling expectations about solvency (Fullwiler 2006). A major shortcoming of the debt dynamics algebra, which follows from Fullwiler’s point above, is that neither the interest rate nor the growth rate is assumed to be affected by budgetary policy, per se.

The algebra presented in the appendix of this paper shows that a fiscal stimulus which increases the growth rate can reduce the public debt to GDP ratio under relatively undemanding parameter conditions. The change in the debt ratio can be written (see A6) as:

\[
d' - d_0 = \frac{\Delta G}{(1 + g_0 + \rho)Y_0} - \frac{D_0}{Y_0} = \left[\gamma \alpha / \beta (1 + g_1 + \rho)\right](1 - c^* + m - \tau - d_0) \tag{9}
\]

where \(\gamma\) and \(\rho\) denote the growth in government expenditure, \(\Delta G/G_0\), and the increase in the output growth rate, respectively, \(\alpha\) is the government expenditure share of GDP, \(G_0/Y_0\), and \(\beta = (1 - c^* + m)\), where \(c^* = (1 - t)c\) is the marginal propensity to consume and \(m\) is the marginal propensity to import.
Then the sign on the change in the debt ratio is determined by the sign of the final term. For illustrative purposes, consider a propensity to consume, $c^*$, of 0.5, a marginal propensity to import of 0.15 and a marginal tax rate of 0.3, then, for an initial debt to GDP ratio of more than 35 percent, a fiscal stimulus of any magnitude actually reduces the debt ratio, when multiplier effects are considered. If the multiplier effect $(1/\beta)$ is unity, as opposed to 1.54, a fiscal stimulus would reduce the debt ratio when the initial debt to GDP exceeded 70 percent.

However the impact of a fiscal stimulus on economic growth is contentious in the light of the recent expansionary contractions literature and the longstanding debate over the magnitude of multiplier effects and in turn the presence or otherwise of financial crowding out. We address these claims in the next section.

### 2.3 Discretionary fiscal stimulus measures and growth

#### 2.3.1 Expansionary contractions

By 2010 the major IGOs were reasserting the need for medium-term fiscal consolidation strategies guided by the imperative of fiscal sustainability (IMF 2010a, 2010b, 2010c; OECD 2010a, 2010b; World Bank 2011; see also Blanchard et al. 2010; Price 2010). Their arguments were supported by the so called expansionary fiscal contractions theory (Giavazzi and Pagano 1990; Alesina and Perotti 1995; Alesina 2010).

A fiscal consolidation was expected to stimulate economic growth in three ways (see Briotti 2005). First, increased consumption could occur amid expectations of lower future taxes and higher future income which could overwhelm the contractionary impact on GDP (see also OECD 2010a). Second, interest rates were expected to fall, thereby increasing investment as proposed by mainstream crowding out/loanable funds theory. Also, a fiscal consolidation was expected to reduce risk premiums if it represents a credible commitment to fiscal discipline (see McDermott and Wescott 1996). Finally, improved labour market efficiency and competitiveness was expected due to lower public sector employment depressing public sector wages, and in turn, private sector
wages, subsequently increasing profits and investment (Alesina and Perotti 1995). Hemming et al. (2002:36) conclude that the literature is highly contentious and ‘[t]here are hardly any instances of negative fiscal multipliers’.

Alesina and Ardagna (2010) examine a panel of 21 OECD countries (1970-2007) and identify 107 cases of fiscal adjustment, of which 21 were ‘successful’ due to the cumulative reduction in the debt ratio over 3 years exceeding 4.5 percentage points. Most ‘successful’ consolidations occurred during periods, at or close to, full employment, as defined by potential output (Gravelle and Hungerford 2011). According to OECD (2012a) data, output gaps have been negative among all major advanced economies since 2009, with estimates for 2012 ranging from 1 percent for Canada to 12 percent for Greece.\(^\text{26}\)

It is now recognised, however, that fiscal austerity imposes significant short-term economic costs, because the private sector, which is highly indebted in many Eurozone (and sovereign) economies has not responded with expenditure growth and risk premiums continue to rise (Troika 2011; Mitchell 2011b).\(^\text{27}\) Perotti (2011) too casts doubt on the applicability of the expansionary contractions hypothesis when private demand is subdued. IMF (2012a) has now largely abandoned this view. The algebra demonstrates that debt and deficit ratios will not be reduced, despite austerity measures, under conditions of stagnant growth.\(^\text{28}\)

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\(^\text{26}\) Negative output gaps based on the (discredited) NAIRU tend to underestimate the underutilisation of resources.

\(^\text{27}\) Troika consists of the European Commission, European Central Bank and IMF.

\(^\text{28}\) ‘Stagnation could both exacerbate and be a symptom of fiscal imbalances’ (OECD 2011e:227). HM Treasury (2011) outlined some Office of Budget Responsibility (OBR) projections in light of the UK government’s program of fiscal tightening. The economy was forecast to grow 1.7 percent in 2011, peaking at 2.9 percent in 2013. The cyclically adjusted deficit was expected to be eliminated by 2014-15, with public sector net debt reaching 70.9 percent of GDP in 2013-14, before declining to 69.1 percent of GDP in 2015-16. On the other hand, a few months later the IMF (2011e, 2011f) predicted UK GDP growth of 1.1 percent and a net debt ratio of 73 percent in 2011, with the unemployment rate expected to remain stable at 7.8 percent. The OBR had also suggested that the UK government’s policies had a greater than 50 percent chance of achieving their fiscal mandate and meeting the debt target in 2015-16. Ironically, given its long-term real rates of growth and interest on debt, the UK could sustain its debt ratio by running a deficit (De Grauwe 2011a). Thus it would appear that ideology dominates policymaking in the UK, with fiscal tightening being counter to the pursuit of public purpose, and based on wildly optimistic assumptions about GDP growth rates. Similarly in Australia, the urgency of the restoration of a fiscal surplus is an article of faith for both major political parties. Early in 2013, the Australian Labor Government reneged on its commitment to a budget surplus in financial year 2012-13. A surplus is now forecast in 2016-17 (Australian Government 2013).
2.3.2 Multiplier effects

As noted, in response to the GFC some countries adopted fiscal stimulus measures to boost their economies. ‘[P]ast experience suggests that fiscal policy is particularly effective in shortening the duration of recessions caused by a financial crisis’ (IMF 2009:xix). Spilimbergo et al. (2008:4) argue that ‘fiscal stimulus is highly useful (almost necessary) when the financial crisis spills over to the corporate and household sectors with a resulting worsening of the balance sheets’. Also, spending increases are often more effective than tax cuts because of larger first round effects (see Hemming et al. 2002; Briotti 2005; Spilimbergo et al. 2009).

Most empirical literature on fiscal multipliers focuses on the USA, Japan and major European economies. Multipliers are overwhelmingly positive, but can be small. Short-term multipliers typically average 0.5 for tax cuts and 1 for spending increases (Hemming et al. 2002; see also Spilimbergo et al. 2009), with the latter higher if directed to the unemployed and infrastructure investment (Gravelle and Hungerford 2011).

CBO (2011) estimates 5-year spending multipliers of 1.1 to 1.9 (Gravelle and Hungerford 2011). Also, a permanent 1 percent of GDP increase in government spending (tax cut) raises US GDP by 1.55 (0.98) percent after 16 quarters (Romer and Bernstein 2009).

Freedman et al. (2009:16) suggest where fiscal stimulus is globally implemented and monetary policy is accommodative, ‘every dollar spent on government investment can increase GDP by about $3, while every dollar of targeted transfers can increase GDP by about $1’. In 2010, ‘inventory accumulation and fiscal stimulus were driving the recovery’ (IMF 2010b:xiii).

IMF (2012a:41) now concede that ‘the multipliers used in generating growth forecasts have been systematically too low since the start of the Great Recession, by 0.4 to 1.2 … actual multipliers may be higher, in the range of 0.9 to 1.7.’
The consensus then is that a stimulus increases economic activity, particularly in the presence of excess productive capacity and accommodative monetary policy. Thus, the assumption of an expenditure multiplier equal to or above unity in (9) is consistent with the extant literature.

2.4 Sovereign and non-sovereign economies

In their recent publications supporting medium-term fiscal consolidation strategies, the major IGOs have not formally differentiated between sovereign and non-sovereign economies. However, despite growing debt to GDP ratios in the US and Japan, the IGOs have been relatively moderate in their criticisms, by referring to their ‘unclear’ and ‘inadequate’ medium-term strategies (OECD 2011e:240). We now examine the implications of debt dynamics for sovereign and non-sovereign economies.

2.4.1 Eurozone (non-sovereign) economies

Eurozone countries are unable to conduct independent monetary policy and do not operate with an individual nominal exchange rate. In addition, these countries are revenue-constrained, and so, net government spending must be financed by borrowing. Consequently, Eurozone governments can become ‘hostage’ to the bond market in the absence of funding by the ECB or other institutions. During the GFC, Eurozone members have experienced increasing government bond spreads over the German benchmark rate, which are particularly stark among the peripheral members (e.g. Portugal, Ireland and Greece) (see Mitchell 2011c). These circumstances can cause a self-fulfilling process based on the interaction between liquidity and solvency crises.

‘Once a member country gets entangled in a liquidity crisis, interest rates are pushed up. Thus the liquidity crisis turns into a solvency crisis. Investors can then claim that it was right to pull out the money from a particular national market. It is a self-fulfilling prophecy: the country has become insolvent because investors fear insolvency’ (De Grauwe 2011a:5).

The containment of such crises is difficult because the Eurozone bond market is highly integrated and national fiscal and monetary authorities are inherently constrained.
Believers in market efficiency claim that financial markets continue to exhibit significant disciplinary power on Eurozone countries, but De Grauwe (2011a) is less sanguine, noting that financial markets are subject to phases of extreme euphoria and panic.

The real interest-growth rate differential has been positive among most Eurozone economies, particularly among peripheral members since the GFC, and also earlier on in the decade for Italy and Portugal (see Figures 2.1 and 2.2). Thus, stabilisation of the debt ratio requires that primary budget surpluses be run in the medium-term, despite automatic stabilisers, rather than fiscal profligacy, having largely driven budgets into deficit. However the extant SGP rules, that target a maximum public debt to GDP ratio of 60 percent and a maximum deficit ratio of 3 percent, are likely to be strengthened. This means that contractionary fiscal measures will be required in the short run, despite the real economic consequences. These circumstances have led to intense political conflict particularly in Greece.

Ireland constitutes an interesting case study. Since the onset of the GFC, contractionary measures have been adopted following the budget blowout due to the collapse of the real economy, in particular housing (see Figures 2.1 - 2.3). According to the SGP, Ireland must identify a medium-term strategy which achieves annual budgets ‘close to balance or in surplus’, thereby avoiding the risk of running a budget deficit above 3 percent of GDP which would impose extra constraints on policy (Department of Finance 2011:13).

After the Irish debt spread rose during 2010 from 100 to 600 bps over the German 10 year bond rate, a bailout was brokered with the IMF and EU in November 2010 because there were major doubts as to whether the Irish Government could restore growth,

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29 Reinhart and Rogoff (2010a) and Kumar and Woo (2010) find that median real per capita GDP growth rate in advanced economies falls when gross public debt reaches a critical threshold share of GDP, typically 75 or 90 percent, and falls further at higher shares. However, there are difficulties in isolating a one way causal relationship between the level of debt and the growth rate, because causation also runs from slower growth to rising debt, so empirical estimates should be treated cautiously (OECD 2011e; Sharpe and Watts 2012; Sharpe 2013b).
achieve fiscal sustainability and maintain a healthy banking system. The bailout conditions strengthened the requirements of fiscal consolidation.

The primary budget was projected to move from a deficit of 9.2 percent of GDP in 2011 to a surplus of 2.7 percent of GDP by 2014. While the Department of Finance (2011) projected debt to be about 100 percent of GDP by 2014, OECD (2012a) data reveal that gross debt to GDP now exceeds 120 percent. Also, scenarios are presented by Department of Finance (2011) in which the primary balance is required to reduce the debt ratio by 30 percentage points over both 10 and 20 year periods. The required primary surpluses range from 5.2 percent of GDP to reduce the debt ratio from 120 to 90 percent over 10 years, under pessimistic assumptions, to a 0.4 percent primary surplus over 20 years to reduce the debt ratio from 80 to 50 percent. These figures highlight the extreme contractionary measures required to restore fiscal sustainability.
With a highly indebted private sector, the only potential source of increased spending is exports. A rise in exports requires increased competitiveness, given Ireland’s reliance of intra-EU trade under a common currency.\textsuperscript{30} De Grauwe (2011a) advocates deflationary macroeconomic policy to bring about price and wage cuts, which has been effective. Irish (relative) unit labour costs in manufacturing declined by over 20 percent between 2008 and 2010 (Figure 2.4), while the trade surplus had doubled to more than 20 percent of GDP, in part due to the collapse of investment (Figure 2.5), with a high percentage of capital goods being imported.

However the consolidation and internal devaluation measures, including public sector wage cuts, declining compensation of private sector workers, cuts in employment and tax increases, have increased the relative debt servicing burdens of the private sector which are fixed in nominal terms. The Irish example illustrates the extreme impact on

\textsuperscript{30} This also explains the Irish Government’s reluctance to increase the low corporate tax rate.
citizens’ living standards for a country complying with the requirements of debt management under the SGP.

Figure 2.3 Unemployment rates: Eurozone economies

Data source: OECD (2012a)

Similar scenarios are being played out in other Eurozone countries, with Greece projected to default on a substantial portion of its debt, following a deal negotiated between European leaders and private investors (see AFR 2011). While ‘Greece has taken a turn for the worse’, IGOs continue to assert ‘the crucial importance of frontloading growth-enhancing structural reforms for debt sustainability’ (Troika 2011:1,4). Notwithstanding a more cautious IMF (2012a), only the question of timing is canvassed by IGOs, with the embedded ideology remaining intact.

In essence, the formal SGP constraints imposed on Eurozone members typically necessitate pro-cyclical fiscal policies during periods of economic contraction. Claims by neo-liberals and IGOs that fiscal consolidation will promote private sector led growth have been rebutted by stagnant growth being experienced by Eurozone countries and also sovereign countries, such as Britain, which is also adopting extreme
contractionary measures (see below). Yet at the same time, IMF (2011d) argues that households must reduce their burgeoning debt levels. A basic understanding of sectoral balances reveals that the private and public sector cannot simultaneously achieve surpluses, except in the presence of a large current account surplus.\textsuperscript{31} Thus, the public sector must intervene to fill the spending gap (Mitchell 2011c).

![Figure 2.4 Relative unit labour cost (manufacturing): Ireland](image)

Data source: OECD (2012a)

Under the current institutional arrangements, stimulus measures by Eurozone governments are likely to be ineffective because of the response of bond markets (cf. the debt algebra in this chapter’s appendix). Ultimately, a monetary union cannot operate in the absence of a corresponding fiscal union. However, the development of Eurozone fiscal union is politically and democratically challenging. In the interim, other responses have been tabled such as, a managed default and/or increased ‘haircuts’ for bond holders, bank recapitalisation, a permanent European Stabilisation Mechanism (ESM) (i.e. loans subject to conditionality) and jointly issued Eurobonds. However

\textsuperscript{31} In the absence of a sufficient current account surplus, economic activity would decline and, through the operation of automatic stabilisers, generate a budget deficit.
these are not long-term ‘solutions’ and are unlikely to generate the economic growth required to underpin a sustained recovery.

The restoration of sovereign currencies to all Eurozone members is a necessary but not sufficient condition to stimulate growth and reduce unemployment. Any ‘solution’ which does not satisfy this requirement will fail. Below we argue that a sovereign economy is endowed with greater freedoms in policy design and implementation, and is not subject to the ‘laws’ of debt dynamics which constrain non-sovereign economies.

Figure 2.5 Real gross fixed capital formation: Eurozone economies

2.4.2 Independent sovereign economies
In contrast to Eurozone (non-sovereign) countries, independent (sovereign) economies have their own fiat currencies, operate under a flexible exchange rate regime and have, at their disposal, the full array of macroeconomic policy instruments. Sovereign government spending is only constrained by the availability of real goods and services, denominated in the national currency (Mitchell and Muysken 2008).
Modern Monetary Theory (MMT) combines the principles of Chartalism (see Minsky 1986; Wray 1998) and Functional Finance (Lerner 1943, 1947, 1951; Forstater 1999) to make the necessary distinction between a sovereign and non-sovereign economy. According to Functional Finance, ‘[g]overnment should adjust its rates of expenditure and taxation such that total spending in the economy is neither more nor less than that which is sufficient to purchase the full employment level of output at current prices’ (Lerner 1943:354). Thus the conduct of fiscal policy ‘shall all be undertaken with an eye only to the results of these actions on the economy and not to any established traditional doctrine about what is sound and what is unsound’ (Lerner 1943:354).

As the monopoly supplier of the fiat currency, when a sovereign government (e.g. Australian Treasury) spends, it credits the domestic bank accounts of firms that sell goods and services to the Government, so the very act of spending leads to the creation of money. Conversely, the IGBC argues that ‘money creation is a last resort that is used only when a government cannot raise enough funds through taxation or borrowing’ (Fullwiler 2006:16). The ‘vertical’ transactions between the government and the non-government sector increase the reserve balances or system liquidity and hence the stock of base money. Both government spending and the purchases of assets from the non-government sector by the Central Bank transfer fiat money to the non-government sector in the form of additional reserve balances. Conversely taxes and sales of financial assets to the non-government sector reduce reserve balances. Excess reserve balances are generally created when government expenditure exceeds taxes on a given day.

For instance, each month the Reserve Bank of Australia announces the Cash (Official) Rate which is central to the conduct of monetary policy and plays a similar role as the Bank Rate in the UK monetary system. There is a corridor of 25 basis points between the Cash Rate and the support (or floor) rate paid on excess reserves. Thus the overnight rate would fall below the Cash Rate in the presence of excess reserves, thereby compromising the pursuit of monetary policy.
RBA (2012) is transparent about these mechanisms:

‘On a day-to-day basis, deviations in the cash rate around the target are determined by the supply and demand for exchange settlement (ES) funds. These funds are held in accounts at the Reserve Bank by banks as well as a number of other institutions, and are used by these account holders to meet their settlement obligations to each other and to the Bank. The daily aggregate net settlement obligation between ES account holders and the Bank can be very large. This is mostly because the Reserve Bank acts as banker to the Australian Government. Expenditure by the Australian Government results in funds flowing into ES accounts, while the payment of federal taxes has the opposite effect.’

MMT incorporates the fundamental insight that net spending by a sovereign government actually increases bank reserves and places downward pressure on short-term interest rates because higher government expenditure increases system liquidity and hence competition is not intensifying to borrow a limited stock of *loanable* funds (Mitchell and Muysken 2008). If the Central Bank sells financial assets at an attractive rate of interest, the banks would purchase these assets with their excess reserves, thereby removing the downward pressure on the overnight interest rate. Conversely, if a budget surplus is realised a shortage of reserves typically occurs, which tends to increase the overnight rate above the target (Cash) rate. The Central Bank must ensure that commercial banks can always acquire sufficient reserves balances to finance their interbank transactions which normally entail borrowing at a rate in excess of the target rate, via open market operations.\(^{32}\) Otherwise the payments system is threatened.

The Central Bank does not sell assets to finance net government expenditure (which caused the excess reserve balances), because the asset sales represent an interest rate maintenance mechanism (Fullwiler 2006; Mitchell and Muysken 2008). On the other hand, if the support rate paid on excess reserves equals the target rate (i.e. a floor system, e.g. the USA and UK), government debt does not need to be issued to maintain the target rate. Sovereign government debt is popular in financial markets, however,

\(^{32}\) Australian commercial banks are not subject to any formal quantitative reserve ratios.
because it represents a risk-free interest-bearing asset which provides a benchmark for pricing risky financial securities (Sharpe 2013a).

Debt monetisation is impossible if the target and support rates are unequal (Fullwiler 2006), or the Central Bank is not prepared to let the target rate fall to the support rate or zero. An increase in economic activity associated with running a fiscal deficit may lead commercial banks to desire increased reserves at the Central Bank for interbank transactions, which would impact on the level of debt sales by the Central Bank. 33 Thus the prevailing framework for implementing monetary policy (e.g. corridor or floor system) and the preferences of commercial banks, influence the magnitude of the change in the stock of base money and the holdings of debt, which influence the change in the holdings of net private sector assets following a fiscal deficit. These observations demonstrate that the accounting identity (1) cannot be interpreted as an ex ante set of choices associated with financing net government spending. Thus, the claim that ‘[t]he printing press is the time-honoured last resort of governments that cannot pay their bills out of current tax revenue or new bond sales’ (Ferguson and Kotlikoff 2003:26) represents a fundamental misunderstanding of how fiscal and monetary policy are conducted in a sovereign economy.

While the operation of debt management agencies may vary across sovereign countries, the underlying principles with respect to the conduct of fiscal and monetary policy remain unchanged. For example, in both the UK and Australia, independent agencies, namely the Debt Management Office and the Australian Office of Financial Management, administer the issue and sale of public debt in light of anticipated ‘financing’ requirements. The operation of these entities conveys the impression that, like households, sovereign governments are budget constrained, yet as argued above, governments can choose not to issue debt (Mitchell 2009b; Watts 2011).

From the above discussion, the only limit on sovereign government expenditure lies in the productive capacity of the economy in the context of planned private sector spending which includes spending by bondholders out of post-tax interest income. In

33 Similarly the desired holdings of cash by the non-bank private sector may also change, which would affect the composition of the change in base money.
practice, the likelihood of bondholder spending imposing major constraints on sovereign government net spending is remote, given, first, that current and prospective target (Cash) rates are the main determinants of longer term bond rates, so that a low target rate will keep the long-term rate low and second, in the pursuit of its own political objectives a sovereign government can vary tax rates in order to release sufficient real resources so that its economic and social programs can be implemented. Orthodox economic opinion remains influential, even for the conduct of macroeconomic policy in sovereign countries. For example, despite his earlier claims, (Buiter 2010b), Buiter quoted by Hammond (2011) argues that:

‘U.S. fiscal sustainability ‘denial’ cannot continue forever…The ability of the U.S. and Japanese sovereigns to borrow at risk-free rates, despite these countries’ unsustainable fiscal fundamentals, could likely end with a revolt of the bond market vigilantes, possibly as early as 2013, and will be followed by injections of fiscal pain. The U.K. has already embarked on an ambitious multi-year fiscal tightening program to handle its substantial structural deficit’ (see also De Grauwe 2011a).

This section has argued that, in contrast to Eurozone (non-sovereign) economies and the assumptions of the debt dynamics algebra, sovereign governments are not revenue-constrained, and so, government debt does not finance government spending. Thus institutional differences, which tend to be ignored by IGOs, policymakers, mainstream academics and the media, have important implications for the policy responses to the GFC.

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34 Buiter (2010b:52) is quite clear: ‘Conventional monetary policy is not exhausted even if the official policy rate is at its lower bound. Conventional monetary policy is not exhausted until risk-free nominal interest rates at all maturities are at their lower bounds. Risk-free here means free of default risk. The monetary policy authorities can influence longer-maturity risk-free interest rates either by committing themselves to a given sequence of future (short-term) official policy rates, by lending and borrowing over longer maturities at the target risk-free rate of interest for that maturity, and/or by buying and selling longer-maturity risk-free financial instruments.’ For example, the US Federal Reserve Board has taken action via its ‘Maturity Extension Program’ to reduce long-term risk-free yields (see FRB 2011). Eurozone economies do not have the capacity to engage in these practices.

35 Fullwiler (2006) undertakes some calculations of US bondholders’ (post-tax) income to GDP ratio based on different scenarios but with r < g. He finds that the ratio stabilises and is sustainable under the IGBC.
2.5 Conclusion

The algebra of debt dynamics has reinforced ideological prejudices about the conduct of fiscal policy, particularly since the advent of the GFC. Its ostensible rigor has been persuasive about the urgency of fiscal consolidation in all countries with rising debt (and deficit) ratios, notwithstanding differences in their institutional arrangements and the assumption of constant real growth and interest rates. Using reasonable parameter values, the algebra presented in this paper shows that fiscal stimulus can reduce the debt to GDP ratio.

The policy choices for Eurozone countries, including Ireland and Greece and the larger economies, such as Italy, are very limited. Further fiscal stimulus, though necessary, cannot be undertaken without large amounts of official sector (e.g. Troika) support, though such intervention would conflict with the provisions of the Treaty and SGP. Recent data reveals that fiscal consolidations tend to depress growth, as would be expected. Nevertheless, the IGOs continue to preach fiscal austerity for all countries, albeit subject to a less demanding timetable.

For Eurozone economies a necessary but not sufficient condition for growth is the restoration of currency sovereignty. The preparedness of Eurozone countries to allow a partial Greek default, however, demonstrates the concern about contagion should some member countries renounce the common currency.

Sovereign economies must use their inherent capacity to engage in discretionary fiscal stimulus measures to promote economic recovery. However the neo-liberal agenda, geared to fiscal sustainability via the IGBC, presents a political/ideological barrier to the pursuit of public purpose. This neo-liberal notion of fiscal sustainability must be redefined so that full employment policies are actively promoted. In this vein, a Job Guarantee offers a ‘sustainable’ growth model (Mitchell and Muysken 2008).
2.6 Appendix

We commence with the \textit{ex post} identity between debt ratios and the primary budget surplus (see equation 3):

\[
d_1 = (1 + \lambda_1) d_0 - b_1
\]  

(A1)

where \( 1 + \lambda_1 = \frac{(1 + r_1)}{(1 + g_1)} \approx (1 + r_1 - g_1) \).

Consider a fiscal stimulus via increased government expenditure, \( \Delta G \), which under a simple linear expenditure model leads to a multiplied increase in the level of output and increases the growth rate by \( \rho \):

\[
\rho = \frac{\Delta Y_G}{Y_0} = \frac{[\Delta G / (1 - c^* + m)]/Y_0}{Y_0} = \frac{\gamma \alpha}{\beta}
\]  

(A2)

where \( \gamma \) denotes the growth in government expenditure, \( \Delta G / G_0 \), \( \alpha = G_0 / Y_0 \) and \( \beta = (1 - c^* + m) \), \( c^* = (1 - t)c \) is the marginal propensity to consume and \( m \) is the marginal propensity to import. Then the change in the primary budget surplus can be written as:

\[
\Delta B_1 = \Delta T - \Delta G = (t \Delta G / \beta) - \Delta G = -\Delta G (\beta - t) / \beta
\]  

(A3)

The real public sector debt in period 1 can now be written as:

\[
D_1 = (1 + r_1) D_0 - (B_1 + \Delta B_1)
\]  

(A4)

where, for simplicity, \( B_1 \) was initially set to stabilise the debt ratio, prior to the fiscal expansion, that is, \( B_1 = D_0(r_1 - g_1) \). The debt ratio in period 1 can now be written as:

\[
D_1 / ((1 + g_1 + \rho) Y_0) = (1 + r_1) D_0 / ((1 + g_1 + \rho) Y_0) + [\Delta G (\beta - t) / \beta] / ((1 + g_1 + \rho) Y_0)
\]  

(A5)

So the change in the debt ratio is:

\[
d'_1 - d_0 = \frac{D_1}{(1 + g_1 + \rho) Y_0} - \frac{D_0}{Y_0}
\]

\[
= -\frac{\rho d_0}{1 + g_1 + \rho} + \frac{[\gamma \alpha (\beta - t)]}{\beta(1 + g_1 + \rho)}
\]

\[
= \frac{\gamma \alpha}{\beta(1 + g_1 + \rho)} (\beta - t - d_0)
\]

\[
= \frac{\gamma \alpha}{\beta(1 + g_1 + \rho)} (1 - c^* + m - t - d_0)
\]  

(A6)

The sign on the change in the debt ratio is determined by the sign of \((1 - c^* + m - t - d_0)\).
(a) Financial crowding-out

The withdrawal of discretionary fiscal stimulus and a renewed emphasis on institutional and ‘self-imposed’ budgetary constraints are evidence that the imperative of fiscal sustainability and sound accounting fundamentals continue to drive fiscal policymaking within many advanced economies. To buttress the urgency for fiscal sustainability, neo-liberals often draw upon financial crowding-out theory. Despite an extensive literature, empirical applications are often misspecified due to their failure to account for different institutional arrangements. However, the policy responses of national governments to the Global Financial Crisis have highlighted the institutional disparities, presenting a unique opportunity for a rigorous empirical investigation. This paper develops panel vector error correction models for both sovereign and non-sovereign economies over the period 1999 to 2010 to examine financial crowding-out. The empirical evidence reveals crowding-out effects in non-sovereign economies, but not within sovereign economies.
3a.1 Introduction

As the nascent recovery following the Global Financial Crisis (GFC) remains tentative, policymakers within many advanced economies are pursuing fiscal consolidation programmes as government debt and deficits reach ‘unsustainable’ levels (see IMF 2010f). A policy agenda geared to sustainable fiscal balances characterises the neo-liberal approach to the conduct of fiscal policy, which is closely associated with the policy prescriptions of key Inter-Governmental Organisations (IGOs), namely the International Monetary Fund (IMF) and the Organisation for Economic Cooperation and Development (OECD) (see Sharpe and Watts 2012). The withdrawal of discretionary fiscal stimulus and a renewed emphasis on institutional and ‘self-imposed’ budgetary constraints are evidence that the imperatives of so-called ‘fiscal sustainability’ and ‘sound’ accounting fundamentals continue to drive fiscal policymaking within advanced economies.

To buttress the urgency of fiscal sustainability, neo-liberals often assert that rising budget deficits and public debt will cause higher interest rates (known as financial crowding-out) which can subsequently affect interest sensitive expenditures and hence economic growth. While these alleged effects of fiscal policy have been widely investigated within the theoretical and empirical literature, the policy responses of national governments to the GFC have highlighted institutional disparities among advanced economies. These differences are particularly apparent when one defines a sovereign and non-sovereign economy, although the financial crowding-out literature fails to make the distinction.

According to Modern Monetary Theory (MMT), a sovereign economy issues its own fiat non-convertible currency and operates with a flexible exchange rate (Mitchell and

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36 The neo-liberal economic policy agenda, defined by Wacquant (2001:404), consists of three pillars: ‘erasing the economic state, dismantling the social state, strengthening the penal state: these three transformations are intimately linked to one another and all three result essentially from the conversion of the ruling classes to neo-liberal ideology.’ The Washington Consensus provides a useful summary of neo-liberal polices (see Williamson 1990).

37 Fiscal sustainability is often defined by reference to the algebra of debt and deficit dynamics (see Blanchard et al. 1990; Buiter 2010b; Watts and Sharpe 2013). Notwithstanding this, sound public finance and fiscal sustainability are not operational concepts.
Muysken 2008). A non-sovereign economy does not possess either of these characteristics (e.g. Eurozone members). In responding to the GFC, many non-sovereign economies have been required to pursue harsh fiscal austerity measures, and have faced high interest rates on government bonds (e.g. Greece). However, sovereign economies (e.g. US, UK, Australia and Japan) have engaged in counter-cyclical fiscal measures despite the fact that, in some of these economies, levels of public debt relative to GDP during the crisis have been similar to, or exceeded those of Eurozone members (e.g. Japan).

The impact of the GFC on national economies has demonstrated that sovereign economies are endowed with greater freedoms in policy design and implementation than non-sovereign economies, despite IGOs insisting that all advanced economies must pursue medium-term fiscal consolidation strategies. Thus, institutional arrangements appear to have important implications for both the conduct of fiscal policy and its impact on interest rates.

The objective of this paper is to investigate financial crowding-out, taking account of differences in institutional arrangements among advanced economies. Balanced panel data vector error correction models (VECMs) are developed for both sovereign and non-sovereign economies over the period 1999 to 2010. Furthermore, a number of deficit and public debt proxies are considered.

The remainder of this paper is organised as follows. Section 3a.2 presents financial crowding-out theory from the perspective of two competing theoretical discourses; the neo-liberal and modern money perspectives. The extant empirical literature is also briefly reviewed. Section 3a.3 discusses the data and model specification. Empirical results are reported and discussed in Section 3a.4. Concluding remarks are presented in Section 3a.5.
3a.2 Financial crowding-out

3a.2.1 Neo-liberal perspective

Financial crowding-out theory has received wide coverage within the academic literature and financial media, and is often referred to within the policy prescriptions of key IGOs. Most recently, the theory has been drawn on by neo-liberals to promote expansionary fiscal contractions and fortify the imperative of fiscal sustainability within many advanced economies.

In essence, the expansionary contractions hypothesis claims that expansionary outcomes, in terms of increased output growth, increased consumption and investment expenditure and lower unemployment rates, can be achieved via a fiscal consolidation (reduction in government spending and/or an increase in taxes) over the medium- to long-term (see Giavazzi and Pagano 1990; Alesina 2010). Financial crowding-out and ‘credibility’ effects are positioned as key demand-side mechanisms, inducing private investment and economic growth under conditions of fiscal withdrawal (Briotti 2005). The OECD and IMF frequently draw on the expansionary contractions hypothesis to validate fiscal consolidations within many advanced economies (see IMF 2010b, 2010d; OECD 2009d, 2011e).

In a report entitled Preparing Fiscal Consolidation, the OECD (2010h:7) presents three arguments justifying fiscal consolidations, all of which are embedded in the fiscal sustainability literature. First, ‘[h]igh public indebtedness curtails the scope for countercyclical fiscal action, when needed’. Second, ‘[b]allooning outlays on debt service could crowd out government spending on growth enhancing programmes’. Finally, ‘[e]xcess supply of government bonds may put upward pressure on interest rates and therefore crowd out private investment and compromise long-term output’.

Crowding-out arguments opposing government intervention can be traced back to Adam Smith, John Stuart Mill and J.B. Say. The synthesis of Keynes’s General Theory into the IS-LM framework by John R. Hicks and Alvin Hansen created more empirical interest in the impact of government spending on interest rates, and subsequently on investment and income. For an overview, see Spencer and Yohe (1970) or Bernheim (1989).

Amid weak GDP growth, IMF (2012a) has now largely abandoned the expansionary fiscal contractions argument. Further, IMF (2012a:41) concedes that ‘the [fiscal] multipliers used in generating growth forecasts have been systematically too low since the start of the Great Recession, by 0.4 to 1.2 … [A]ctual [fiscal] multipliers may be higher, in the range of 0.9 to 1.7’.
The first and second propositions have ties with the emerging literature on fiscal space (see Heller 2005). The third justification for fiscal consolidation relates to ‘textbook’ financial crowding-out theory. Culbertson (1968:463) characterises the ‘textbook’ view, to which the OECD and IMF subscribe:

‘Fiscal policy provides additional spending in a world of sparse spending opportunities. But it does not provide a new source of finance in a world where spending is constrained by sources of funds of finance. The government expenditures are financed in debt markets in competition with private expenditures. The case least favorable to fiscal policy is that in which the additional government borrowing simply crowds out of the market an equal (or conceivably even greater) volume of borrowing that would have financed private expenditures.’

Thus, increased net government spending requires increased government debt to finance the additional outlays. Then, on the presumption that the supply of credit is constrained, government debt must compete with private debt, in effect, putting upward pressure on market interest rates. Additionally, increased government spending reduces overall national savings (defined as both private and public sector savings) and therefore the supply of loanable funds, which also results in higher interest rates. Higher interest rates are expected to increase borrowing and debt servicing costs, thus crowding-out private investment spending. Furthermore, ‘ever larger deficits,’ so the argument goes, ‘generate ever higher interest rates, as the government must offer incentive to encourage private lenders to accept its IOUs in exchange for their saving or as a premium against the risk of default or—again, worse still—the possibility of future monetisation to “repay” the deficits’ (Fullwiler 2006:4).

A consequence of the GFC has been increased public debt and deficit levels among many advanced economies, largely due to the workings of automatic stabilisers with private sector demand falling and unemployment rising. Policymakers fear that these levels of public debt and deficits are unsustainable, and so, must be reduced. Thus, a policy consensus, reinforced by the prescriptions of IGOs has emerged that requires the medium-term pursuit of fiscal consolidation to bring public debt levels back to sustainable levels and reduce interest rates (see Sharpe and Watts 2012).
Figure 3a.1 Gross financial liabilities to GDP: Eurozone economies

Data source: OECD (2012a)

Figure 3a.2 Gross financial liabilities to GDP: non-Eurozone economies

Data source: OECD (2012a)
Notwithstanding this, there seem to be some disparities emerging within the economic data that financial crowding-out theory cannot reconcile. This threatens the legitimacy of the argument as a justification for fiscal consolidation among many advanced economies. These disparities are illustrated by Figures 3a.1 to 3a.4.

Figures 3a.1 and 3a.2 illustrate the impact of the GFC since 2007-2008 on the gross financial liabilities (debt) to GDP ratios in a number of advanced economies. Some countries (Ireland, for example) have experienced more dramatic increases in gross debt than others, which was largely the result of government intervention to recapitalise the banking system. Notwithstanding this, increased government deficit and debt ratios can be expected in the presence of declining private sector spending. Differences among these advanced economies are illustrated by the behaviour of long-term government bond rates in response to the GFC. Government bond yields within Eurozone economies (Figure 3a.3) have generally increased with gross government debt. On the other hand, government bond yields have remained reasonably stable, or have even declined, within non-Eurozone economies (Figure 3a.4) over the same period. At face value, financial crowding-out theory cannot reconcile these outcomes.

Proponents of expansionary contractions may draw on the ‘credibility’ argument in an attempt to rationalise the above phenomena. That is, ‘[i]f agents believe that the [fiscal] stabilization is credible and avoids a default on government debt, they can ask for lower premiums on government bonds’ (Alesina 2010:4). Furthermore, ‘[i]f a country does not have fiscal credibility, it will have much more difficulty in continuing its fiscal programme because creditors will refuse to continue lending or will demand a higher risk premium’ (OECD 2010h:5). However, this argument is inconsistent with the data and the economic commentary among sovereign non-Eurozone economies.
Figure 3a.3 Long-term government bond rates: Eurozone economies

Data source: OECD (2012a)

Figure 3a.4 Long-term government bond rates: non-Eurozone economies

Data source: OECD (2012a)
Eurozone economies have pursued relatively more severe fiscal austerity measures than non-Eurozone economies. In most instances, these programmes have identified clear medium-term frameworks and, in some cases, binding short- and longer-term targets (i.e. conditions of IMF/ECB/EC supported loans). Yet, these economies continue to face rising long-term government bond rates.

On the other hand, the non-Eurozone economies depicted in Figures 3a.2 and 3a.4 — Canada, Japan, the UK and the US — have pursued limited attempts at consolidation (see OECD 2011e:4). Furthermore, the ‘fiscal credibility’ of the US should have been undermined by the recent political debate over the ‘debt ceiling’ (a politically imposed constraint on government spending), allegations of a default, and the historical credit rating downgrade on US government debt by Standard and Poor’s; yet long-term interest rates for the US remain at record lows (see also the UK). Japan has experienced decades of allegedly profligate government spending, multiple downgrades on public debt by major credit rating agencies and currently has the highest gross debt ratio in the world (now over 200 percent of GDP) but continues to attract long-term rates on government bonds below 2 percent.  

The disparities among government bond yields of advanced economies ostensibly challenge the financial crowding-out and ‘credibility’ arguments of expansionary contraction theorists. Until recently, fundamental institutional differences between Eurozone and non-Eurozone economies have been largely unnoticed, overshadowed by the noisy neo-liberal rhetoric in favour of ‘sound’ public finances (see Watts and Sharpe 2013). In contrast to financial crowding-out theory, Modern Monetary Theory makes the necessary distinction between a sovereign and a non-sovereign economy, and in doing so, offers an explanation consistent with the stylised evidence presented above.

3a.2.2 Modern money perspective

Modern Monetary Theory (MMT) offers an ‘accounting-consistent, operationally sound theoretical approach to understanding the way fiat monetary systems work and how

---

40 This is often explained by noting that most Japanese government debt is held domestically. But what matters for borrowing rates is the currency in which the debt is denominated, not the nationality of the debt-holders (see the next section).
policy changes are likely to play out’ (Mitchell 2011d). The conduct of fiscal policy according to MMT counters the dominant neo-liberal perspective which is driven by accounting imperatives rather than advancing public purpose.\textsuperscript{41} The principles of MMT make it possible to distinguish between a sovereign and non-sovereign economy. The former issues a non-convertible fiat currency and operates with a flexible exchange rate, so that monetary policy is freed from the need to defend foreign exchange reserves and maintain a desired exchange parity, examples being Australia, the US, the UK, Japan and Canada (Mitchell 2009a; Mitchell and Muysken 2008). A non-sovereign economy does not possess either of these characteristics; examples are France, Spain, Portugal, Ireland and Greece.

Financial crowding-out theory was initially proposed and analysed in the context of a convertible currency system, that is, the gold standard and the Bretton Woods fixed exchange rate agreement (1944-1971). Mitchell (2009a:9) notes that ‘[e]conomic policy ideas that prevailed in the previous monetary systems (based on convertibility) are no longer applicable in a fiat monetary system’.

MMT principles can be applied to inform Culbertson’s (1968:463) ‘textbook’ view of financial crowding-out. First, ‘spending is constrained by sources of funds of finance’. For the non-government sector, credit is constrained by the perceived creditworthiness of the borrower. A bank will lend to anyone it discerns as able and willing to fulfil the obligations of the loan, although underwriting standards may vary over the business cycle. Government spending within sovereign economies is not constrained by sources of finance. In a fiat currency system ‘money is a creature of the state’ (Lerner 1947:313). While it has no intrinsic value it is accepted as a means of exchange because the government requires ‘its use to relinquish private tax obligations to the state’ (Mitchell 2009a:9). Then, if convertibility is abandoned and the government is the monopoly issuer of the fiat currency, government spending is no longer revenue-constrained and government ‘saving’ is impossible. In a sovereign economy,

\textsuperscript{41} Mitchell (2009a:11) outlines the broad charter for advancing public purpose, which includes, ‘full employment and price stability, poverty alleviation and environmental sustainability …’ Here, full employment is defined as 2 percent unemployment, no hidden unemployment, and no underemployment (see also Mitchell and Muysken 2008).
government spending is only constrained by the availability of real goods and services, denominated in the national currency (Mitchell 2009a; Mitchell and Muysken 2008). On the other hand, government within non-sovereign economies are revenue-constrained since they are not the monopoly issuer of the currency accepted in payment of taxes. Consequently, government spending must be financed via taxation or borrowing in debt markets.

Second, ‘government expenditures are financed in debt markets in competition with private expenditures’. Recall the first point, government spending within sovereign economies does not require ‘financing’. Instead, government debt serves at least two distinct purposes.\(^{42}\) Government debt is primarily used as an interest-rate maintenance mechanism within the interbank market (see Fullwiler 2006; Mitchell 2009a; Mitchell and Muysken 2008). \textit{Ceteris paribus}, deficit government spending increases the reserves within the interbank market via increased deposits, which places downward pressure on the interbank lending rate. This can potentially undermine the target policy rate set by the central bank. Thus, in the presence of a ‘corridor’ system and a desire to maintain a positive policy rate, the central bank must drain these ‘excess reserves’ by selling, typically under a repurchase agreement, an interest-bearing asset (government debt); otherwise the interbank lending rate will fall towards the support rate, or zero if no support rate is offered.\(^{43}\) If all bank reserves are remunerated at the interbank target rate (i.e. the target rate equals the support rate), or the central bank has a desire to let the interbank rate fall to zero, government bonds do not need to be issued for this purpose. Hence, contrary to the financial crowding-out argument, government deficits can reduce short-term interest rates, although only if desired by the government and the central bank.

Government debt also serves a political purpose within sovereign economies. Many advanced sovereign economies have imposed voluntary constraints on government spending which resemble the formal, although voluntarily adopted, constraints of non-
sovereign Eurozone economies. These arrangements largely serve to promote fiscal discipline by matching government spending dollar-for-dollar with borrowings from the non-government sector (Mitchell 2009a). These voluntarily adopted guidelines, albeit with varying degrees of legal and political clout (Gutierrez and Revilla 2010), have fostered the neo-liberal mantra, which erroneously likens the financial constraints of government to those of a household. In this vein, governments that reduce their outstanding stock of debt and target budget surpluses are viewed as prudent managers of taxpayers’ funds. This view of the role of government has now become so deeply embedded in political discourse that attempts to offer alternative policy are quick to be dismissed by the general public.

The above discussion has outlined two competing discourses of financial crowding-out. The recent behaviour of long-term bond rates within sovereign economies, despite allegedly ‘unsustainable’ public debt levels, has potentially exposed the importance of institutional arrangements for the conduct of fiscal policy. From an econometric perspective, the disparity in long-term bond rates suggests, at the very least, that it is important to distinguish between sovereign and non-sovereign economies.

3a.2.3 Empirical evidence
Financial crowding-out is allegedly transmitted from increased government deficit/debt ratios to higher interest rates, and subsequently, reduced interest-sensitive expenditures. These linkages are often treated separately within the empirical literature. The literature outlined below, investigates the first linkage, which is the focus of this study. Clearly if interest rates are not responsive to proxies of fiscal policy (deficits or debt), the second linkage becomes irrelevant. In any case, the interest sensitivity of private investment is widely disputed (see Hemming et al. 2002).

The financial crowding-out empirical literature is mixed and highly contentious. A survey of 59 papers by Gale and Orszag (2003) reports that 29 found significant effects of deficits on interest rates, 19 found insignificant effects and 11 returned with mixed results. Surveys of the financial crowding-out literature by European Commission (2004), Gale and Orszag (2003) and OECD (2009d) report, on average, a 1 percent of
GDP deterioration in the fiscal balance raises interest rates by 30–60 or 15–80 basis points, and long-term interest rates in particular by 10–60 basis points. OECD (2009d) reports that an increase in the stock of debt by 1 percent of GDP raises long-term interest rates by 3–50 basis points. IMF (2010b) reports that output is expected to increase by 1.4 percent and real interest rates are expected to decline by 30 basis points, in the long-term, in response to a reduction of 10 percentage points in the debt to GDP ratio in Japan, the Euro area and the US.

Panel data investigations however often fail to separate sovereign and non-sovereign economies and are consequently misspecified. While studies comparing time-series results of individual sovereign and non-sovereign economies, particularly recent investigations, reveal some disparity in regression results, no reference is made to differences in underlying institutional arrangements. Rather, a finding that rising government debt reduces long-term interest rates is often reconciled by reference to a portfolio/liquidity effect (Caporale and Williams 2002; Marattin et al. 2011).

3a.3 Data analysis and model specification

3a.3.1 Data
To investigate financial crowding-out, equation (1) is estimated for two balanced panels, one containing sovereign economies, and the other with non-sovereign economies:

\[ y_{it} = \alpha_0 + \alpha_1 Z_{it} + \alpha_2 X_{it} + \varepsilon_{it} \quad i = 1, 2, \ldots N \; ; \; t = 1, 2, \ldots T \]  

(1)

In equation (1), \( y_{it} \) is the long-short interest rate spread (SPR). Long-term interest rates are 10-year government bond rates, while short-term rates are either the central bank policy rate or interbank cash/call rate. Long-term interest rates are generally considered more relevant to investment decisions, and are less exposed to the monetary policy actions of central banks. The spread between long- and short-term interest rates is used here because it effectively accounts for short-term interest rate or monetary policy effects (see Ardagna et al. 2004; Paesani et al. 2006). \( Z_{it} \) is a vector of fiscal proxies,
including: general government cyclically-adjusted balance to potential GDP (CAFB) (deficit is positive); \(^{44}\) expected deficit (see Idier et al. 2007; OECD 2009d), derived as the average of the general government (interest inclusive) financial balance to GDP over the next 5-years (EDEFICIT) (deficit is positive); general government gross financial liabilities to nominal GDP (GDEBT); and a measure of debt service (see OECD 2009d), derived as a ratio of general government net debt interest payments to general government total tax and non-tax receipts (DSER). Squared gross debt (GDEBTSQ) and debt service (DSERSQ) terms are also included to account for possible non-linear effects (see Ardagna et al. 2004; Bernoth et al. 2004). \(x_t\) is a vector of other explanatory variables including; the inflation rate (P), the real-effective CPI based exchange rate (REER), log of the share price index (SPI), and current account balance to GDP ratio (CAB) (deficit is negative). \(\varepsilon_t\) is an error term.

For the sovereign panel, we used data from Australia, US, UK, Japan and Canada. Non-sovereign economies include France, Spain, Portugal, Ireland and Greece. \(^{45}\) Given the short time dimension, 1999 to 2010, panel data analysis allows those data to be used more efficiently than time-series estimations. The intent of the empirical work is to identify whether the effect of selected fiscal variables on long-term interest rates are statistically significant within sovereign and non-sovereign economies. The selected variables reflect the extant empirical literature and data availability, with a particular emphasis on recent developments concerning fiscal proxies. \(^{46}\) Sovereign models also include a credit risk spread (CR), derived as the difference between the 12 month average of daily selected long-term corporate bond rates and 10-year government bond rates (see OECD 2009d). Non-sovereign models include the German benchmark 10-year bond rate (BB). \(^{47}\) German bonds are generally considered high-quality and low-

\(^{44}\) See OECD (2006b) for the methodology. Since the revision of the Stability and Growth Pact in 2005, cyclically-adjusted measures are given more weight than headline measures in the EU fiscal surveillance framework (Larch and Turrini 2009).

\(^{45}\) Recent trends in the data suggest that the implications of MMT are likely to be more pronounced for this particular subset of non-sovereign economies. The regressions commence in 1999 to coincide with the introduction of the Euro.

\(^{46}\) Data have been obtained from the OECD Economic Outlook Annex tables, IMF International Financial Statistics and Fiscal Monitor (IMF 2011g), Datastream, and relevant Central Bank databases. All regressions are performed in Eviews 7.

\(^{47}\) Appropriate corporate bond yields were unavailable for selected non-sovereign economies. Default proxies are only applicable to non-sovereign economies. Sturzenegger (2002:18) cautions against the use
risk. *Ceteris paribus,* an increase in demand for low-yield German bonds may signal a loss of confidence in the wider Eurozone bond market (see De Grauwe 2012). Consequently, German long-term rates are kept significantly lower than those of other Eurozone members. *A priori,* an inverse relationship is expected between the German benchmark bond rate and the long-short spread of other Eurozone economies if a liquidity/portfolio effect is present.

### 3a.3.2 Panel unit root tests

Prior to estimating possible long-run cointegrating relationships among the variables, the order of integration must be established. The short time dimension of the data set can distort the power of individual unit root procedures (Christopoulos and Tsionas 2004), thus LLC, IPS and ADF-Fisher panel unit root tests are commonly applied. These tests are based on the conventional ADF unit root specification (2).

The null hypothesis is a unit root process \( H_0: \rho_i = 0 \) against the alternative of a stationary process \( H_1: \rho_i < 0 \) for each individual series. The LLC test, however, is problematic as it assumes homogeneous autoregressive coefficients, i.e. \( \rho_i = \rho \) for all \( i \), which is highly restrictive. The Maddala and Wu (1999) Fisher-type test aggregates the individual unit root \( p \)-values from each cross-sectional unit to test for a unit root in the combined series. Following Maddala and Wu (1999), if the test statistics are continuous, the significance levels \( \pi_i \) \( (i = 1, 2, ..., N) \) are independent uniform \( (0, 1) \) variables, and \( -2 \log \pi_i \) has a \( \chi^2(2) \) distribution. The combined \( p \)-value, defined by equation (3), is obtained from the additive property of \( \chi^2 \) variables which has a \( \chi^2 \) distribution with \( 2N \) degrees of freedom.

\[
\Delta y_{it} = \alpha_{it} + \rho_i y_{it-1} + \sum_{j=1}^{p_i} \varphi_{ij} \Delta y_{it-j} + \varepsilon_{it} \quad i = 1, 2, ..., N \ ; \ t = 1, 2, ..., T \quad (2)
\]

\[
p_{\lambda} = -2 \sum_{i=1}^{N} \log \pi_i \quad (3)
\]
Maddala and Wu (1999) use simulations, imposing various assumptions of stationary processes to find that the Fisher test is superior to LLC and IPS given its high power and low size distortions. However, the LLC, IPS and Fisher tests assume cross-sectional independence which is likely to be violated in this study. Therefore, the test statistics are no longer valid. Nevertheless, these tests are still applied within the empirical financial crowding-out literature. To overcome this, Maddala and Wu (1999) propose a bootstrap method, based on the Fisher test, to derive the empirical distributions of the test statistics. In essence, a bootstrap sample is generated under the null of a unit root ($\rho_t = 0$) by drawing with replacement from the residual series obtained from regression equation (2). However, $\hat{\epsilon}_{it}$ cannot be re-sampled directly since the errors are potentially cross-correlated, thus $\hat{\epsilon}_{it} = [\hat{\epsilon}_{1,t}, \hat{\epsilon}_{2,t}, ..., \hat{\epsilon}_{N,t}]$ are re-sampled to retain the cross-correlation structure of the error term. This process is repeated 2000 times to obtain the MW-Fisher test statistic.\textsuperscript{48}

For sovereign economies, the MW Fisher-Bootstrap results suggest that all variables are stationary in levels, i.e. I(0), except GDEBT and GDEBTSQ which are I(1) or stationary in first differences. For the non-sovereign economies, BB, GDEBTSQ, DSER and DSERSQ are I(1), all other variables are I(0).\textsuperscript{49}

3a.3.3 Panel cointegration tests

The results of the panel unit root tests reveal a mixture of I(0) and I(1) variables, thus conventional panel cointegration tests are not appropriate. This study uses a bounds test approach to determine possible level relationships among the variables that can be applied irrespective of whether the regressors are purely I(0), purely I(1) or a mixture of the two. Pesaran et al. (2001) have developed asymptotic critical value bounds for the $F$-statistic to test the joint significance of the lagged levels of the variables. If the computed $F$-statistic exceeds the upper critical bound, the null hypothesis of no level (cointegrating) relationship among the variables is rejected. If the $F$-statistic is below the lower critical bound, we fail to reject the null in favour of no cointegration. The result is inconclusive if the computed $F$-statistic falls within the critical value bounds.

\textsuperscript{48} Eviews program code for these calculations was obtained from Galimberti and Cupertino (2009).

\textsuperscript{49} Panel unit root results are reported in Table 3a.A1 in this chapter’s appendix.
Panel cointegration tests are often favourable since they ‘combine the ability of time series studies to yield causality inferences with the increase in sample size afforded by using cross-sectional data’ (Christopoulos and Tsionas 2004:71). An advantage of the bounds test with panel data is the relative ease of accounting for cross-section and period effects. Failure to address these issues would result in misspecification. Thus, the bounds cointegration specification of equation (1) is estimated with cross-section and/or period dummy variables to capture these effects. The bounds specification (with no fixed effects) of equation (1) is expressed as follows.

\[
\Delta y_{it} = \alpha_0 + \alpha_1 y_{it-1} + \alpha_2 Z_{it-1} + \alpha_3 X_{it-1} + \sum_{j=1}^{k} \alpha_4 \Delta y_{it-j} + \\
\sum_{m=0}^{n} \alpha_5 \Delta Z_{it-m} + \sum_{p=0}^{q} \alpha_6 \Delta X_{it-p} + \epsilon_{it} 
\]

(4)

Optimal lag lengths on the differenced regressors are based on the Akaike information criterion (AIC) (see Pesaran et al. 2001). Each variable is specified as the dependent variable, and the \( F \)-statistic is computed to test the null hypothesis of no cointegration (5).

\[
H0: \alpha_1 = \alpha_2 = \alpha_3 = 0 
\]

(5)

Panel cointegration results (with SPR as the dependent variable) confirm long-run cointegrating relationships among all fiscal proxies for both sovereign and non-sovereign economies (with and without fixed effects).

3a.3.4 Model specification

Cointegrating relationships among the variables in equation (1) have been identified. A panel vector-error correction model (VECM) can now be estimated that also allows for potential endogenous explanatory variables. Unlike other econometric methods such as 2SLS, 3SLS and GMM, a VECM does not ignore the integration and cointegration properties of the underlying data, which can be used to make inferences on the long-term relationships among the variables. Christopoulos and Tsionas (2004:60) add, ‘it is

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50 Pesaran et al. (2001) asymptotic critical values may be affected by the inclusion of cross-section dummies. Period dummies are for the GFC period 2008–2010.

51 Panel cointegration results are reported in Tables 3a.A2 to 3a.A4 in this chapter’s appendix.
not clear that the estimated panel models [i.e. GMM] represent a structural long run equilibrium relationship instead of a spurious one’. A VECM is a restricted VAR, which constrains the long-run behaviour of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. The VECM specification of equation (1) is as follows:

$$\Delta y_{it} = \alpha_0 + \sum_{j=1}^{k} \alpha_j \Delta y_{it-j} + \sum_{m=0}^{n} \alpha_2 \Delta Z_{it-m} + \sum_{p=0}^{q} \alpha_3 \Delta X_{it-p} + \alpha_4 ecm_{t-1} + \nu_{it} \tag{6}$$

All variables and vectors are as previously defined. The error correction term ($ecm_{t-1}$) corrects deviations from the long-run equilibrium through a series of short-run partial adjustments. $\nu_{it}$ is an error term. The optimal lag length on the differenced regressors is based on the AIC (see above).

However, it is well known that least squares dummy variable (LSDV) estimations yield biased and inconsistent results when applied to a dynamic panel data setting since, by construction, the lagged dependent is correlated with the error term (see Judson and Owen 1999; Nickell 1981). To overcome this, Anderson and Hsiao (1982) recommend an instrumental variable (IV) estimation technique using higher-order lags on the differenced dependent variable as instruments (see also Christopoulos and Tsionas 2004). This IV technique is applied and diagnostic tests are performed to ensure the models are well-specified, the errors are normally distributed and serially uncorrelated, and the over-identifying restrictions are valid. For brevity, the most robust models according to these diagnostic tests are reported.

**3a.4 Empirical results and discussion**

The regression results are presented in Tables 3a.1 to 3a.3. The error correction terms ($ecm$) are all significantly different from zero (at 1 percent) indicating the cointegration results are reliable. Diagnostic tests affirm that the models are data congruent and without specification error. Although well specified, the long-short spread in sovereign economies may require different explanatory variables than non-sovereign economies as indicated by the relatively low $F$-statistics. By failing to distinguish between sovereign
and non-sovereign economies, the extant literature may have overlooked appropriate macroeconomic variables.

The results have revealed robust differences among fiscal variables for advanced sovereign and non-sovereign economies, which affirm the importance of institutional arrangements. The IMF now concedes that ‘fiscal indicators such as deficit and debt levels appear to be weakly related to government bond yields for advanced economies with monetary independence’ [emphasis added] (IMF 2012b:38).
### Table 3a.2 Gross Debt VECM Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (t-statistic)</th>
<th>Coefficient (t-statistic)</th>
<th>Variable</th>
<th>Coefficient (t-statistic)</th>
<th>Coefficient (t-statistic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPR(-1)</td>
<td>0.391367 (1.288793)</td>
<td>-0.011469 (-0.031246)</td>
<td>SPR(-1)</td>
<td>0.028038 (0.272266)</td>
<td>0.071135 (0.656737)</td>
</tr>
<tr>
<td>CR</td>
<td>0.775135** (2.416351)</td>
<td>0.286277** (2.222836)</td>
<td>BB</td>
<td>-0.498575** (-2.115106)</td>
<td>-0.077215 (-0.318792)</td>
</tr>
<tr>
<td>GDEBT</td>
<td>0.043272 (1.043154)</td>
<td>0.109135 (1.130739)</td>
<td>BB(-1)</td>
<td>-1.153920*** (-7.149814)</td>
<td>-0.956106*** (-5.491885)</td>
</tr>
<tr>
<td>GDEBTSQ</td>
<td>-0.000267 (-0.909255)</td>
<td></td>
<td>GDEBT</td>
<td>0.022507** (-0.353294)</td>
<td>0.000330** (2.170639)</td>
</tr>
<tr>
<td>P</td>
<td>-0.164651 (-1.053452)</td>
<td>-0.092919 (-1.269077)</td>
<td>P</td>
<td>-0.374321*** (-6.30810)</td>
<td>-0.304101*** (-4.243995)</td>
</tr>
<tr>
<td>REER</td>
<td>-0.548516 (-2.018890)</td>
<td>-0.124751 (-0.532871)</td>
<td>REER</td>
<td>0.019303 (0.775162)</td>
<td>-0.007682 (-0.228373)</td>
</tr>
<tr>
<td>SPI</td>
<td>0.798528 (-0.285935)</td>
<td>-0.035580 (-0.833908)</td>
<td>SPI</td>
<td>-1.428634*** (-3.627605)</td>
<td>-2.017442*** (-4.581051)</td>
</tr>
<tr>
<td>CAB</td>
<td>-0.120408 (-0.833908)</td>
<td>-0.265352 (-2.537225)</td>
<td>CAB</td>
<td>-0.017178 (1.003809)</td>
<td>0.057002 (-2.099993)</td>
</tr>
<tr>
<td>ecm(-1)</td>
<td>-0.772144*** (-3.573225)</td>
<td>-0.457135*** (-2.984946)</td>
<td>ecm(-1)</td>
<td>-0.497413*** (-4.329741)</td>
<td>-0.427859*** (-2.909993)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnostics a</th>
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<tbody>
<tr>
<td>$\bar{R}^2$</td>
</tr>
<tr>
<td>Normality</td>
</tr>
<tr>
<td>AR(2) $\chi^2$</td>
</tr>
<tr>
<td>F-statistic</td>
</tr>
<tr>
<td>Specification</td>
</tr>
<tr>
<td>SS $\chi^2(q)$</td>
</tr>
</tbody>
</table>

Note: ***,**,* significant at the 1, 5 and 7 percent level respectively. All variables are in first difference.
No fixed effects included. Instruments are lags of $\Delta$SPR.

<table>
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<th>Diagnostics a</th>
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<tr>
<td>Specification</td>
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<tr>
<td>SS $\chi^2(q)$</td>
</tr>
</tbody>
</table>

The cyclically-adjusted financial balance (CAFB), gross government debt ratio (GDEBT) and the debt service ratio (DSER) have a positive and statistically significant impact on the long-short interest rate spread (SPR) for non-sovereign economies but are insignificant for sovereign economies. The estimated elasticities for non-sovereign economies are 0.05, 0.02 and 0.29 respectively. GDEBT coefficients are similar in magnitude to those of Ardagna et al. (2004). In addition, non-linear effects of DSER

---

52 Fiscal proxies are not statistically significant for sovereign economies. EDEFICIT is not significant for non-sovereign economies. The results are similar where nominal government bond rates are used as the dependent variable.
and GDEBT are significant for non-sovereign economies (see Ardagna et al. 2004; Bernoth et al. 2004). However, estimating the potential threshold effects of these non-linear variables is a direction for further study (see Sharpe 2013b).

As suggested by Bernoth et al. (2004), the debt service ratio seems to capture more of the variation in interest rate spreads among EU countries than the fiscal (deficit and debt) variables. Bernoth et al. (2004) also found that the debt service indicator became a more important determinant of interest rates after the formation of the European Monetary Union (EMU). MMT argues that by joining the EMU a country relinquishes its fiscal-monetary sovereignty, and so can become insolvent. Hence, rising debt servicing costs may signal an increased risk of insolvency, which materialises as rising risk premiums on long-term debt, potentially creating a positive feedback mechanism.\footnote{Buiter (2010b) makes a similar claim, though he does not adequately distinguish between a sovereign and non-sovereign economy.}

Unlike the mainstream literature, an insignificant deficit or debt variable is not interpreted as evidence in favour of Ricardian equivalence. That is, we do not conclude that the private sector is acting rationally to offset increased government spending by increasing current private savings in anticipation of higher future taxes.\footnote{Ricardian equivalence can be dismissed on the basis of its theoretical assumptions (see Bernheim 1989).} Rather, increasing fiscal deficits or debt within sovereign economies does not raise liquidity or insolvency concerns, which tend to manifest themselves as higher long-term interest rates. This is because financial market participants understand the fundamental institutional differences, which are highlighted in Modern Monetary Theory. Fund manager and investment strategist, Marshall Auerback (2010) notices ‘[t]he market’s recent response to the intensifying pressures in the euro zone suggests that investors are beginning to differentiate between countries … Whether consciously or not, the markets are demonstrating that they understand the distinctions between users of currencies (who face an external funding constraint), and those nations that face no constraint in their deficit spending activities because they are creators of currency’ (see also De Grauwe 2012).
Table 3a.3 Debt Service VECM Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient (t-statistic)</th>
<th>Coefficient (t-statistic)</th>
<th>Variable</th>
<th>Coefficient (t-statistic)</th>
<th>Coefficient (t-statistic)</th>
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<td>SPR(-1)</td>
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<tr>
<td>CR</td>
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<td>0.538004**</td>
<td>BB</td>
<td>-0.240386</td>
<td>-0.180177</td>
</tr>
<tr>
<td>DSER</td>
<td>(-0.009018)</td>
<td>0.435139</td>
<td>BB(-1)</td>
<td>-1.080795***</td>
<td>-0.964326***</td>
</tr>
<tr>
<td>DSERSQ</td>
<td>(-0.033289)</td>
<td>(-0.030057)</td>
<td>DSER</td>
<td>0.591663**</td>
<td>0.538004**</td>
</tr>
<tr>
<td>P</td>
<td>(-0.041736)</td>
<td>(-0.149370)</td>
<td>DSERSQ</td>
<td>-0.037389</td>
<td>-0.396428***</td>
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<tr>
<td>REER</td>
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<td>(-2.410456)</td>
<td>P</td>
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<td>SPI</td>
<td>(-0.144908)</td>
<td>0.350221</td>
<td>REER</td>
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<td>(-0.136452)</td>
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<tr>
<td>CAB</td>
<td>(-0.158950)</td>
<td>(-0.175639)</td>
<td>SPI</td>
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<td>-1.769253***</td>
</tr>
<tr>
<td>ecm(-1)</td>
<td>(-0.704690***</td>
<td>-0.639626***</td>
<td>CAB</td>
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<td></td>
<td>(-2.726045)</td>
<td>(-3.186298)</td>
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Diagnostics

<table>
<thead>
<tr>
<th></th>
<th>R²</th>
<th>Normality</th>
<th>AR(2)</th>
<th>F-statistic</th>
<th>Specification</th>
<th>SS</th>
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<tr>
<td>Sovereign economies</td>
<td>0.447200</td>
<td>2.218018</td>
<td>0.331266</td>
<td>3.334748***</td>
<td>0.439980</td>
<td>1.798843</td>
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<tr>
<td>Non-sovereign economies</td>
<td>0.394208</td>
<td>4.954195</td>
<td>0.040235</td>
<td>3.060203***</td>
<td>0.241229</td>
<td>1.798843</td>
</tr>
</tbody>
</table>

Note: ***,**,* significant at the 1, 5 and 7 percent level respectively. All variables are in first difference. No fixed effects included. Instruments are lags of ∆SPR. Normality: Jarque-Bera normality test. AR(2): Test for the null of no second-order serial correlation. F-statistic: Joint significance of coefficients. Specification: F-test for the null of jointly irrelevant fixed effects. SS: Sargan statistic for the null of valid over-identifying restrictions (q).

For ‘creators of currency’ such as the US, former Federal Reserve Chairman Alan Greenspan (1997) has unequivocally acknowledged that ‘[c]entral banks can issue currency, a noninterest-bearing claim on the government, effectively without limit … That all of these claims on government are readily accepted reflects the fact that a government cannot become insolvent with respect to obligations in its own currency. A fiat money system, like the ones we have today, can produce such claims without limit.’
Martin Feldstein has reiterated the point in a recent interview:

‘French officials apparently don’t recognise the importance of the fact that Britain is outside the eurozone, and therefore has its own currency, which means that there is no risk that Britain will default on its debt. . . . When interest and principal on British government debt come due, the British Government can always create additional pounds to meet those obligations. By contrast, the French government and the French central bank cannot create euros. If investors are unwilling to finance the French budget deficit—that is, if France cannot borrow to finance that deficit—France will be forced to default’ (Russell 2011).

Prior to the GFC, the validity of the crowding-out argument was rarely questioned by the mainstream financial media. Yet, despite these measured statements by Greenspan and Feldstein, and notwithstanding the empirical evidence, policymakers continue to insist that financial crowding-out is a significant problem.\textsuperscript{55}

3a.5 Conclusion

The impact of the GFC on deficit and debt ratios in many advanced western economies enables a rigorous assessment of the proposition derived from MMT that institutional arrangements are central to the conduct of fiscal policy. Despite similar trends in government debt and deficit indicators, the emerging data has revealed differences in the response of long-term interest rates among advanced economies. These disparities are most distinct between advanced Eurozone and non-Eurozone economies.

Mainstream financial crowding-out theory, which is embedded within the neo-liberal expansionary contractions literature and espoused by Inter-Governmental Organisations, albeit with recent qualifications, cannot reconcile these differences. On the other hand, MMT offers an explanation consistent with the empirical evidence by making the necessary distinction between sovereign and non-sovereign economies. However, this has not been recognised within the extant literature.

\textsuperscript{55} Numerous market economists and media commentators have dismissed the claim put forth by John Boehner, Speaker of the US House of Representatives, that government spending ‘is crowding out private investment and threatening the availability of capital’ (Rowley and Dorning 2011).
Panel VECM results suggest that fiscal proxies (cyclically-adjusted financial balance; the ratio of government gross financial liabilities to nominal GDP; and the ratio of government net debt interest payments to general government revenues) are positive and significant determinants of the long-short interest rate spread in non-sovereign economies, but are insignificant in sovereign economies. Furthermore, the underlying macroeconomic determinants of the spread for sovereign economies appear to be different from those of non-sovereign economies.

While market participants seem to have some understanding of the institutional differences between Eurozone and non-Eurozone economies, policymakers remain wedded to the neo-liberal agenda and fail to make the necessary distinction for the purposes of conducting fiscal policy. Consequently, sovereign economies are not using their inherent (financial) capacity to adopt full employment policies (e.g. a Job Guarantee). Nevertheless, it seems policymakers can no longer use financial crowding-out theory to validate fiscal withdrawal within sovereign economies.
### 3a.6 Appendix

#### Table 3a.A1 MW-Fisher unit root tests

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sovereign economies</th>
<th>Non-sovereign economies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level (1\textsuperscript{st} difference)</td>
<td>Level (1\textsuperscript{st} difference)</td>
</tr>
<tr>
<td>SPR</td>
<td>34.26320***</td>
<td>37.84014***</td>
</tr>
<tr>
<td>EDEFICTT</td>
<td>49.75647***</td>
<td>45.56728***</td>
</tr>
<tr>
<td>CAFB</td>
<td>47.08982***</td>
<td>35.89387***</td>
</tr>
<tr>
<td>GDEBT</td>
<td>8.855171 (53.41352)***</td>
<td>39.70916***</td>
</tr>
<tr>
<td>GDEBTSQ</td>
<td>3.773005 (25.55977)***</td>
<td>1.679377 (30.62347)***</td>
</tr>
<tr>
<td>DSER</td>
<td>35.96954***</td>
<td>9.504271 (44.61846)***</td>
</tr>
<tr>
<td>DSERSQ</td>
<td>39.44436***</td>
<td>8.540616 (31.84232)***</td>
</tr>
<tr>
<td>P</td>
<td>60.44258***</td>
<td>39.90442***</td>
</tr>
<tr>
<td>REER</td>
<td>28.37399***</td>
<td>31.16050***</td>
</tr>
<tr>
<td>SPI</td>
<td>28.44213***</td>
<td>45.30128***</td>
</tr>
<tr>
<td>CAB</td>
<td>30.97619***</td>
<td>47.75863***</td>
</tr>
<tr>
<td>CR</td>
<td>52.94610***</td>
<td>-</td>
</tr>
<tr>
<td>BB</td>
<td>-</td>
<td>16.27093 (51.15996)***</td>
</tr>
</tbody>
</table>

\textit{Note:} *** , ***, * significant at the 1, 5 and 7 percent level respectively. 2000 Bootstrap replications are performed. Specification includes 1 autoregressive lag (max). Exogenous variable and lag selection is based on the AIC. MW-Fisher $\chi^2_{2N}$ critical values are 23.21*** and 18.31**.

#### Table 3a.A2 Bounds cointegration test: deficit

<table>
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<tr>
<th>F-statistic</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>$F_{\text{SPR}}(\text{CR}, \text{CAF}, \text{P}, \text{REER}, \text{SPI}, \text{CAB})$</td>
<td>3.868082**</td>
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<tr>
<td>$F_{\text{CAF}}(\text{CAF}\mid \text{CR}, \text{SPR}, \text{P}, \text{REER}, \text{SPI}, \text{CAB})$</td>
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</tr>
<tr>
<td>$F_{\text{SPR}}(\text{CR}, \text{EDEFICT}, \text{P}, \text{REER}, \text{SPI}, \text{CAB})$</td>
<td>4.127781**</td>
</tr>
<tr>
<td>$F_{\text{EDEFICT}}(\text{EDEFICT}\mid \text{CR}, \text{SPR}, \text{P}, \text{REER}, \text{SPI}, \text{CAB})$</td>
<td>6.233749**</td>
</tr>
<tr>
<td>$F_{\text{SPR}}(\text{BB}, \text{CAF}, \text{P}, \text{REER}, \text{SPI}, \text{CAB})$</td>
<td>6.547431**</td>
</tr>
<tr>
<td>$F_{\text{CAF}}(\text{CAF}\mid \text{BB}, \text{SPR}, \text{P}, \text{REER}, \text{SPI}, \text{CAB})$</td>
<td>11.79574**</td>
</tr>
<tr>
<td>$F_{\text{SPR}}(\text{BB}, \text{EDEFICT}, \text{P}, \text{REER}, \text{SPI}, \text{CAB})$</td>
<td>13.59765**</td>
</tr>
<tr>
<td>$F_{\text{EDEFICT}}(\text{EDEFICT}\mid \text{BB}, \text{SPR}, \text{P}, \text{REER}, \text{SPI}, \text{CAB})$</td>
<td>5.209373**</td>
</tr>
</tbody>
</table>

\textit{Note:} No fixed effects included. Persaran et al. (2001) asymptotic critical values for $F$-statistic (k=6): unrestricted intercept and no trend are I(0) =2.45, I(1)=3.61 (5%**).
### Table 3a.A3 Bounds cointegration test: gross debt

<table>
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<tr>
<th>Sovereign economies</th>
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</tr>
</thead>
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<tr>
<td>$F_{SPR}(SPR</td>
<td>CR, GDEBT, P, REER, SPI, CAB)$</td>
<td>5.681578**</td>
</tr>
<tr>
<td>$F_{GDEBT}(GDEBT</td>
<td>CR, SPR, P, REER, SPI, CAB)$</td>
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<td>$F_{GDEBT}(GDEBT</td>
<td>CR, SPR, GDEBTSQ, P, REER, SPI, CAB)$</td>
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</tr>
<tr>
<td>Non-sovereign economies</td>
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<td></td>
</tr>
<tr>
<td>$F_{SPR}(SPR</td>
<td>BB, GDEBT, P, REER, SPI, CAB)$</td>
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<td>BB, SPR, P, REER, SPI, CAB)$</td>
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<td>3.187859</td>
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</tbody>
</table>

**Note:** No fixed effects included. Persaran et al. (2001) asymptotic critical values for a $F$-statistic (k=6): unrestricted intercept and no trend are I(0)=2.45, I(1)=3.61 (5%**); b $F$-statistic (k=7): unrestricted intercept and no trend are I(0)=2.32, I(1)=3.50 (5%**).

### Table 3a.A4 Bounds cointegration test: debt service

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<td>5.257950**</td>
</tr>
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<td>$F_{DSER}(DSER</td>
<td>CR, SPR, P, REER, SPI, CAB)$</td>
<td>5.160199**</td>
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<td>6.902495**</td>
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<td>2.653485</td>
</tr>
<tr>
<td>Non-sovereign economies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F_{SPR}(SPR</td>
<td>BB, DSER, P, REER, SPI, CAB)$</td>
<td>4.534074**</td>
</tr>
<tr>
<td>$F_{DSER}(DSER</td>
<td>BB, SPR, P, REER, SPI, CAB)$</td>
<td>2.320095</td>
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<td>4.534131**</td>
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<td>3.050097</td>
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**Note:** No fixed effects included. Persaran et al. (2001) asymptotic critical values for a $F$-statistic (k=6): unrestricted intercept and no trend are I(0)=2.45, I(1)=3.61 (5%**); b $F$-statistic (k=7): unrestricted intercept and no trend are I(0)=2.32, I(1)=3.50 (5%**).
Inter-Governmental Organisations, such as the IMF and OECD, advocate a medium-term reduction in deficit spending and public debt accumulation among advanced economies to satisfy conditions of fiscal sustainability. Buttressing the need for fiscal austerity, Reinhart and Rogoff claim to have identified a so-called tipping point, beyond which public debt accumulation negatively affects economic growth. While recent data seem to indicate that some Eurozone (non-sovereign) economies have reached a tipping point, for other advanced (sovereign) economies, such as the US, UK and Japan, this is not clear. The mainstream tipping point literature however does not recognise the importance of institutional arrangements for the conduct of fiscal and monetary policy. Furthermore, the literature sheds little light on the transmission mechanism between high public debt and low economic growth. This article draws on the principles of Modern Monetary Theory to discuss institutional arrangements and to justify the theoretical and empirical focus on Eurozone economies. The empirical analysis unpacks the transmission mechanism(s) to reveal that Eurozone economies have reached a public debt threshold limit with respect to long-term interest rates.
3b.1 Introduction

According to Inter-Governmental Organisations (IGOs), such as the International Monetary Fund (IMF 2012e) and Organisation for Economic Cooperation and Development (OECD 2012b), the conduct of fiscal policy in many advanced economies is now unsustainable and imprudent. Deficit spending and public debt accumulation must be curtailed to appease market sentiment and satisfy conditions of fiscal sustainability.\footnote{56}{Fiscal sustainability is typically defined with reference to the algebra of debt dynamics. For example, assuming a positive real (average) interest-growth rate differential, fiscal sustainability implies the present value of future primary budget surpluses to GDP must equal the initial debt to GDP ratio (see Watts and Sharpe 2013). Price (2010:5) defines a sustainable fiscal balance as ‘the issue of debt to finance government expenditure only to the extent that it creates a future debt burden that does not interfere with the attainment of macro-economic objectives.’ Eurozone members are subject to formal fiscal requirements detailed in the Treaty, including the recently strengthened Stability and Growth Pact (see Troika 2011).}

Reinhart and Rogoff (2009, 2010b) claim to have identified a public debt tipping point, beyond which, public debt accumulation negatively affects economic growth. This appears to have increased the urgency for fiscal austerity. Recent empirical investigations find a public debt threshold limit between 65 and 100 percent of GDP. Furthermore, OECD (2012b:7) argues that ‘[c]ountries should reduce debt levels to around 50 percent of GDP or lower to provide a safety margin against future adverse shocks.’ But amid sluggish GDP growth, the IGOs have become increasingly cautious vis-à-vis the timing of fiscal consolidation programs. Moreover Herndon et al. (2013) have recently challenged the validity of Reinhart and Rogoff’s (2010b) empirical work.\footnote{57}{Herndon et al. (2013:2-3) attempt to replicate Reinhart and Rogoff’s (2010a) findings revealed that ‘coding errors, selective exclusion of available data, and unconventional weighting of summary statistics lead to serious errors that inaccurately represent the relationship between public debt and growth among 20 advanced economies in the post-war period.’ Herndon et al. (2013:3) conclude that ‘when properly calculated, the average real GDP growth rate for countries carrying a public debt-to-GDP ratio of over 90 percent is actually 2.2 percent, not –0.1 percent as [Reinhart and Rogoff] claims.’ Reinhart and Rogoff (2013) provided a brief and somewhat dismissive response to this criticism in The Wall Street Journal. Empirical errors aside, there are deeper theoretical flaws within Reinhart and Rogoff’s (2010a) approach and indeed the broader mainstream literature investigating public debt threshold limits. This article attempts to address these issues.}

Notwithstanding this, the mainstream tipping point literature suffers from at least two shortcomings. First, theoretical and empirical investigations do not differentiate
between economies that enjoy full fiscal-monetary sovereignty (e.g. Australia, US, UK and Japan) and economies that do not. Eurozone member countries are examples of the latter since they issue debt denominated in a currency that is issued and controlled by what is in effect a foreign central bank, namely the European Central Bank (ECB). Second, the mainstream tipping point literature sheds little light on the transmission mechanism linking high public debt to low economic growth.

Section 3b.2 outlines and discusses the mainstream tipping point literature, emphasising the theory of austerity and popular credibility argument. By way of critique, Section 3b.3 draws upon the principles of Modern Monetary Theory (MMT) to discuss the implications of different institutional arrangements. A link is drawn between non-sovereign economies and the credibility argument to justify our theoretical and empirical focus on Eurozone members. Section 3b.4 discusses causality issues and empirically investigates a transmission mechanism among Eurozone (non-sovereign) economies from gross government debt to economic growth via long-term interest rates and gross fixed capital formation. Concluding remarks then follow.

3b.2 Mainstream theory: austerity and credibility

Since the advent of the Global Financial Crisis (GFC), net government expenditure and associated public debt ratios among advanced economies have increased markedly. Policymakers, IGOs and economic commentators (see Pozen 2010; Merkel 2012) have become increasingly concerned with the effect of public debt accumulation on economic growth. OECD (2012a) data reveal that average Euro and OECD area gross government debt ratios are approximately 100 percent of GDP.

The mainstream tipping point literature emphasises the usual neo-liberal concerns with public debt accumulation.58 That is, rising public debt to GDP ratios are expected to increase interest rates and affect capital accumulation (i.e. crowding-out/loanable funds

58 “[N]eo-liberalism can best be understood [as] an economic policy regime whose objective is to secure monetary and fiscal stability and that is legitimised by an ideology that holds markets are best treated as self-regulating” (Callinicos 2012:67). The Washington Consensus offers a useful short-hand description of neo-liberal policy prescriptions (see Williamson 1990).
theory; see Baldacci and Kumar 2010), raise future taxes and reduce household wealth (see Barro 1979), increase inflation and/or inflationary expectations (see Sargent and Wallace 1981), and create uncertainty, constrain fiscal space, and thus limit the scope for future countercyclical fiscal policy (see Kumar and Woo 2010; IMF 2012a).

A number of empirical techniques, including panel regression, histogram analysis, and spline functions and threshold models, have been used to investigate public debt threshold limits. Recent empirical investigations find a public debt threshold limit between 65 and 100 percent of GDP (see Chang and Chiang 2007; Checherita and Rother 2010; Reinhart and Rogoff 2010b; Kumar and Woo 2010; Caner et al. 2010; Cecchetti et al. 2011; Baum et al. 2012).

However the transmission mechanism linking high public debt to reduced economic growth is unclear. Inflation rates have remained relatively benign among advanced economies since the advent of the GFC (see IMF 2012a; OECD 2012b). Reinhart and Rogoff’s (2010b:2) find ‘no systematic relationship between high debt levels and inflation for advanced economies as a group’. Furthermore, Ricardian equivalence arguments are theoretically flawed (see Mitchell 2010d).

While long-term interest rates have remained low among advanced economies, such as the US, UK and Japan, some Eurozone economies, notably Greece, Portugal and Ireland, have experienced large increases in long-term government bond rates since 2008 (see Figures 3b.1 and 3b.2). The high interest rates have occurred amid low GDP growth and high public debt ratios. In addition, Greece, Portugal and Ireland requested IMF/EC/ECB (Troika) supported (bailout) loans as the Eurozone crisis deepened. These high interest rates appear consistent with the so-called ‘credibility’ argument, which has become embedded in the expansionary fiscal contractions hypothesis and the associated concept of fiscal space.

59 Fiscal space is the residual capacity a government has to respond to uncertainties within the economic environment net of its intertemporally defined sustainable fiscal position (see Heller 2005; IMF 2012a). Fiscal space is allegedly created by a fiscal consolidation, efficient allocations of government expenditure, issuing public debt, or high-powered non-interest bearing money creation (Heller 2005).
IMF (2012b:17) outlines the mainstream view:

‘[H]igh public debt in individual countries may raise their sovereign risk premiums, with a variety of consequences – from limited scope for countercyclical fiscal policies (as evidenced by the current problems in the euro area periphery) to high inflation or outright default in the case of very large increases in risk premiums.’

Advocates of expansionary fiscal contractions theory argue that a reduction in government expenditure and/or an increase in taxes (i.e. a fiscal consolidation) can increase economic growth, particularly over the medium- to long-term (see Giavazzi and Pagano 1990; Alesina 2010). Allegedly, the increase in supply of loanable funds and credibility effects associated with a commitment to fiscal discipline reduce interest rates and stimulate interest-sensitive private expenditures (see OECD 2011e).

Policymakers have tended to embrace the credibility argument.

Evidence of expansionary fiscal contractions is contentious (see Hemming et al. 2002) and increasingly qualified (see Perotti 2011). Assumptions regarding the state of excess capacity often influence these findings. Alesina and Ardagna (2010) find that ‘successful’ consolidations occur at, or close to, full employment (measured by output gaps) (see also Gravelle and Hungerford 2011). However, output gaps are expected to average –3.3 percent (–4.9 percent) among OECD (Euro) economies during 2013 (OECD 2012b). Furthermore, the current depressed state of private demand, the implicit policy constraints of monetary unions (see below), the limited scope for reducing policy rates, and the universal pursuit of contractionary policies also challenge the theory of expansionary fiscal contractions (see Mitchell 2011b).

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60 Note that the notion of ‘sovereign risk premium’ refers to risk premiums on public debt instruments without differentiating between economies that enjoy full monetary-fiscal sovereignty and economies that do not.

61 Popular case studies of expansionary fiscal contractions include Denmark, Ireland, Sweden and Finland. Perotti (2011) notes that interest rates decreased significantly in these cases.

62 Monaghan (2012) notes, ‘George Osborne [incumbent UK Chancellor of the Exchequer] has repeatedly insisted he will not deviate from the £123bn of austerity planned over seven years, arguing that a clear and credible deficit reduction target has protected Britain’s AAA credit rating and ensured low interest rates.’
Figure 3b.1 Long-term government bond rates: Eurozone economies

Data source: OECD (2012a)

Figure 3b.2 Long-term government bond rates: non-Eurozone economies

Data source: OECD (2012a)
Consequently, Taylor et al. (2012:202) maintains that ‘the implementation of a debt consolidation plan may affect the [US] economy more negatively during a recession.’ IMF (2012c:5) also moderated its stance, arguing ‘further tightening during a downturn could exacerbate rather than alleviate market tensions through its negative impact on growth’ (OECD 2012b offers a similar caution). Stiglitz is less sanguine, likening European austerity plans to a ‘suicide pact’ (see Moore 2012).

Amid sluggish GDP growth, the IMF have become increasingly cautious vis-à-vis the timing of fiscal consolidation programs, conceding that ‘the [fiscal] multipliers used in generating growth forecasts have been systematically too low since the start of the Great Recession, by 0.4 to 1.2 … actual [fiscal] multipliers may be higher, in the range of 0.9 to 1.7’ (IMF 2012a:41).

Notwithstanding this, the ‘implementation of credible medium-term debt reduction plans remains a priority …’ (IMF 2012c:6, 2012a, 2013a). Reinhart and Rogoff (2010b:23) claim, ‘[e]ven countries that are committed to fully repaying their debts are forced to dramatically tighten fiscal policy in order to appear credible to investors and thereby reduce risk premia.’ In addition, ‘if a country does not have fiscal credibility, it will have much more difficulty in continuing its fiscal programme because creditors will refuse to continue lending or will demand a higher risk premium’ (OECD 2010h:5).

Ostry et al. (2010) argue that, if public debt ratios exceed a particular point, creditors will become increasingly concerned with the risk of default and demand higher risk premiums, which may materialise as an exponential increase in interest rates (see also Price 2010). Thus, credibility effects imply interest rates are a nonlinear function of public debt ratios. Égert (2010) finds that the long-short interest rate spread is a nonlinear function of public debt ratios among G-7 economies (excluding Japan) for the period 2007-2009. Specifically, a one percentage point increase in the public debt to GDP ratio beyond 76 percent is expected to increase the long-short interest rate spread by 4 basis points.
The interest rate effect discussed by Ostry et al. (2010) and Égert (2010) is exacerbated by rising debt service requirements, which reinforce fiscal accounting imperatives and further restrict available fiscal space. Thus, a vicious cycle may occur, since government expenditure allocations may shift away from more productive expenditures (e.g. infrastructure investment and R&D) to reduce debt service requirements, and/or the positive (average) interest-growth rate differential may widen. Then, according to the algebra of debt dynamics, larger primary surpluses (implying larger fiscal adjustments) are required to achieve fiscal sustainability and regain fiscal space (see Watts and Sharpe 2013). Credit rating agencies and so-called bond vigilantes may exacerbate the adverse debt dynamics and reinforce fiscal austerity requirements.

Ostry et al. (2010) define fiscal space (empirically) as the difference between the current debt ratio and a calculated debt threshold. They conclude that Greece, Iceland, Italy and Portugal have little or no fiscal space, while the UK and US ‘appear to be constrained in their degree of fiscal manoeuvre’ (Ostry et al. 2010:28). IMF (2012d:6) asserts that ‘the United States [and Japan] should push ahead in formulating and implementing credible medium-term consolidation plans, because neither country can take for granted its status as a safe haven.’ Similarly, OECD (2012b:7) notes the US, UK and Japan ‘require a fiscal tightening that would exceed 5 percent of GDP in order to bring their debt back to 50 percent of GDP by around mid-century.’

However, there are important institutional differences between Eurozone economies (e.g. Greece, Portugal and Ireland) and other advanced economies (e.g. US, UK, Japan) which must be considered. Importantly, IMF (2012b:38) concede that ‘fiscal indicators such as deficit and debt levels appear to be weakly related to government bond yields for advanced economies with monetary independence’ [emphasis added] (e.g. US, UK, Japan; Figure 3b.2).

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63 In opposition to government policies, bond market investors may sell bonds or demand higher risk premiums, which increase bond yields.
3b.3 Modern money critique

Institutional arrangements have important implications for interest rate, debt and growth dynamics, yet are not acknowledged within the mainstream literature (Watts and Sharpe 2013). Modern Monetary Theory (MMT) (see Mitchell and Muysken 2008; Wray 1998, 2012a), based on the principles of Chartalism and Functional Finance, offers an ‘accounting-consistent, operationally-sound theoretical approach to understanding the way fiat monetary systems work and how policy changes are likely to play out’ (Mitchell 2011d).

MMT makes the necessary distinction between a sovereign and non-sovereign economy. A sovereign economy issues its own fiat (non-convertible) currency and operates with a flexible exchange rate (e.g. Australia, US, UK, and Japan; see Mitchell and Muysken 2008). A flexible exchange regime allows the Central Bank to pursue independent monetary policy. In addition, MMT emphasises the role and purpose of the consolidated sector (Treasury and Central Bank) as the sole issuer of currency.

According to MMT, sovereign economies do not face any (operational) revenue constraints, and so any amount of debt denominated in the national currency can be repaid. By contrast, a non-sovereign economy (e.g. a Eurozone member) must issue debt to finance net government expenditure since governments are ‘users’, not ‘issuers’ of currency (Kelton 2011). Thus, non-sovereign economies can become insolvent.

In a sovereign economy, government debt is used (typically in repo operations) to remove excess reserves from the interbank market and ensure the official (cash) rate coincides with Central Bank monetary policy objectives (see Fullwiler 2006; Mitchell and Muysken 2008; Mitchell 2009a). In addition, government debt in a sovereign economy is popular in financial markets since it offers a benchmark for pricing risky

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64 Monetary independence allows for (Central Bank) discretion vis-à-vis directing interest rate policy towards exchange rate concerns and engaging in open-market-operations.

65 The use of government debt to control the cash rate given a ‘corridor’ system is explicit within the Reserve Bank of Australia’s market operation notes (see RBA 2012). See also Watts (2012).
financial securities, and aids in balancing certain risks (e.g. credit risk, liquidity risk) in investment portfolios (Sharpe 2013a).

The point is that individual Eurozone economies do not have the full range of policy options in the monetary and fiscal spheres at their disposal. In particular, they cannot issue euros and some members can no longer access capital markets at reasonable rates of interest (e.g. Greece). In addition, national monetary authorities do not have the capacity to manipulate interest or nominal exchange rates to provide further stimulus. Consequently, Eurozone economies have become increasingly reliant on official support from abroad (i.e. IMF, ECB, European Commission; or the Troika). Troika loan agreements are conditional on fiscal austerity measures (e.g. Greece, Ireland and Portugal).

For Eurozone economies, alternative policy options are now limited. Real devaluations (i.e. price and wage cuts) have been pursued in an attempt to increase competitiveness and stimulate net exports (e.g. Ireland) (Mitchell 2012a). But this approach also exacerbates private debt servicing requirements, further undermining a private sector led recovery (see Watts and Sharpe 2013). Instead, Eurozone member governments should direct their now limited allocations at areas with traditionally higher fiscal multipliers, such as infrastructure investment and unemployment transfers (see Gravelle and Hungerford 2011). Heller (2005) warns that cutbacks in such expenditures can be counterproductive and reduce fiscal space over the medium- to long-term, given the need to rebuild these sectors in the future.

MMT maintains that ‘the time to make discretionary fiscal adjustments of a contractionary nature is when private spending growth is sufficient to keep overall nominal aggregate demand growing in line with real capacity’ (Mitchell 2012b). Fiscal space (as previously defined) is irrelevant for a sovereign economy, since these

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66 National currency denominated government debt (i.e. in a sovereign economy) is often considered to be a (default) risk-free interest-bearing asset. However there are other dimensions of risk which may be relevant (e.g. exchange rate risk and inflation risk).

67 To secure a bailout arrangement with the IMF/EC/ECB, Greek officials approved an austerity plan that reduces the minimum wage by 22 percent, and cuts pensions and 150,000 public sector jobs (see Papadimas and Papachristou 2012).
economies do not face an *ex ante* or inter-temporal government budget constraint, and so are not bound by the laws of debt and deficit dynamics (see Watts and Sharpe 2013).

According to MMT, fiscal space is only applicable to a sovereign economy if it ‘relates to the relationship between aggregate spending in the economy and the capacity of the real productive sector to respond to that spending via production of real goods and services’ (Mitchell 2012c). Thus, government must ensure aggregate spending does not exceed real productive capacity but can impose higher taxes to reduce non-government spending.

Reinhart and Rogoff (2009, 2010b) do not explicitly distinguish between sovereign and non-sovereign economies, but the characteristics of a sovereign economy appear to have influenced their findings. For example, economies with a flexible exchange rate and debt denominated in domestic currency appear to face ‘fewer’ constraints on public debt ratios. Furthermore, a ‘heavily managed’ exchange rate regime tends to be conducive to crisis and default (quoted in Nersisyan and Wray 2010).

Three points are warranted. First, the mainstream tipping point literature fails to consider different institutional arrangements, which appear to have important implications for the conduct of fiscal policy and, consequently, the theoretical and empirical investigations of a threshold limit. Second, despite largely abandoning the expansionary fiscal contractions hypothesis, the IMF (2012a, 2012f) remains wedded to the credibility argument, calling for gradual fiscal adjustment among advanced economies to strengthen confidence and alleviate ‘market pressure’. Finally, the effect of public debt accumulation on long-term interest rates and subsequently economic growth may have some empirical traction among Eurozone (non-sovereign) economies which, unlike sovereign economies, can become insolvent. The transmission mechanism between public debt, interest rates and economic growth must be unpacked.
3b.4 Empirical analysis

3b.4.1 Causal inference and transmission

Reverse causality, that is, the likelihood that low or negative growth rates induce higher debt burdens, complicates empirical attempts to isolate the impact of public debt accumulation on growth. During an economic downturn, the presence of automatic stabilisers means that lower economic growth is accompanied by higher government deficit ratios.

The OECD (2011e:247) recommends a cautious interpretation of the tipping point literature, noting that the ‘direction of causality seems to suggest more strongly that stagnation was a cause of the more rapid build-up in government debt rather than a consequence.’ For example, Taylor et al. (2012:200) find that, for the US, ‘a 1% contraction in quarterly real GDP would increase real debt by about 0.7% after one year …’ The authors suggest that, in contrast to Reinhart and Rogoff’s (2010b) findings, ‘high debt/GDP ratios are a consequence, and not a cause, of low growth’ (Taylor et al. 2012:200).

Furthermore, the OECD (2011e:247) suggests ‘[t]he transmission mechanism by which [reduced growth] occurs is likely to involve higher interest rates and a crowding out of private investment and R&D …’ Checherita and Rother (2010) find Eurozone government debt and deficits are positively correlated with long-term interest rates, while the latter are negatively correlated with the annual growth rate. The authors investigate the effect of long-term interest rates on gross fixed capital formation to explain the growth outcome.

Despite rising gross government debt to GDP ratios since 2008, advanced sovereign economies have maintained low long-term interest rates (Figure 3b.2). Taylor et al. (2012:203) reveal the effect of real interest rates on US economic growth and the response of interest rates to changes in the primary deficit are ‘ambiguous and not

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68 Quantitative easing measures in advanced sovereign economies may have contributed to low long-term bond yields (e.g. the UK; see Joyce and Tong 2012). Individual Eurozone economies do not have the capacity to implement such measures.
persistent’ (see also IMF 2012b). Yet some non-sovereign economies (e.g. Greece, Ireland and Portugal) experienced rising long-term government bond rates and appeared to face difficulties meeting financing requirements.

‘The market’s recent response to the intensifying pressures in the euro zone suggests that investors are beginning to differentiate between countries … [w]hether consciously or not, the markets are demonstrating that they understand the distinctions between users of currencies (who face an external funding constraint), and those nations that face no constraint in their deficit spending activities because they are creators of currency’ (Auerback 2010).

The OECD (2012b:12) acknowledges that high Eurozone interest rates partly reflect that ‘euro area debt essentially corresponds to foreign currency denominated debt for the individual country.’ Thus, financial markets seem to recognise institutional arrangements and the particular (solvency) constraints that they imply for Eurozone economies (see De Grauwe 2011b, 2012; De Grauwe and Ji 2012).

Checherita and Rother (2010) offer a useful starting point for a robust empirical investigation of public debt threshold limits since (1) the authors attempt to address transmission linkages, such as the interest rate channel, and (2) the sample only includes Eurozone (non-sovereign) economies. We have drawn upon MMT in the previous section to justify our theoretical and empirical focus on Eurozone economies. The credibility argument can be exploited since these economies face financing requirements and solvency constraints. However, Checherita and Rother’s (2010) panel regressions, most of which are estimated until 2008, have omitted much of the volatility in long-term interest rates and economic growth rates that has occurred since the advent of the crisis.69

69 The authors have recently extended their previous work to include threshold modelling (see Baum et al. 2012). While their interest rate results, particularly the coefficient magnitudes, are similar to those reported here, their focus on Eurozone economies is not adequately justified. Rather, it is merely suggested that ‘the EMU offers economic dynamics that are rarely found elsewhere in the world’ and ‘averaging across the OECD makes policy inferences difficult’ (Baum et al. 2012:4). The paper largely has an econometric focus, rather than providing a good exposition of recent trends in Eurozone public debt, growth and interest rates, and linking these to the underlying institutional arrangements.
3b.4.2 Panel regressions and stylised threshold limits

Initially, we follow Checherita and Rother’s (2010) and estimate equation (1) using two-stage least squares (TSLS) and generalised method of moments (GMM) estimators. A balanced panel of 12 Eurozone (non-sovereign) economies are investigated for the period 1998 to 2011 using annual data.\textsuperscript{70} The panel specification signifies the search for a universal threshold limit among selected Eurozone economies.

\[ Y_{it} = \alpha_0 + \alpha_1 D_{it} + \alpha_2 D_{it}^2 + \alpha_3 X_{it} + \mu_i + \delta_t + \varepsilon_{it} \quad i = 1,2,\ldots,N \; ; \; t = 1,2,\ldots,T \quad (1) \]

\( Y_{it} \) is a vector of dependent variables including nominal \((ny_{it})\) and real \((ry_{it})\) GDP growth rates, and a 3-year nominal (average) GDP growth rate \((my_{it})\).\textsuperscript{71} \( D_{it} \) is a vector of key explanatory variables including general government gross debt to GDP \((d_{it})\) and debt service to GDP \((ds_{it})\).\textsuperscript{72} These variables are regressed separately in the growth model. \( X_{it} \) is a vector of other explanatory variables including inflation \((p_{it})\), trade openness \((open_{it})\), gross fixed capital formation to GDP \((gfcf_{it})\), long-term (10-year) government bond rate \((i_{it})\), short-term policy interest rate \((pr_{it})\), effective exchange rate\textsuperscript{73} \((ex_{it})\), current account balance to GDP \((cab_{it})\), unemployment rate \((u_{it})\), labour productivity (i.e. real GDP per employed person) \((lp_{it})\), and cyclically-adjusted financial balance to potential GDP \((caf_{it})\).\textsuperscript{74} \( \mu_i \) and \( \delta_t \) denote cross-section and period effects respectively. \( \varepsilon_{it} \) is an error term. Explanatory variables which are not statistically significant are removed from the regressions.\textsuperscript{75}

\textsuperscript{70} Eurozone economies include Portugal, Ireland, Italy, Greece, Spain, France, Austria, Belgium, Finland, Germany, Luxembourg and Netherlands. Data is available from OECD (2012a). TSLS and GMM estimations are performed using Eviews 7.

\textsuperscript{71} Variable selection is largely based on Checherita and Rother (2010). A 3-year cumulative overlapping growth rate is also used but is statistically insignificant.

\textsuperscript{72} Debt service is the ratio of general government net debt interest payments to general government total tax and non-tax receipts (see OECD 2009a). Bernoth et al. (2004) argue that debt service has become an important fiscal indicator since the creation of the EMU. These authors and OECD (2009a) report empirical work that finds a non-linear relationship between debt service and long-term interest rates. Here, we also investigate a non-linear relationship between debt service and economic growth.

\textsuperscript{73} 'A nominal effective exchange rate is the exchange rate of the domestic currency vis-à-vis other currencies weighted by their share in either the country’s international trade or payments' (OECD 2011f). Pope and Selten (2012) note that exchange rates have been omitted from a number of tipping point investigations.

\textsuperscript{74} A definition is available from OECD (2011f). The variable is constructed so a deficit is positive.

\textsuperscript{75} A balanced panel of sovereign economies is also investigated, including: Australia, US, UK, Japan, Canada and New Zealand. TSLS and GMM regressions, and threshold modelling did not reveal any significant linear or non-linear relationships between gross debt to GDP, debt service to GDP, long-term...
Preliminary results reveal that economic growth is a non-linear function of gross government debt and debt service ratios among Eurozone economies over the sample period.\textsuperscript{76} The estimated gross debt threshold limit (range) is approximately 82-95 percent of GDP. These estimates are consistent with Checherita and Rother’s (2010) findings. Unlike Checherita and Rother (2010), we also investigate a debt service threshold limit that is estimated to range between 8 and 10 percent of GDP for Eurozone economies. Figures 3b.3 and 3b.4 depict the stylised threshold limits.

Figure 3b.3 Gross government debt versus GDP growth

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure3b3.png}
\caption{Gross government debt versus GDP growth}
\end{figure}

\textit{Note:} NY: nominal GDP growth; RY: real GDP growth; MY: 3-year nominal (average) GDP growth. Estimated threshold limits are 95.1, 87.4 and 82.7 percent of gross debt to GDP respectively. Coefficients are based on TSLS estimates with fixed effects. Instruments are lags of $d_{it}$ similar to Checherita and Rother (2010).

However, it is likely that other explanatory variables are endogenous and require instrumenting (see Kumar and Woo 2010). These additional regressions are also

\hspace{1cm} interest rates and economic growth among sovereign economies over the sample period (1998-2011). For brevity, these results are not reported.

\textsuperscript{76} These results are reported to convey the relative ease of identifying simple correlations between debt variables and economic growth, and to largely reproduce Checherita and Rother’s (2010) findings.
performed using heteroscedasticity and autocorrelation-consistent GMM estimators.\textsuperscript{77} The results reveal that economic growth is no longer a non-linear function of gross government debt and debt service ratios among Eurozone economies. But gross fixed capital formation is still a positive and significant determinant of economic growth.\textsuperscript{78} Thus, a threshold limit vis-à-vis economic growth and gross government debt to GDP or debt service to GDP is not present among Eurozone economies over the sample period.

\textbf{Figure 3b.4 Debt service versus GDP growth}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3b4}
\caption{Debt service versus GDP growth}
\end{figure}

\textit{Note:} NY: nominal GDP growth; RY: real GDP growth; MY: 3-year nominal (average) GDP growth. Estimated threshold limits are 10.3, 9.3 and 8.5 percent of debt service to GDP respectively. Coefficients are based on TSLS estimates with fixed effects. Instruments are lags of $ds_{it}$.

Following OECD (2011e), the transmission mechanism from government debt to economic growth may involve higher interest rates and reduced investment. Furthermore, the credibility argument (see Égert 2010; Ostry et al. 2010; Price 2010) implies that interest rates are a non-linear function of public debt ratios. We can

\textsuperscript{77} Instruments are time-lags on all regressors. Instrument lag selection is based on the Sargan statistic for valid over-identifying restrictions.

\textsuperscript{78} The economic growth GMM regressions are reported in Table 3b.A2 in this chapter’s appendix.
investigate these linkages separately using gross fixed capital formation as a proxy for investment, similar to Checherita and Rother (2010).

Long-term government bond rate regressions are reported in Table 3b.1. Long-term interest rates appear to be a non-linear function of gross government debt to GDP but not debt service to GDP among Eurozone economies. The estimated gross debt threshold limit (range) is approximately 56-60 percent of GDP. Figure 3b.5 illustrates the stylised threshold limit. In addition, gross fixed capital formation does not appear to be a statistically significant determinant of long-term interest rates among Eurozone economies.

Table 3b.1 Long-term government bond rate regressions

<table>
<thead>
<tr>
<th>Estimator/Regressor</th>
<th>TSLS(^a) Coefficient (t-statistic)</th>
<th>GMM(^a) Coefficient (t-statistic)</th>
<th>TSLS(^b) Coefficient (t-statistic)</th>
<th>GMM(^b) Coefficient (t-statistic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>constant</td>
<td>12.6969 (0.8602)</td>
<td>12.0093 (1.0151)</td>
<td>11.9928*** (3.8309)</td>
<td>11.3816*** (5.0663)</td>
</tr>
<tr>
<td>(d_{it})</td>
<td>-0.1129*** (-3.8918)</td>
<td>-0.1123*** (-3.1318)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(d_{it}^2)</td>
<td>0.000998*** (3.8259)</td>
<td>0.000931*** (3.5342)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(ds_{it})</td>
<td>-</td>
<td>-</td>
<td>-0.0196 (0.0907)</td>
<td>0.0324 (0.2414)</td>
</tr>
<tr>
<td>(ds_{it}^2)</td>
<td>-</td>
<td>-</td>
<td>0.002296 (0.3283)</td>
<td>0.000619 (0.1363)</td>
</tr>
<tr>
<td>(gfcf_{it})</td>
<td>-0.1795 (-1.1467)</td>
<td>-0.1825 (-1.5071)</td>
<td>-0.0143 (-1.808)</td>
<td>-0.0202 (-0.4982)</td>
</tr>
<tr>
<td>(exc_{it})</td>
<td>-0.0637 (-0.4423)</td>
<td>-0.0517 (-0.4509)</td>
<td>-0.0873*** (-3.8231)</td>
<td>-0.0830*** (-4.7151)</td>
</tr>
<tr>
<td>(p_{rit})</td>
<td>-</td>
<td>-</td>
<td>0.3042*** (3.2271)</td>
<td>0.3051*** (6.9777)</td>
</tr>
<tr>
<td>(\bar{R}^2)</td>
<td>0.6602</td>
<td>0.6480</td>
<td>0.9443</td>
<td>0.9611</td>
</tr>
<tr>
<td>(SER)</td>
<td>0.9094</td>
<td>0.9071</td>
<td>0.3485</td>
<td>0.3399</td>
</tr>
<tr>
<td>(JB\chi^2(2))</td>
<td>0.9074</td>
<td>0.3706</td>
<td>0.8655</td>
<td>1.2509</td>
</tr>
<tr>
<td>(\bar{\rho})</td>
<td>56.6</td>
<td>60.3</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: ***,**,* denote significance at the 1, 5 and 7 percent level respectively. \(^a\)includes cross-section and period fixed effects. \(^b\)includes cross-section fixed effects only. Explanatory variables which are not reported are statistically insignificant and are removed from the regression. Instruments are time-lags on regressors. Instrument lag selection is based on the Sargan statistic for valid over-identifying restrictions. GMMs include heteroscedasticity and autocorrelation-consistent statistics. \(JB\) is a \(\chi^2(2)\) Jarque-Bera test for normality. \(\bar{\rho}\) is the estimated tipping point.
Table 3b.2 reports gross fixed capital regression results, which indicate that, among Eurozone economies, long-term interest rates have a negative and highly significant effect on the former. This finding is similar to Checherita and Rother (2010). Furthermore, there appears to be no direct (positive or negative) correlation between gross government debt to GDP (and debt service) and gross fixed capital formation over the sample period.

Four conclusions are warranted for Eurozone economies: (1) economic growth is not a non-linear function of gross government debt to GDP or debt service to GDP over the sample period; (2) long-term interest rates are a non-linear function of gross government debt to GDP but not debt service to GDP; (3) long-term interest rates are a negative and highly significant determinant of gross fixed capital formation; and (4) gross fixed capital formation is a positive and significant determinant of economic growth.
Panel TSLS and GMM estimates support a transmission mechanism linking the gross government debt ratio to economic growth via long-term interest rates and gross fixed capital formation. We now investigate potential threshold limits using more robust non-linear inference methods.

Table 3b.2 Gross-fixed capital formation regressions

<table>
<thead>
<tr>
<th>Estimator/ Regressor</th>
<th>TSLS Coefficient (t-statistic)</th>
<th>GMM Coefficient (t-statistic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>constant</td>
<td>4.5615 (1.5710)</td>
<td>5.1873 (1.7303)</td>
</tr>
<tr>
<td>$d_{it}$</td>
<td>-0.0162 (-0.3855)</td>
<td>-0.0136 (-0.2567)</td>
</tr>
<tr>
<td>$ds_{it}$</td>
<td>0.3677 (1.0867)</td>
<td>0.3797 (0.8149)</td>
</tr>
<tr>
<td>$i_{it}$</td>
<td>-1.1585*** (-4.0107)</td>
<td>-1.3637*** (-6.5919)</td>
</tr>
<tr>
<td>$ny_{it}$</td>
<td>0.6489*** (3.1952)</td>
<td>0.6478*** (3.4231)</td>
</tr>
<tr>
<td>caf $b_{it}$</td>
<td>-0.7990*** (-4.2215)</td>
<td>-0.7656*** (-3.9456)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.7915</td>
<td>0.8204</td>
</tr>
<tr>
<td>SER</td>
<td>3.3259</td>
<td>3.7163</td>
</tr>
<tr>
<td>$J_B\chi^2_{(2)}$</td>
<td>2.8520</td>
<td>2.0039</td>
</tr>
</tbody>
</table>

*Note: ***,**,* denote significance at the 1, 5 and 7 percent level respectively. Regressions include period fixed effects. Explanatory variables which are not reported are statistically insignificant and are removed from the regression. Instruments are time-lags on regressors. Instrument lag selection is based on the Sargan statistic for valid over-identifying restrictions. GMMs include heteroscedasticity and autocorrelation-consistent statistics. $J_B$ is a $\chi^2_{(2)}$ Jarque-Bera test for normality.

3b.4.3 Panel unit root tests and threshold effects

The conventional presumption of linearity is often insufficient and highly restrictive. Consequently, time-series threshold models, introduced by Tong (1978), have proved popular. Hansen (1999) extends these models for use with non-dynamic panel data, which have been applied to investigations of public debt threshold limits (see Chang and Chiang 2007; Caner et al. 2010; Cecchetti et al. 2011; Baum et al. 2012). Unlike conventional panel TSLS and GMM estimators, Hansen’s (1999) inference methods allow the researcher to sequentially estimate single or multiple threshold limits, and corresponding regime coefficients and standard errors.
Hansen’s (1999) panel threshold estimation requires stationary variables to avoid a spurious regression. Conventional panel unit root tests, such as Levin et al. (2002) and Im et al. (2003), are often favoured over time-series tests since the asymptotic distribution is standard normal (see Chang and Chiang 2007). But these methods are restrictive since they assume cross-sectional independence. Maddala and Wu (1999) relax this assumption, proposing a bootstrap method to derive the empirical distributions of the test statistics, which combines the \( p \)-values from individual ADF unit root procedures, see equation (2).

\[
\Delta y_{it} = \rho_i y_{it-1} + \sum_{j=1}^{p_i} \theta_{ij} \Delta y_{it-j} + \mu_i + \varepsilon_{it} \quad i = 1,2, \ldots, N \; ; \; t = 1,2, \ldots, T
\]  

(2)

Furthermore, the procedure is advantageous when data availability restricts the time dimension of the sample (see Galimberti and Cupertino 2009). Here, we adopted Maddala and Wu’s (1999) procedure using 2000 bootstrap replications. The results reveal that all variables are stationary in levels, i.e. \( I(0) \).

In addition to Maddala and Wu’s (1999) unit root procedure, Caner and Hansen (2001) have developed a time-series test for a threshold effect and a non-linear unit root based on a two-regime threshold autoregressive model. Here, we are particularly interested in identifying a threshold effect among selected Eurozone economies. Galimberti and Cupertino (2009) extend Caner and Hansen’s (2001) procedure for use with panel data, yielding:

\[
\Delta y_{it} = \rho_i' y_{it-1} 1_{Z_{it-1} \leq \lambda_i} + \rho_i'' y_{it-1} 1_{Z_{it-1} > \lambda_i} + \sum_{j=1}^{p_i} \theta_{ij} \Delta y_{it-j} + \mu_i + \varepsilon_{it}
\]  

(3)

where; \( i = 1,2, \ldots, N \; ; \; t = 1,2, \ldots, T \)

Here, \( 1_{(\cdot)} \) is an indicator function, \( \lambda_i \) is the threshold value, and \( Z_{it-1} \) is the threshold variable. To test for a threshold effect (non-linearity), Caner and Hansen (2001) propose a Wald test-statistic (\( W_T \)):

\[\text{Eviews code for panel unit root tests and threshold effects are available from Galimberti and Cupertino (2009). Unit root results are reported in Table 3b.A1 in this chapter’s appendix.}\]
\[ W_T = T \left( \frac{\hat{\sigma}_0^2}{\hat{\sigma}^2} - 1 \right) \]  \hspace{1cm} (4) 

where \( \hat{\sigma}^2 \) is the residual variance from the threshold model (3), and \( \hat{\sigma}_0^2 \) is the residual variance from the OLS estimation of the (null hypothesis) linear model (2). Two bootstrapping procedures are proposed to approximate the asymptotic distribution of \( W_T \) since the true order of integration is unknown. One based on the stationary case, the other on the unit root case. Caner and Hansen (2001) recommend calculating the bootstrapped \( p \)-values using both methods, and base inference on the most conservative (largest) \( p \)-value, i.e. smallest \( W_T \) statistic.

Table 3b.3 Wald-test for non-linearity

<table>
<thead>
<tr>
<th>Threshold variable</th>
<th>( n_{yt} )</th>
<th>( r_{yt} )</th>
<th>( m_{yt} )</th>
<th>( i_{it} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( d_{it} )</td>
<td>23.02413</td>
<td>14.62549</td>
<td>19.66093</td>
<td>38.03321**</td>
</tr>
<tr>
<td>( d_{s_{it}} )</td>
<td>30.78693</td>
<td>27.99873</td>
<td>20.74582</td>
<td>25.38620</td>
</tr>
</tbody>
</table>

Note: ***,**,* denote significance at the 1, 5 and 10 percent level respectively. 2000 bootstrap replications were performed. Specification includes 1 autoregressive lag (max). Exogenous variable and lag selection is based on the AIC. Results are similar where specification includes no autoregressive lags. \( \chi^2 \) critical values are 42.98***, 36.42** and 33.20*.

Table 3b.3 details the results of the most conservative \( W_T \) statistic. We fail to reject the null hypothesis of no threshold effect in all cases except where long-term interest rates are a function of gross government debt to GDP. These findings rule out the presence of a threshold limit with respect to economic growth, reinforce the TSLS and GMM results, and confirm the appropriateness of an investigation into a non-linear relationship between gross government debt to GDP and long-term interest rates among Eurozone economies.

3b.4.4 Threshold point estimates and regime coefficients

Hansen’s (1999) threshold regression method for a balanced non-dynamic panel with individual specific fixed effects can now be estimated by least squares, allowing for (sequentially) zero, one, two and three thresholds.
Prior to estimating the threshold limits and regime-dependent coefficients, it is important to confirm/determine, first, whether the threshold effect is statistically significant, and second, the number of statistically significant thresholds. Hansen’s (1996) bootstrap method is performed to simulate the asymptotic distribution of the likelihood ratio (LR) test under the null of no threshold effect. A further bootstrapping procedure is then proposed to approximate the likelihood ratio test to determine the number of thresholds (see Hansen 1999:354-355). We follow Hansen’s (1999) suggested method of using lagged regressors to correct for potential endogeneity.

Table 3b.4 Public debt thresholds vis-à-vis long-term interest rate

<table>
<thead>
<tr>
<th>No. Thresholds</th>
<th>LR test statistic (a)</th>
<th>Critical values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>77.170756**</td>
<td>44.118066</td>
</tr>
<tr>
<td></td>
<td></td>
<td>62.626010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>116.595509</td>
</tr>
<tr>
<td>Double</td>
<td>15.435484*</td>
<td>14.509831</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.112110</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22.940792</td>
</tr>
<tr>
<td>Triple</td>
<td>6.840347</td>
<td>12.570249</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.838662</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22.837930</td>
</tr>
</tbody>
</table>

Note: ***,**,* denote significance at the 1, 5 and 10 percent level respectively. Critical values are ordered 10, 5 and 1 percent respectively. 1000 bootstrap replications were performed. \(a\) specification: \(i_{lt} = f(d_{lt-1}, \text{pr}_{lt-1}, \text{ex}_{lt-1})\), where threshold variable, \(Z_{lt-1} = d_{lt-1}\). A threshold effect is also tested where \(i_{lt} = f(d_{lt-1}, \text{pr}_{lt-1}, \text{ex}_{lt-1})\) but is not statistically significant.

Table 3b.4 displays the LR test statistic and bootstrap critical values for a threshold effect among Eurozone economies. The results suggest that up to two thresholds are present in the regression model. We proceed with a double threshold (triple regime) model (5) to determine the point estimates \((\lambda_1, \lambda_2)\) among Eurozone economies. All variables and vectors are as previously defined.

\[
i_{lt} = \alpha_{1}X_{lt-1} + \beta_{1}d_{lt-1}1(d_{lt-1} \leq \lambda_2) + \beta_{2}d_{lt-1}1(\lambda_1 < d_{lt-1} \leq \lambda_2) + \beta_{3}d_{lt-1}1(d_{lt-1} > \lambda_2) + \mu_{t} + \epsilon_{lt} \quad (5)
\]

where; \(i = 1,2,...N\); \(t = 1,2,...T\)

The point estimates and coefficients of the double threshold (triple regime) model, in addition to the conventional OLS standard errors and White-corrected standard errors are reported in Table 3b.5. The regime-independent coefficients on the policy interest
rate \((pr_{it})\) and effective exchange rate \((ex_{it})\) are significant and carry the expected signs. The OLS and White-corrected standard errors are similar, offering evidence in favour of no heteroscedasticity.

**Table 3b.5 Triple regime public debt threshold model**

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>OLS SE</th>
<th>White SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(pr_{it-1})</td>
<td>0.230064***</td>
<td>0.055183</td>
<td>0.049113</td>
</tr>
<tr>
<td>(ex_{it-1})</td>
<td>-0.073174***</td>
<td>0.013505</td>
<td>0.012733</td>
</tr>
<tr>
<td>(d_{it-1}(d_{it-1} \leq 40))</td>
<td>-0.029112</td>
<td>0.018080</td>
<td>0.022041</td>
</tr>
<tr>
<td>(d_{it-1}(40 &lt; d_{it-1} \leq 133))</td>
<td>0.018538**</td>
<td>0.008198</td>
<td>0.008356</td>
</tr>
<tr>
<td>(d_{it-1}(d_{it-1} &gt; 133))</td>
<td>0.060143***</td>
<td>0.008472</td>
<td>0.010871</td>
</tr>
</tbody>
</table>

*Note: ***,**,* denote significance at the 1, 5 and 10 percent level respectively. Statistically insignificant explanatory variables are removed from the regression.*

For Eurozone economies, the threshold results indicate that a gross government debt to GDP ratio of less than 40 percent (Regime 1) has no statistically significant effect on long-term interest rates; between 40 and 133 percent (Regime 2), has a positive and statistically significant effect on long-term interest rates; exceeding 133 percent (Regime 3), has a positive and highly significant effect on long-term interest rates. The upper regime coefficient is estimated to be more than three times larger than the second regime coefficient. Threshold results and transmission mechanisms are illustrated in Figure 3b.6.

To check the robustness of the point estimates, we re-estimate the regression by excluding (one at a time) Greece, Portugal and Ireland, i.e. the Eurozone economies that have experienced high volatility vis-à-vis long-term interest rates (see Figure 3b.1). The results are largely unchanged in all cases. That is, the regime-dependent and independent coefficients are statistically significant and carry the same signs and similar magnitudes to those reported in Table 3b.5. However, when Greece is excluded the upper point estimate is no longer significant. In addition, the upper threshold estimate is derived from relatively few observations, thus some caution is warranted.
Nevertheless, as Baum et al. (2012:15) argue, excluding countries from the sample is purely an econometric exercise and is of limited value to our analysis since we may lose potential spillover effects, and are interested in the Eurozone as a whole. Furthermore, the theoretical discussion in this article suggests that as government debt ratios among Eurozone (non-sovereign) economies continue to increase, additional regime changes are indeed possible since these economies can become insolvent.

Figure 3b.6 Transmission mechanism(s)

(a) Long-term interest rates

(b) Gross-fixed capital formation

(c) Real GDP growth

Note: Transmission is (a)→(b)→(c). (a) is based on regime-dependent coefficients from the threshold model. (b) and (c) are derived from GMM estimated coefficients. Initial values are variable averages over the sample period.
3b.5 Conclusion

The mainstream tipping point literature does not recognise the importance of institutional arrangements for the conduct of fiscal and monetary policy. Specifically, Eurozone (non-sovereign) economies as ‘users’ of the currency can become insolvent. This article draws on the principles of MMT to discuss institutional arrangements and to justify the theoretical and empirical focus on Eurozone (non-sovereign) economies.

The empirical analysis supports a transmission mechanism linking public debt accumulation to reduced economic growth via increased long-term government bond rates and decreased gross fixed capital formation among Eurozone economies. We find a non-linear relationship between gross government debt to GDP and long-term interest rates consistent with the credibility argument (see Égert 2010; Ostry et al. 2010; Price 2010). Public debt regime changes are estimated at 40 and 133 percent of GDP.

These findings however do not offer an ex post rationale for existing Stability and Growth Pact (SGP) requirements or lend (general) support to fiscal rules. While these issues have no relevance among sovereign economies, they are also undesirable among Eurozone economies since they offer no solution to the implicit policy constraints of the monetary union. Rather, fiscal rules have been shown to exacerbate the pro-cyclical nature of the Eurozone budgetary policy.

To avoid a public debt threshold limit vis-à-vis long-term interest rates, Eurozone policymakers face at least three options: (1) create a fiscal union and establish a Eurozone Treasury that could spend like a government of a sovereign economy (see Mitchell 2010b); (2) allow the ECB to act as a government banker to Eurozone members (see Palley 2011); (3) abandon the euro and restore currency sovereignty to all Eurozone members. Of course, political, democratic and moral hazard issues would also need to be addressed (see De Grauwe 2011b, 2012; European Commission 2011b; Varoufakis and Holland 2011). These policy options are important topics for further research.
### Table 3b.A1 MW-Fisher unit root tests

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>1st difference</th>
<th>Variable</th>
<th>Level</th>
<th>1st difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ny_{it}$</td>
<td>89.4909***</td>
<td>89.63128***</td>
<td>$i_{it}$</td>
<td>38.00561**</td>
<td>128.3788***</td>
</tr>
<tr>
<td>$ry_{it}$</td>
<td>86.99217***</td>
<td>42.44476***</td>
<td>$pr_{it}$</td>
<td>50.51644***</td>
<td>97.26888***</td>
</tr>
<tr>
<td>$my_{it}$</td>
<td>54.98582***</td>
<td>119.7475***</td>
<td>$ex_{it}$</td>
<td>60.92987***</td>
<td>102.9715***</td>
</tr>
<tr>
<td>$d_{it}$</td>
<td>112.2035***</td>
<td>42.44476***</td>
<td>$cab_{it}$</td>
<td>59.78130***</td>
<td>97.99437***</td>
</tr>
<tr>
<td>$ds_{it}$</td>
<td>101.99217***</td>
<td>119.7475***</td>
<td>$u_{it}$</td>
<td>102.9715***</td>
<td>102.9715***</td>
</tr>
<tr>
<td>$p_{it}$</td>
<td>118.2035***</td>
<td>97.99437***</td>
<td>$lp_{it}$</td>
<td>102.9715***</td>
<td>102.9715***</td>
</tr>
<tr>
<td>$open_{it}$</td>
<td>86.99217***</td>
<td>118.2035***</td>
<td>$cafb_{it}$</td>
<td>59.78130***</td>
<td>97.99437***</td>
</tr>
<tr>
<td>$gfcf_{it}$</td>
<td>97.99437***</td>
<td>97.99437***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** ***,**,* denote significance at the 1, 5 and 7 percent level respectively. 2000 Bootstrap replications are performed. Specification includes 1 autoregressive lag (max). Exogenous variable and lag selection is based on the AIC. MW-Fisher $\chi^2_{2N}$ critical values are 42.98*** and 36.41**.

### Table 3b.A2 Economic growth regressions

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>$ny_{it}$</th>
<th>$ry_{it}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Estimator/Regressor</strong></td>
<td><strong>GMM Coefficient (t-statistic)</strong></td>
<td><strong>GMM Coefficient (t-statistic)</strong></td>
</tr>
<tr>
<td>constant</td>
<td>8.4826 (0.6540)</td>
<td>1.2881 (0.1229)</td>
</tr>
<tr>
<td>$d_{it}$</td>
<td>-0.0385 (-1.4643)</td>
<td>-</td>
</tr>
<tr>
<td>$d_{it}^2$</td>
<td>0.000210 (1.0384)</td>
<td>-</td>
</tr>
<tr>
<td>$ds_{it}$</td>
<td>-</td>
<td>0.0096 (0.1139)</td>
</tr>
<tr>
<td>$ds_{it}^2$</td>
<td>-</td>
<td>-0.0053 (-0.8819)</td>
</tr>
<tr>
<td>$gfcf_{it}$</td>
<td>0.4981*** (3.4939)</td>
<td>0.4701*** (3.1732)</td>
</tr>
<tr>
<td>$lp_{it}$</td>
<td>0.8674* (1.8169)</td>
<td>0.7300* (1.8274)</td>
</tr>
<tr>
<td>$p_{it}$</td>
<td>1.5246*** (4.8435)</td>
<td>1.8384*** (6.8874)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.7800</td>
<td>0.7912</td>
</tr>
<tr>
<td>SER</td>
<td>1.8405</td>
<td>1.7931</td>
</tr>
<tr>
<td>$JB(\chi^2_{2})$</td>
<td>1.2269</td>
<td>0.3662</td>
</tr>
</tbody>
</table>

**Note:** ***,**,* denote significance at the 1, 5 and 7 percent level respectively. Period fixed effects are included. Explanatory variables which are not reported are statistically insignificant and are removed from the regression. Instruments are time-lags on regressors. Instrument lag selection is based on the Sargan statistic for valid over-identifying restrictions. GMMs include heteroscedasticity and autocorrelation-consistent statistics. $JB$ is a $\chi^2_{2}$ Jarque-Bera test for normality.
Monetary policy in crisis

The ongoing Global Financial Crisis (GFC) has posed a growing challenge to the implementation of monetary stimulus measures in both sovereign (e.g. US, UK, Japan) and non-sovereign (Eurozone) economies. With the policy rate close to the zero nominal bound, the UK has relied on quantitative easing, ostensibly to improve market liquidity and/or stimulate economic activity, despite being freed from the policy constraints of a non-sovereign economy. The evidence regarding the macroeconomic effects of quantitative easing is, however, largely inconclusive. Meanwhile, UK growth forecasts have been revised downwards but, at the time of writing, the government remains committed to its fiscal austerity programme. In this paper we explore the origins of quantitative easing, its underlying objectives, the theoretical arguments for its use and the empirical evidence concerning its impact. Our analysis focuses on the policies of the Bank of England since the advent of the GFC, and is informed by the principles of Modern Monetary Theory.
4.1 Introduction

The Global Financial Crisis (GFC) posed a fundamental challenge to orthodox macroeconomic stabilisation policies. While monetary authorities quickly responded to the liquidity shock following the collapse of some large US financial institutions, ongoing downward adjustment of official rates was constrained by the zero nominal bound. In addition, there was a ‘disconnection between official rates and market rates’ (Joyce et al. 2012:F276). Hence, the conventional channel for monetary policy was soon exhausted.

Since 2008, many central banks have devised and implemented an assortment of ‘unconventional’ monetary policies, ostensibly to strengthen market liquidity and stimulate economic growth. The IMF has supported the use of such measures (see Sharpe and Watts 2012). Quantitative easing (QE) is arguably the most ‘conventional unconventional’ monetary policy (King 2009), and has been identified with the Bank of Japan’s (BoJ) market interventions between 2001 and 2006. QE entailed the purchase of government securities, primarily from commercial banks, by crediting their reserve accounts held at the central bank. While the BoJ targeted specific balances of excess reserves, the objective was to keep prices from declining and to provide a basis for sustained economic growth.

Between March 2009 and July 2012 the Bank of England (BoE), via its Asset Purchase Facility (APF), was authorised to purchase assets valued at £375 billion, mainly consisting of medium- to long-term UK government debt or ‘gilts’. These asset purchases followed the official Bank Rate being cut to 0.5 percent in March 2009, which the Monetary Policy Committee (MPC) indicated was its lowest practical level.

Initially, QE was implemented to address the threat of deflation. There is now a growing body of empirical evidence regarding the effectiveness of QE in the UK, but the results remain largely inconclusive, since the efficacy of QE is particularly difficult to ascertain in the context of broad macroeconomic uncertainty, fiscal withdrawal and a deepening Eurozone malaise. The economic reality is clear, however, with the UK experiencing a double dip recession in 2011-2012 and an unemployment rate of about
eight percent. The UK economy is suffering the weakest recovery from a crisis in recent history (IMF 2013a).

The objectives of this paper are twofold. First, we explore the origins of QE, its underlying objectives, how it has been implemented, and the ostensible theoretical and empirical arguments for its use. Second, by an evaluation of the available evidence, we assess whether QE has fulfilled its stated objective(s). Our analysis focuses on the policies of the BoE since the advent of the GFC, and is informed by the principles of Modern Monetary Theory (MMT).

Section 4.2 outlines the context, theory and implementation of unconventional monetary policy. The BoE's recent QE policies are then discussed, along with the available evidence. Section 4.4 critically assesses QE policies by drawing on the principles of MMT. Concluding remarks then follow.

4.2 Unconventional monetary policy: context, theory and implementation

Unconventional monetary policy encompasses measures which cause a change in the size and/or composition of a central bank’s balance sheet (Bernanke and Reinhart 2004). These can be broadly classified, but not limited to: an explicit commitment to low policy interest rates; the provision of low-cost funds to financial institutions; the purchase of long-term government securities to reduce long-term interest rates; and, direct and specific interventions into credit markets (Klyuev et al. 2009).

Since the advent of the GFC, many central banks have devised and implemented unconventional monetary measures, given; (1) policy rates cannot be reduced below zero since agents can always hold (non-interest bearing) cash (i.e. the zero nominal bound); and, (2) solvency concerns surrounding financial intermediation have disrupted the (standard) relationship between official and market rates (Joyce et al. 2012). The policy challenge became one of stimulating the economy so that conventional monetary policy, targeting price (and financial) stability, could be reinstated (Joyce et al. 2012). While there are no generally accepted ‘rules of engagement’, so that policies were
sometimes *ad hoc*, unconventional monetary measures have ostensibly been geared to financial market stability, the facilitation of corporate financing and stimulating economic growth (Shiratsuka 2010).

![Figure 4.1 Transmission mechanisms of asset purchases](source.png)

Asset purchases allegedly affect aggregate demand via a number of channels. First, purchases of long-term securities can reduce the long-end of the yield curve, causing investors to ‘rebalance’ their portfolios by purchasing assets with greater duration or higher credit risk. The resulting rise in asset prices eases credit conditions and generates capital gains for households, who are assumed to consume part of the increase in wealth (Joyce et al. 2012). This is the so called portfolio (re)balance channel (see Tobin 1969; Brunner and Meltzer 1973) and is illustrated by the upper half of Figure 4.1. Second, the central bank (explicitly) commits to a monetary stimulus allegedly reducing expected short- and long-term interest rates, while lowering uncertainty, increasing confidence and reducing risk premiums (Meaning and Zhu 2011). This is the signalling channel.\(^{80}\) Third, the bank funding/lending channel, the lower half of Figure 4.1, suggests that increased bank deposits and reserves created by asset purchases from non-

\(^{80}\) An example of the signalling channel is a long-term commitment to a low official (policy) rate. In mid-December 2012, the Federal Reserve committed itself to maintain the Federal Funds rate close to zero until the unemployment rate dropped below 6.5 percent, subject to the persistence of a low inflation rate. As a consequence, interest rates were expected to remain low until at least mid-2015.
bank institutions will increase the availability of bank credit, and so, banks may be more willing to lend (Benford et al. 2009; Joyce et al. 2012).

The BoJ’s unconventional monetary measures are an important precursor to recent policies. The Japanese economy had struggled to return to a stable growth path since the early 1990s. The BoJ expressed concern about the deflationary impact of weak demand. Also, ‘Japanese financial institutions as a whole confronted severe credit constraints’ (Shiratsuka 2010:88). In 2001, the economic conditions justified ‘monetary easing as drastic as is unlikely to be taken under ordinary circumstances’ (BoJ 2001).

A zero-interest rate policy was implemented (1999-2000), with QE adopted subsequently (2001-2006). An explicit commitment to low (or zero) policy rates is alleged to anchor market expectations of inflation, and prevent a rise in real interest rates (Okina and Shiratsuka 2004; Klyuev et al. 2009; Blinder 2010).

QE involved an explicit target for bank reserves at the BoJ and consequently a decline in the overnight call (policy) rate. The BoJ also committed to increase its outright purchases of long-term government bonds (primarily from commercial banks), to inject liquidity which facilitated the other objectives. While purchases of long-term securities may signal an intention to reduce long-term interest rates (Klyuev et al. 2009; Blinder 2010), the relatively small purchases of these securities and the ‘banknote rule’ indicate that this may not have been the BoJ’s intention at this time (Shiratsuka 2010). Furthermore, the liquidity injection;

‘may not translate into larger amounts of credit provided to households and firms if banks are concerned about their capital adequacy, are in the process of reducing the

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81 Another early form of unconventional monetary policy was ‘Operation Twist’ (1961-1965) which involved the simultaneous purchase of long-term, and sale of short-term, Treasury securities via open market operations conducted by the US Federal Reserve (Modigliani and Sutch 1966). Short-term interest rates increased, which was designed to attract foreign capital and investment to stem a balance of payments crisis and gold reserve drain. The economic context subsequently changed with the abandonment of the Bretton Wood exchange rate system (1944-1971). The Fed now sets the policy rate which is typically geared to an inflation target. In 2011, the US implemented a similar ‘Operation Twist’ strategy, ostensibly to avoid raising inflationary expectations.

82 The ‘banknote rule’ requires that the outstanding amount of long-term government bonds held by the BoJ does not exceed the outstanding balance of banknotes issued.
size and the level or risk embedded in their balance sheets, and/or are risk adverse due to a weak economic backdrop in which to lend’ (Klyuev et al. 2009:10).

The BoJ’s unconventional measures were to be abandoned when the consumer price index (CPI) stabilised or increased. This occurred on March 9, 2006. While the counterfactual is difficult to establish, empirical evidence suggests that the BoJ’s policies had little effect on aggregate variables such as output and inflation (Borio and Disyatat 2009; Shiratsuka 2010; Wieland 2010). Consequently, empirical studies have focused on financial variables and announcement effects.

In a survey of the literature, Ugai (2007, quoted in Blinder 2010:18-19) concludes that the evidence ‘confirms a clear effect’ of the ‘commitment’ policy on short- and medium-term interest rates but offers only ‘mixed’ evidence that ‘expansion of the monetary base and altering the composition of the BOJ’s balance sheet’ had much effect. Bernanke et al. (2004) found that the BoJ’s policy reduced the yield curve by approximately 50 basis points (see also Oda and Ueda 2007).

More recently, BoJ (2010) made an explicit commitment to reduce long-term interest rates via the provision of extraordinary amounts of long-term funds at extremely low interest rates (see also the ECB’s LTROs; Meier 2009). However falling Treasury (risk-free) yields may not significantly affect ‘private borrowing rates and credit market risk premiums as heightened risk aversion reduces the substitutability between government and private assets’ (Klyuev et al. 2009:10). This is perhaps why Bernanke (2009) distinguished between the unconventional measures of the BoJ and the US Federal Reserve (Fed), labelling the latter ‘credit easing’.

Credit easing largely involves central bank interventions into specific segments of credit markets to extend credit or purchase securities, such as commercial paper, corporate bonds and asset-backed securities (Klyuev et al. 2009). The purchase of credit products may involve the simultaneous sale of government securities (compositional effect) and/or the increase in reserve balances (size effect). In any case, credit easing attempts

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83 This is further discussed in Section 4.4.
to alleviate illiquid trading conditions, reduce liquidity premiums and encourage origination (Klyuev et al. 2009). Notwithstanding this, the distinction between quantitative and credit easing remains unclear.

In theory, given that ‘private borrowing, lending, and spending decisions presumably depend on (risky) non-Treasury rates, reducing their spreads over (riskless) Treasuries will reduce the interest rates that matter for actual transactions even if riskless rates are unchanged’ [emphasis in original] (Blinder 2010:4). The effectiveness, however, will depend on the degree of substitutability between the assets being purchased.

In summary, unconventional monetary policies represent measures causing a change in the size and/or composition of the central bank's balance sheet. However low policy rates and unconventional measures are not necessarily separate policies, since the latter can cause the former via a size effect. Second, there are no universally-accepted definitions of quantitative easing and credit easing. QE involves a quantity change on a central bank's balance sheet. However, in this sense, QE and credit easing are not mutually exclusive. Finally, the unconventional policy mix is largely contextual and not necessarily doctrinal (Bernanke 2009) so, in practice, central banks will tailor the overall policy package to their specific context, restrictions and shocks (Klyuev et al. 2009; Shiratsuka 2010).

In the next section we outline and discuss the unconventional monetary policies of the BoE in the context of the GFC. To avoid definitional confusion, we adopt the BoE’s terminology.

**4.3 Bank of England and the crisis**

**4.3.1 Policy response**

Economic activity in the UK has remained largely stagnant since the advent of the GFC. While fiscal stimulus measures were pursued temporarily, and sterling depreciated sharply following the Lehman Brothers collapse in September 2008, the BoE's Monetary Policy Committee (MPC) became increasingly concerned with nominal
spending, considering it too weak to meet the medium-term inflation target (Benford et al. 2009). Annual nominal GDP growth (to Q1 2009) had fallen by 2.4 percent, its lowest level since records began in 1955 (Benford et al. 2009).

Consequently, the MPC decided that further monetary easing was required. Following cuts of three percentage points in the Bank Rate during Q4 2008 and a further 1½ percentage points in early 2009, the BoE then reduced the policy rate to 0.5 percent in March 2009; the lowest rate since the BoE was formed in 1694 (Benford et al. 2009; Mitchell 2009c). The conventional monetary policy channel had now been exhausted.

The BoE turned to QE which involved the purchase of public and private sector assets using central bank money (i.e. creating reserves) (Benford et al. 2009). The Bank reaffirmed its commitment to price stability (i.e. an inflation rate of 2 percent), while supporting the government's economic policies for growth and employment (Benford et al. 2009). The asset purchases were alleged to facilitate the achievement of these objectives. Asset purchases were conducted via the BoE's Asset Purchase Facility (APF) which was established as a subsidiary in January 2009. Both the APF and BoE were granted full indemnity by HM Treasury for any ‘losses’ incurred by the facility. Bean (2009:3) summarises the mechanics of QE:

‘The Asset Purchase Facility buys assets funded by a loan from the Bank. In turn, the Bank funds that loan through additional reserve creation…When the Asset Purchase Facility buys a gilt from a pension fund, say, it can be thought of as paying with a cheque drawn on the Bank of England. The pension fund will then bank the cheque with its own commercial bank, so the latter now has a claim on the Bank of England — that is what reserves are.’
Figure 4.2 UK financial market indicators

(a) Stock of gilts: BoE holdings

(b) Government securities: monthly average yields

(c) Short-term rates: monthly average

(d) Household lending/deposit rates: monthly average

Data source: Bank of England
Between March and November 2009 the MPC authorised the purchase of £200 billion of assets, primarily longer-term government bonds (gilts) (see Figure 4.2a). The first round of purchases represented nearly 30 percent of the private sector's holdings of gilts and approximately 14 percent of annual nominal GDP (Joyce et al. 2011a). A second round of purchases (£75 billion) began in October 2011, followed by £50 billion in February 2012 and a further £50 billion in July 2012. The BoE's gilt holdings from the APF are now worth £375 billion.

The APF also purchased private sector assets though the Corporate Bond Secondary Market Scheme, and Secured Commercial Paper Facility (BoE 2012a). The purchases of high-quality commercial paper and corporate bonds, however, differed from the gilt purchases, since the operations were largely 'financed' by the issue of Treasury bills and the Debt Management Office's cash management facilities. Furthermore, ‘[t]he scale of these operations was much less than for the gilt purchases, consistent with the Bank acting as a backstop purchaser/seller with the intention of improving market functioning’ (Joyce et al. 2011a:200).

Drawing on the BoJ’s earlier experience, the MPC had ‘expected the additional monetary injection not to stimulate bank lending directly at the current juncture’ (Bean 2009:4). Thus, APF’s purchases were ‘targeted at assets held primarily by the non-bank private sector’ (Bean 2009:4). BoE (2012b) outlines the rationale:

‘The Bank of England electronically creates new money and uses it to purchase gilts from private investors such as pension funds and insurance companies. These investors typically do not want to hold on to this money, because it yields a low return. So they tend to use it to purchase other assets, such as corporate bonds and shares. That lowers longer-term borrowing costs and encourages the issuance of new equities and bonds.’

Benford et al. (2009) provide a detailed account of the APF operations. While Bean (2009) and Benford et al. (2009) note that the MPC emphasises the portfolio (re)balance channel, the committee also appears reliant on ‘well-established’ Monetarist relationships between narrow money, broad money and nominal demand (Meier 2009).
‘Banks gain both new reserves and a corresponding new customer deposit when assets are purchased from non-banks. A higher level of liquid assets could encourage them to extend more new loans than they would otherwise have done… More bank lending to households and companies should help to support higher consumption and investment’ (Benford et al. 2009:93).

‘The MPC also argues that the increased money supply could induce additional bank lending and, possibly, increase spending directly, for example, by raising inflation expectations’ (Meier 2009:24). Notwithstanding this, Benford et al. (2009:98) maintain that, while the money multiplier (i.e. the ratio of broad money to central bank money) is ‘not a direct causal relationship’, ‘[i]n current conditions, the marginal impact on broad money of a change in reserves is likely to be much smaller than implied by the current ratio.’ Furthermore, asset purchases are alleged to buttress other BoE initiatives to support the banking sector, ‘to make the effect of higher reserves on lending (the bank lending channel) more powerful’ (Benford et al. 2009:98). Thus, the relevance of the money multiplier is not dismissed.

Interestingly, Meier (2009:24-25) notes:

‘[T]he liquidity injection of GBP 75 billion was calibrated so as to make up for a projected shortfall in nominal demand of about the same amount (5 percent of GDP), based on an assumed marginal money multiplier and money velocity of one. The significant uncertainty surrounding the transmission of QE — explicitly acknowledged by the MPC — would seem to caution against relying too much on any such numerical assumptions. Indeed, the MPC did not refer back to this quantitative rule of thumb when it increased the QE target to GBP 125 billion in May’ [emphasis added].

Benford et al. (2009:91) argue rather vaguely that ‘[t]he expansion of broad money is a key part of the transmission mechanism for quantitative easing. It should ultimately lead to an increase in asset prices and spending and therefore bring inflation back to target.’ This is a curious argument. First, the expansion of broad money is the outcome of a sequence of asset purchases (and higher asset prices) rather than its initiating cause.
Second, the nonbank private sector has merely changed the composition of its asset holdings, so it is unclear why the increased stock of broad money, \textit{ex post}, should promote higher spending more generally. Also, the purchase of gilts and/or private assets from the banks would be \textit{expected} to raise asset prices.\textsuperscript{84} In the depressed economic climate, the BoE appeared reluctant to rely solely on these lower interest rates to stimulate spending via interest-sensitive components of investment and consumption. If the flood of reserves did not encourage banks to increase lending to the non-bank private sector, Benford et al. (2009:93) argue that ‘the extra reserves may contribute to a decline in the interest rate that banks pay to borrow from each other.’

Likewise, Meier (2009:29) contends that ‘[t]o the extent that bank funding costs decline…banks might be induced to provide loans at lower interest rates…’ However, since December 2010;

‘commercial banks are not required to disclose a [reserves] target to the BoE and all reserve balances attract the Bank Rate [i.e. a \textit{floor} system] which is designed to establish a benchmark, short-term, risk-free rate [see Figure 4.2c]. Thus, there is no downward pressure on the market rate following the increase in reserves, above the level required for inter-bank transactions’ (Watts 2012:10).

In these circumstances, monetary management by the BoE is not required. The money multiplier will be further unpacked in Section 4.4. An orthodox perspective on the dangers of QE by the BoE is outlined by Meier (2009:19-20). He notes the possibility of reputational risk associated with ‘squandering taxpayer money’, even though the presence of strong ‘capital cushions’ or indemnity arrangements enables its balance sheet to withstand some financial loss. In addition, such loss making ‘could weaken political support for its independence and erode the legitimacy of its policy mandate.’ He expresses concern that unconventional operations place the BoE in roles normally

\textsuperscript{84} The BoE’s (2012b) contribution to public education, ‘Quantitative Easing Explained’, appears designed to confuse with statements such as, ‘[t]he purpose of the purchases was and is to inject money directly into the economy in order to boost nominal demand.’ The BoE apparently wishes to perpetuate the spectre of helicopters dropping cash into the UK economy, thereby directly injecting purchasing power to boost demand and counter deflation (see Friedman 1969). However we are then reassured that asset purchases do not either ‘involve printing more banknotes’ or, following earlier bailouts, ‘giving money to banks’ (BoE 2012b).
assumed by the private sector or government. Further, while buying gilts avoids these risks, the purchases expose the BoE to the charge of capture by the fiscal authority, since these purchases alleviate interest rate pressures in the debt market, particularly in the presence of high deficits. Also, such large scale operations can give rise to policy conflicts over the appropriate extent and timing of central bank purchases and sales. In short, Meier (2009) asserts that these unconventional monetary policies can promote market fears about fiscal dominance and the consequent loss of monetary policy discipline with respect to the pursuit of price stability.

Two comments are apposite. First, the motivation for ‘unconventional’ monetary policy in 2009 was the prospect of price deflation. Inflation has since recovered (see Figure 4.3d). Second, Meier (2009) fails both to recognise the role of the BoE as a currency ‘issuer’ as opposed to a currency ‘user’, and to outline what constitutes fiscal sustainability for a sovereign economy, where government has the full array of macroeconomic policy instruments at its disposal.

4.3.2 Empirical evidence

There is a growing body of empirical literature regarding the effectiveness of the BoE’s QE measures. These studies have focused largely on financial variables, revealing some support for the portfolio rebalancing channel, as asset prices have increased and consequently borrowing costs declined. Evidence of a change in spending is, however, more difficult to identify, particularly given the limited historical precedence for this type of policy (Joyce et al. 2012).

Announcement effects are estimated to have reduced gilt yields by 40-120 basis points (Meier 2009; Joyce et al. 2011a, 2011b; Joyce and Tong 2012). Christensen and Rudebusch (2012) decompose the announcement effects on gilt yields, suggesting that the decline had been driven principally by reductions in term premiums.85

85 The effect of asset purchases on international capital flows may also be non-negligible. Most estimates have focused on the US, for example, Fratzscher et al. (2012) find that the Fed’s interventions resulted in an international portfolio rebalance which was more significant than its domestic rebalance. Chen et al. (2011) reveal that announcement effects in the US had a significant impact on government bond yields, equity prices and exchange rates among many emerging Asian and Latin American economies (see also Akyüz 2012; Suttle et al. 2012).
Meaning and Zhu (2011) estimate a 56 basis point decline in BBB corporate bond yields, one day, and 98 basis points, two days, after the announcement of asset purchases. Furthermore, econometric estimates revealed the first round of asset purchases reduced gilt yields, with remaining maturity of 5 to 25 years, by 27 basis points, on average (see also Breedon et al. 2012).

Recent estimates of macroeconomic effects indicate that QE could have increased real GDP in the range of 1.5 to 2 percent, and increased inflation by 0.75 to 1.5 percentage points (Joyce et al. 2011b; Bridges and Thomas 2012; Kapetanios et al. 2012). In a counterfactual analysis, Pesaran and Smith (2012) estimate a temporary output growth increase of between 0.75 and 1 percentage point (see also Kapetanios et al. 2012).

It is, however, extremely difficult to isolate the impact of the BoE’s QE policy in the context of broad macroeconomic uncertainty, fiscal withdrawal and the deepening Eurozone malaise. Consequently, empirical estimates are heavily qualified. Despite the BoE’s concerted, and ‘unconventional’, attempts to increase nominal demand growth since 2009, real economic growth in the UK remains stagnant and unemployment is high (see Figures 4.3a and 4.3c).

4.4 A modern money critique

Despite temporary fiscal stimulus measures during 2008 and 2009, UK policymakers have relied almost exclusively on (unconventional) monetary policy in response to the GFC, which brought about the worst economic downturn since the Great Depression (IMF 2009). We now draw on the principles of Modern Monetary Theory to critically assess the BoE’s QE measures, including the Bank’s rationale for its asset purchases, in the context of fiscal austerity. We recognise, however, that central banks have limited capacity to stimulate economic activity.
Figure 4.3 UK macroeconomic indicators

(a) Real GDP growth
(b) Real gross fixed capital formation
(c) Unemployment rate
(d) Inflation rate

Data source: OECD (2012a)
Modern Monetary Theory (MMT) represents an ‘accounting-consistent, operationally-sound theoretical approach to understanding the way fiat monetary systems work and how policy changes are likely to play out’ (Mitchell 2011d). MMT makes the important distinction between a sovereign and non-sovereign economy, by drawing on the principles of Chartalism (see Minsky 1986; Wray 1998) and Functional Finance (Lerner 1943; Forstater 1999; Watts and Sharpe 2013). According to Functional Finance, ‘[g]overnment should adjust its rates of expenditure and taxation such that total spending in the economy is neither more nor less than that which is sufficient to purchase the full employment level of output at current prices’ (Lerner 1943:354).

From this perspective, the UK is a sovereign economy. The consolidated government sector (Treasury and central bank) is the sole ‘issuer’ of its own fiat non-convertible currency which is subject to a flexible exchange rate (Mitchell and Muysken 2008; Kelton 2011). Thus monetary policy is freed from the need to defend foreign exchange reserves, and the government does not face an ex ante or inter-temporal budget constraint (Sharpe and Watts 2012; Watts and Sharpe 2013). When HM Treasury spends, it credits the domestic bank accounts of firms that sell goods and services to the government, so the very act of spending leads to an increase in the stock of broad money. These vertical transactions between the government and the non-government sector increase reserve balances or system liquidity. Both government spending and the purchases of assets from the non-government sector by the central bank transfer fiat money to the non-government sector in the form of additional reserve balances. Conversely, taxes and sales of financial assets to the non-government sector reduce reserve balances. Thus, reserves are generally created when government expenditure exceeds taxes on a given day.

MMT incorporates the fundamental insight that net government spending within a sovereign economy actually increases bank reserves and places downward pressure on short-term interest rates, under a corridor system, because higher government expenditure increases system liquidity. Thus, competition is not intensifying to borrow a limited stock of loanable funds (Mitchell and Muysken 2008). Conversely, if a budget surplus is realised a shortage of reserves typically occurs, which tends to increase the
overnight (interbank) rate above the target rate. The BoE ensures that, collectively, commercial banks can always acquire sufficient reserves balances to finance their interbank transactions. In the presence of a system shortage, open market operations are conducted by the BoE in the form of asset purchases from the non-government sector. Otherwise the integrity of the payments system is threatened.

The central bank within a sovereign economy does not sell assets to finance net government expenditure. Rather these sales, typically under repurchase agreement, represent an interest rate maintenance mechanism (Fullwiler 2006; Mitchell and Muysken 2008). However, in both the US and UK, the support rate paid on excess reserves equals the target rate (i.e. a floor system), so government debt does not need to be sold to maintain the target rate when the Treasury runs a deficit. Government securities within a sovereign economy, however, are popular in financial markets as they represent a risk-free interest-bearing asset which provides a benchmark for pricing risky financial securities, and facilitates the balancing of the risk structure of investment portfolios (Sharpe 2013a).

MMT maintains that government spending within a sovereign economy is only constrained by the economy-wide availability of real goods and services, denominated in the national currency (Mitchell and Muysken 2008). Sovereign economies are clearly distinct from Eurozone (non-sovereign) economies which are ‘users’ of currency (Euro). Eurozone economies have (voluntarily) given up their fiscal and monetary sovereignty and, consequently, now have limited policy options to respond to the ongoing crisis (Sharpe and Watts 2012).

Despite temporary fiscal stimulus measures being adopted in 2008 and 2009, fiscal policy in the UK has been geared to fiscal austerity, a concept which has no resonance within a sovereign economy. The failure to understand the distinction between sovereign and non-sovereign economies in the context of QE is illustrated by Joyce et al. (2012:F286): ‘Perhaps most concerning is whether central bank purchases of government bonds are helping to contribute to unsustainable levels of government
debt. On the other hand, a well-known advocate of MMT argues that ‘[t]he dominance of the neo-liberal ideology has led governments in most countries to have eschew the adoption of policies of direct job creation to reduce the rate of unemployment and to minimise these massive costs’ (Mitchell 2012d).

The UK government has rejected the use of stimulatory fiscal policy, despite its more predictable effect on economic activity. Instead, the government has perpetuated the usual neo-liberal claims, which sit comfortably with the Conservatives’ policy agenda of small government (Juniper et al. 2013a). UK policymakers have frequently likened government budgets to household budgets, arguing that fiscal deficits increase future taxes which burden future generations, and also that deficits increase interest rates and/or are inflationary (Mitchell 2012d). The so called ‘expansionary fiscal contractions’ hypothesis, which promotes an extreme form of neo-liberal policy, has also been used to justify austerity measures. IMF (2012a) recently conceded that fiscal multipliers are higher than previously claimed, which would have reinforced its scepticism about frontloading austerity measures. UK credit ratings have been downgraded by two major rating agencies, Moody’s (February 2013) and Fitch (April 2013), thereby undermining the UK’s AAA status, strengthening the Chancellor’s objective of pursuing austerity measures, despite advice from the IMF.  

The UK economy remains in a parlous state, recording a double-dip recession in July 2012 (see Figure 4.3a; PwC 2012a). Modest real GDP growth of 0.3 percent in Q1 2013 averted a triple-dip recession. The unemployment rate has increased since 2004 (Figure 4.3c), and ‘investment is still being held back by the overhang of uncertainty from the

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86 The findings of Reinhart and Rogoff (2010a), that the median real per capita GDP growth rate in advanced economies falls when gross public debt reaches a critical threshold share of GDP, has increased the urgency for fiscal austerity. Some UK policymakers have embraced this argument. Herndon et al. (2013:2-3) tried to replicate Reinhart and Rogoff’s (2010a) empirical work and found that ‘coding errors, selective exclusion of available data, and unconventional weighting of summary statistics lead to serious errors that inaccurately represent the relationship between public debt and growth among 20 advanced economies in the post-war period.’ Notwithstanding this, there are difficulties in isolating a one-way causal relationship between the level of debt and the growth rate, because causation also runs from slower growth to rising debt, so all empirical estimates should be treated cautiously (see Sharpe 2013b).

87 Both Japan and the US have been subject to credit downgrades in recent years with minimal effect on their long-term bond rates. Furthermore, IMF (2012b:38) concede that ‘fiscal indicators such as deficit and debt levels appear to be weakly related to government bond yields for advanced economies with monetary independence’ (e.g. Japan, US, UK).
Eurozone crisis…’ (PwC 2012a:6). Furthermore, household debt levels remain high (see below), which was an important feature of the pre-crisis period. Mainstream economist, Larry Summers, notes ‘[t]he cumulative output loss from this British downturn in its first five years exceeds even that experienced during the 1930s. Forecasts continue to be revised downwards, with a decade or more of Japan-style stagnation emerging as a real risk’ (quoted in Mitchell 2012d).

In assessing the operation of QE, the question to ask is why there is such a reliance on (unconventional) monetary policy when its real consequences are problematic, notwithstanding its capacity to manipulate the yield curve. This policy choice reflects, first, the dominance of monetary policy within the neo-liberal agenda, since the achievement of low and stable inflation is regarded as the most effective means for reducing the output gap (Blanchard et al. 2010; Sharpe and Watts 2012). Second, fiscal stimulus measures were effectively ruled out, after being replaced by austerity measures which were designed to address the deficit ‘blowout’.

As noted in Section 4.3, the objective of QE was to increase inflation via aggregate demand stimulus, because nominal spending was considered too weak to meet the medium-term inflation target (Benford et al. 2009). The BoE is particularly reliant on the portfolio rebalance channel, since bank deposits and gilts are not perfect substitutes because of either alleged ‘preferred habitats’ (see Modigliani and Sutch 1966) or the pricing of duration risk (Joyce et al. 2012). In any case, the BoE (via the APF) buys a risk-free asset from the non-bank private sector, in exchange for another risk-free asset, a commercial bank deposit which is guaranteed. However, deposits typically pay lower interest than bonds (see Figures 4.2b and 4.2d) which reduces the interest-income of savers, who are then likely to reduce consumption expenditure (Mitchell 2009c).

In search of a higher return (given that these assets are imperfect substitutes), non-bank participants are expected to purchase commercial debt (paper or bonds), which is a risky asset. This reduces yields in commercial debt markets and allegedly encourages origination and investment. The ‘search for yield’ behaviour is also facilitated by the
(limited) purchases of (risky) corporate debt by the BoE to ease funding conditions (Borio and Disyatat 2009).

Gilt (benchmark) yields should also fall due to these purchases flattening the yield curves for government and corporate debt, assuming credit/liquidity risk premiums at the long-end of the yield curve remain at least unchanged or decline. The available evidence largely supports these outcomes. By targeting longer-term securities, the BoE hoped that aggregate demand would be stimulated with the lower cost of investment funds (Mitchell 2009c). Growth in real gross fixed capital formation, however, remains negative (Figure 4.3b) and business investment is subject to considerable uncertainty (PwC 2012a, 2012b).

Borio and Disyatat (2009:15, footnote 25) highlight the bizarre nature of asset purchases by a central bank:

‘…outright purchases of government bonds financed by the issuance of some form of central bank liability simply replace a claim on the government with a claim on the central bank in private sector portfolios, and simultaneously result in an increase in the central bank's claim on the government that is funded by borrowing from the private sector. It is as if the central bank borrowed from the private sector to lend to the government.’

This perspective is reinforced by the BoE’s transfer to HM Treasury in late 2012 of £35 billion in gilt interest payments acquired under QE. The Institute for Fiscal Studies has argued that the Chancellor must instruct the Office for Budget Responsibility to discount the sum when assessing whether HM Treasury is on track to meet its ‘self-imposed’ targets (see Emmerson and Tetlow 2012). These transfers also strengthen the notion of central bank ‘independence’. Meier (2009:44) reinforces the conventional ‘logic’:

‘[T]he public’s trust in the operational independence of the central bank ultimately rests on the sustainability of the public finances. While this is true under any circumstances, the notion gains particular salience at a time when the central bank
conducts significant purchases in the [growing] government bond market. This underscores the need for fiscal policy to resolutely dispel any doubts about sustainability.’

So called ‘independence’, however, represents a political rather than operational issue. MMT rejects the notion of central bank independence, because day-to-day monetary management by the central bank requires close collaboration with the Treasury. Furthermore, MMT advocates emphasise the role and purpose of the consolidated government sector (Treasury and central bank) as the sole issuer of a fiat non-convertible currency and reject claims that debt agencies, such as the UK Debt Management Office, effectively limit the use of macroeconomic policy instruments (Lavoie 2011; Juniper et al. 2013b).

Like ‘debt monetisation’ which reflects, in part, the institutional framework for conducting monetary policy (i.e. floor or corridor system) and the behavioural responses of the banks (Watts and Sharpe 2013), QE is considered to be inflationary and has been implemented in both Japan and the UK with the explicit intention of increasing inflation. Despite this, claims that QE, via asset purchases from the non-bank private sector, increases the stock of broad money and hence inflation is just ‘harking back to the old and flawed Monetarist doctrine based on the so-called Quantity Theory of Money. This theory has no application in a modern monetary economy’ (Mitchell 2009c). The European Central Bank (ECB) Vice-President is clear:

‘Central bank reserves are held by banks and are not part of money held by the non-financial sector, hence not, *per se*, an inflationary type of liquidity. There is no acceptable theory linking in a necessary way the monetary base created by central banks to inflation. Nevertheless, it is argued by some that financial institutions would be free to instantly transform their loans from the central bank into credit to the non-financial sector. This fits into the *old theoretical* view about the credit multiplier according to which the sequence of money creation goes from the primary liquidity created by central banks to total money supply created by banks via their credit decisions’ [emphasis added] (Constancio 2011:5).
Thus, any ‘inflationary concerns associated with monetisation [QE] should be largely attributed to the impact on aggregate demand via a fiscal policy that is accommodated by the monetary authorities, who refrain from raising rates’ (Borio and Disyatat 2009:21). However, even if QE did stimulate aggregate demand, given current excess productive capacity, firms will respond to increased demand via increased capacity utilisation. Hence demand-side inflation should not materialise until real productive capacity is exhausted (or significant bottlenecks exist) (Mitchell and Muysken 2008).

Constancio (2011) also refers to the ‘old’ money multiplier theory which underpins the ‘bank lending channel’ outlined by Benford et al. (2009). The money multiplier is ‘based on the erroneous belief that the banks need reserves before they can lend and that quantitative easing provides those reserves’ (Mitchell 2012e). This stems from the illusion that ‘a bank is an institution that accepts deposits to build up reserves and then on-lends them at a margin to make money’ (Mitchell 2012e). MMT advocates reject the money multiplier since it has incorrectly reversed the causality. Loans create deposits which create reserves (Fullwiler 2012).

Bernanke (2009) is also clear:

‘…the banking system has a large quantity of these [bank] reserves, but they are electronic entries at the Fed. They basically just sit there. They’re not in circulation. They’re not part of any broad measure of the money supply. They’re part of what’s called the monetary base.’

If banks are short of reserves on any given day they can either borrow from each other in the interbank market or from the central bank through the discount window, but the latter facility imposes a penalty (higher interest cost) (Mitchell 2009c; Borio and Disyatat 2009).

‘[I]t is not deposits or reserve balances that constrain lending, but rather a bank’s own choice to lend given the perceived profitability of a loan—which can be

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88 OECD (2012a) data reveal that UK output gaps have been negative since 2009.
affected by the ability to obtain deposits after the loan is made-and also given a perceived creditworthy borrower…and sufficient capital’ (Fullwiler 2012).

However, UK consumers have revealed ‘a growing reluctance to borrow, a deterioration in confidence about meeting repayments and an increase in those reliant on credit to pay for essential items’ (PwC 2012b:5). ‘Despite paying off an average of £355 in 2011, each household is still saddled with around £7,900 in unsecured debt, leaving UK consumers still among the most indebted in the world’ (PwC 2012b:4). Consequently, there has been ‘a sharp increase in the household saving rate to about 7½ percent…as households seek to reduce their high level of indebtedness’ (IMF 2012b:10-12).

Firms are also constrained. During Q3 2012, lenders reported that the demand for credit from small and large UK companies had fallen and default rates had increased (BoE 2012c). This was attributed to a number of factors, including weak consumer spending and a lack of capital investment opportunities, ‘as firms have remained cautious given the current economic environment and uncertainty relating to the euro area’ (BoE 2012c:6). Capital investment as a share of GDP remains at a post-war low (IMF 2013a). Baker Tilly’s (2012) small and medium enterprise (SME) distress monitor revealed that cash flows and profits were under serious threat. Specifically, 24 percent of SMEs had insufficient funds to meet their short-term debt obligations. This is particularly problematic since SMEs account for more than 50 percent of private sector employment in the UK (IMF 2012b).

Drawing on available evidence and the principles of MMT, the pursuit of fiscal austerity by the Coalition government is likely to limit the impact of QE on domestic demand (see Figure 4.1) since; (1) neither households nor firms are likely to increase expenditure, given high levels of private debt and considerable uncertainty; (2) while declines in credit risk premiums reduce the cost of finance, it does not remove the uncertainty, particularly surrounding the Eurozone crisis, which has been identified as an important barrier to investment among UK firms; and, (3) banks do not lend reserves, so that increasing the ‘availability of bank credit’ will not stimulate lending in
the absence of credit worthy borrowers. The latter is synonymous with Keynes’ reference to *pushing on a string*.

With UK fiscal policy being geared towards austerity and deficit reduction, policymakers (and the public) have sought solutions to the ongoing crisis from central bankers. While central banks can reduce interest rates, during a recession and heightened uncertainty, this is not a clear and effective means of stimulating aggregate demand. Likewise, in the US, Richard Fisher, President and CEO of the Federal Reserve Bank of Dallas, notes that the return to economic growth ‘cannot be accomplished by the FOMC [Federal Open Market Committee] alone. Whatever [central bankers] do with monetary policy will be of limited utility, if not counterproductive, unless it is complemented by sensible fiscal policy that restores confidence and puts the American people back to work’ (Fisher 2010).

Fiscal stimulus is now required to stimulate aggregate demand and employment in the UK. This would not threaten fiscal sustainability requirements nor intensify so called debt dynamics since the UK is a sovereign economy (Watts and Sharpe 2013). As mentioned, IMF (2012a) now concedes that fiscal multipliers are higher than previously thought, in the range of 0.9 to 1.7. Mitchell (2012e) succinctly summarises the options policymakers face with regard to stimulatory measures:

‘Treasury fiscal operations which directly inject aggregate demand into the spending stream are likely to be more effective than asset swaps which lead to an increase in reserves but do nothing to improve the confidence of the households and firms. After all, quantitative easing does not lead to job offers as a matter of course. Fiscal policy can be expressed in terms of explicit job offers and you cannot get a more direct stimulus than that.’

4.5 Conclusion

Quantitative easing (QE) has been undertaken by the Bank of England since 2009 to stem deflationary pressures in the context of weak demand growth following the worst economic downturn since the Great Depression. Inflation has since recovered, but real
GDP growth remains weak, and unemployment rates are stubbornly high. The preference for unconventional monetary measures over fiscal stimulus reflects the strength of the prevailing neo-liberal doctrine. However, UK policy rates remain at their lowest practical level and the evidence about the effectiveness of QE in influencing macroeconomic outcomes is unconvincing.

Nevertheless, at the time of writing, the UK government remains committed to its small government agenda, since fiscal policy is considered to be largely ineffective. This strengthens its commitment to fiscal austerity to reduce the debt to GDP ratio. In this vein, additional asset purchases have not been ruled out by BoE officials (see Telegraph 2012).

QE is not the only option for UK policymakers. Advocates of Modern Monetary Theory argue that fiscal stimulus offers a proven transmission mechanism to stimulate aggregate demand growth in a sovereign economy, without promoting adverse debt and deficit dynamics (Watts and Sharpe 2013). For the UK, a sovereign economy, the return to sustained growth faces only an ideological barrier.
(v)

(a) Assessing the future of the Eurozone

Eurozone economies were the most adversely affected by the Global Financial Crisis, with forecast macroeconomic outcomes still highly uncertain. In this paper, we first argue that the Eurozone policy framework can be viewed as neo-liberalism overlaid with policy constraints associated with a misspecified Optimum Currency Area. We are critical of this framework since it is incompatible with the policy sovereignty that is experienced, if not utilised, by sovereign economies such as the USA, UK and Australia. Second, recent and proposed policy reforms which generally lie within the constraints of the Eurozone framework are examined. We conclude that these policies are piecemeal and fail to restore policy sovereignty, which ultimately requires that member countries exit the Eurozone. Key issues associated with the latter are briefly discussed.
5a.1 Introduction

The European Monetary Union (EMU) had its genesis in (i) the goal of preventing another European war; (ii) the appeal of both post-war European integration and the creation of an economic entity to rival USA; (iii) the removal of exchange rate volatility typically experienced by small economies; and (iv) the promotion of intra-Eurozone trade with no exchange rate uncertainty.

Negotiations over the EMU formation were shaped by the neo-classical counterrevolution (1970s) and the subsequent Washington Consensus. The latter was a development model devised by the IMF, World Bank and US Treasury and articulated by Williamson (1990). In essence, the model was based on (i) limiting macroeconomic policy to inflation control and ‘sound’ public finance; (ii) an increased emphasis on the operation of market mechanisms, through the implementation of privatisation, deregulation and other structural reforms; and (iii) full global integration, namely trade openness and unconstrained financial flows (Fitoussi and Saraceno 2013:483).

Fitoussi and Saraceno (2013) describe the formation of the EMU as reflecting the Berlin-Washington (BW) Consensus, in recognition of the key role of the Franco-German relationship. The French were prepared to accept German reunification. In turn the Germans were prepared to accept the policy constraints of the European framework if its institutions were replicated and underpinned by its anti-inflation bias.

The neo-liberal framework outlined by Williamson (1990) was overlaid by EMU institutional constraints detailed in the Maastricht (1992) and Lisbon (2009) Treaties. In particular, the notion of ‘sound’ public finance was formalised by imposing fiscal (deficit and debt) rules outlined in the Stability and Growth Pact (SGP), so that discretionary countercyclical fiscal policy was banned with the threat of financial

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89 The Werner Report (1970) offered the blueprints to an Economic and Monetary Union (EMU) among the European Economic Community. However the proposal lost momentum in the early 1970s as the supply shocks enveloped the global economy. Debate was re-invigorated at the 1988 Hannover Summit which was followed by a clear and practical guide to the EMU formation set out in the Delors Report (1989).

90 McCracken Report (1977) and the OECD’s influential Jobs Study (1994) also helped to shape the neo-liberal vision.
penalties for breaches of fiscal requirements (i.e. Excessive Deficit Procedure). A one-size-fits-all monetary policy based on inflation targeting was introduced. In short, the BW Consensus represents an extreme form of institutionalised neo-liberalism.

The Global Financial Crisis (GFC) had a devastating impact on many EMU member countries and resulted in growing private and public sector indebtedness, the collapse of economic activity, high levels of unemployment, particularly for youth, and, at the time of writing, the threat of deflation, with little likelihood of improvement in macroeconomic outcomes in the foreseeable future. Thus, the design of the EMU has been subject to intense scrutiny.

Modern Monetary Theory (MMT), which embraces the principles of Chartalism and Functional Finance, makes the fundamental distinction between a sovereign and non-sovereign economy. The former issues a fiat (non-convertible) currency which floats on foreign exchange markets. In a sovereign economy, the consolidated government sector (Treasury and Central Bank), a currency issuer, can never become insolvent vis-à-vis its national currency denominated obligations (Watts and Sharpe 2013). This reflects the capacity of the central bank to act as lender-of-last-resort.

On the other hand, members of the Eurozone have abandoned full fiscal-monetary policy sovereignty:

‘1. The nations surrendered their own currency and immediately started using a foreign currency which meant they became financially constrained in their spending decisions and faced solvency risk. They could no longer issue risk-free public debt.

2. These nations surrendered their own central banking capacity and with it the capacity to act as a lender of last resort to their own banking system (and government for that matter – linked to 1).

3. They abandoned their own currency parity in favour of a single exchange rate (which logically follows 1 and 2) and so any current account imbalances had to be resolved via very harsh internal devaluation – the evidence of which is clear’ (Mitchell 2013a).
The central premises of this paper are, first, that the global imposition of neo-liberalism both informed the design of the EMU and was a major contributory factor to the onset of the GFC. Second, policy sovereignty is essential to the effective conduct of fiscal and monetary policy.

Using policy sovereignty as a benchmark, we argue that the recent and proposed policy reforms in the Eurozone have been piecemeal and would, at best, provide a marginal amelioration of their macroeconomic outcomes. We recognise, however, the modest policy proposals have been guided by what is feasible within the political and economic constraints of the EMU. Nevertheless, the only sustainable solution to the macroeconomic woes of Eurozone members involves exiting the EMU to re-establish their full policy sovereignty. Key issues associated with exiting the EMU are briefly discussed before concluding comments complete the paper.

5a.2 Critique of the BW Consensus policy framework

The deficiencies of the neo-liberal policy framework can be seen in sharpest relief by an analysis of both the causes of the GFC and subsequent policy responses by EMU members.

From a post-Keynesian perspective, the GFC had its origins in the global imposition of a neoliberal policy regime from the mid-1970s onwards, which was characterised by an assault on organised labour, a regulatory stance predicated on the removal of the ‘dead hand’ of government from the operation of the market, rejection of Keynesian policy interventions based on the management of effective demand, which had sustained full employment in the post-war period, and a dramatic shift of income and wealth to the top five percent of the population. In this context, effective demand was maintained by a problematic combination of wealth effects, based on asset-price inflation, and an unprecedented expansion of household debt. The growth in the size and influence of the financial sector, most clearly manifested in the extension of derivative trading and processes of securitisation, merely compounded the macroeconomic effects of fiscal

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91 This shift of income was predicated on a new economic alliance between shareholders and management justified by the ‘turn to shareholder value’.
conservatism, real wage repression, and the increasing precariousness of work, by corroding underwriting mechanisms (Wray 2009).  

Mitchell (2012a) argues that the EMU framework was inconsistent with the necessary conditions for an Optimum Currency Area (OCA) (see Mundell 1961; Feldstein 2011). A high degree of labour mobility is needed which includes the absence of cultural barriers, such as different languages, and the transferability of rights such as superannuation. Economies must be open with capital mobility and price and wage flexibility. The framework must incorporate a central fiscal authority which can transfer resources from better performing to poorly performing countries, typically through tax redistribution. Finally the business cycles of member countries must be synchronised, which would overcome the limitations of the one-size-fits-all monetary policy. This condition rules out the presence of asymmetric shocks (Toporowski 2013).

Under an OCA, monetary policy becomes an alternative for wage changes as the policy instrument for impacting the overall level of employment, largely through its influence on the degree of international competitiveness. Mundell’s analysis ignores the 20th-century evolution of the monetary and financial system, where capital flows dominate exchange rate fluctuations. Finally, Fisher’s debt deflation mechanism arising from wage and price reductions must be considered.

When the GFC was impacting on national economies in 2008, via higher unemployment, the IMF advised that monetary policy should be loosened, which has had very limited macroeconomic effects, despite official rates in the Eurozone, UK, USA, and Australia being at record lows (Sharpe and Watts 2012). Further, there is no conclusive evidence that unconventional monetary policy (Quantitative Easing and its variants) was markedly successful in stimulating the real economy in the USA, UK and Japan (Sharpe and Watts 2013). In fact the UK has experienced its slowest recovery with respect to per capita income in its recent history (IMF 2013a). Within the

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92 We will largely ignore matters of prudential control and regulation of financial markets, which have featured in recent debates over post-Basel III arrangements, the Volcker rule, and recommendations made in *The Liikanen Report* tabled in October, 2012.

93 The admission of Slovenia (2007), Cyprus and Malta (2008), Slovakia (2009), and Estonia (2011), has further undermined this condition.
Eurozone, the centralisation of monetary policy condoned housing bubbles in Spain and Ireland prior to the GFC.

Notwithstanding the major real shock which confronted both sovereign and non-sovereign economies following the GFC, there was a broad consensus that only short-term fiscal stimulus measures were appropriate. OECD (2009c:230) asserted that, following a deep recession, the rise in unemployment would be partially translated into higher structural unemployment and lower potential output via hysteresis effects. These ‘hysteresis effects are asymmetric in the sense that they tend to raise the NAIRU when unemployment rises, but do not lower the NAIRU when unemployment falls’. This claim supports the view that fiscal stimulus should only be short-term, with unemployment more effectively addressed by further structural reform (OECD 2009c). By 2011, stimulus measures had been wound back in most countries at the behest of the OECD and IMF (Sharpe and Watts 2012).

The Eurozone economies were confronted with the imperative for pro-cyclical fiscal policy, due to the constraints of the SGP and the related absence of the central bank role of lender-of-last-resort, which meant that all deficits had to be funded by borrowing. Member countries, operating as currency users, rather than issuers, were thus exposed to the sentiments of international investors. Further, given the three consequences of Eurozone membership noted in the Introduction, the Eurozone could have reduced the consequences of the asymmetric negative aggregate demand shock if its central bank had behaved as a federal fiscal authority (Mitchell 2013a).

Both the IMF and OECD enthusiastically advocated front-loading austerity measures on the basis that fiscal multipliers were low, thus reducing both the benefits of ongoing stimulus and the costs of austerity measures. In the face of mounting empirical evidence to the contrary (with the IMF, in particular, making major concessions about the magnitude of fiscal multipliers), these organisations began to adopt a more cautious approach, although the medium-term objective of fiscal restraint remained (Sharpe and Watts 2012).
Through the use of national accounting identities, advocates of MMT have shown that sustained budget surpluses are inconsistent with sustained full employment unless large persistent current account surpluses are achieved, which clearly cannot constitute a universal policy. The inability to achieve high levels of economic activity also implies that reliance on monetary policy has also failed (see below).

In general, peripheral Eurozone economies did not have large fiscal deficits prior to the crisis, but did have current account deficits. In the presence of significant private debt and ongoing fiscal austerity measures, there is little prospect for sustained increases in private sector and net public sector spending to offset the current account deficits (see IMF 2013a). In particular private investment has been subdued, reducing the likelihood of a sustained increase in the international competitiveness of peripheral economies either through improved quality or growth in productivity. Consequently, structural reform has been forced on uncompetitive Eurozone countries in the form of wage and price cuts. A race to the bottom via ongoing wage and price cuts across the Eurozone is a distinct possibility with the prospect of debt deflation adding to the economic pain experienced by households since the advent of the GFC (Toporowski 2013:580).

The current account surplus in the core countries (e.g. Germany) has not declined, however, largely due to sluggish domestic demand. IMF (2013b:45, Box 1.3) assert that ‘stronger domestic demand in surplus countries is critical to support stronger demand in the euro area as a whole and help sustain a rebound in exports from deficit economies’. Even though the volume of intra-Eurozone trade has increased under the EMU, the contribution of net-exports to total expenditure in the member countries is necessarily a zero sum game.

Finally, since the OECD Jobs Study (1994), there have been many critical empirical studies of its supply side reform agenda (see Watts 2010 for a summary). While OECD (2006) made concessions about the effectiveness of some supply side reforms, and now recognises two successful policy models—neo-liberal and Nordic—the OECD continues to encourage the adoption of the former rather than the latter (Watt 2006). The BW Consensus implies a hands-off role for government, whereas structural reforms
can interfere with ‘relationships and customs that are rooted in society’ (Fitoussi and Saraceno 2013:486) and impose the free-market paradigm.

5a.3 Policy reform in the Eurozone

5a.3.1 Introduction
We now canvas a non-exhaustive set of recent and proposed policy reforms which generally lie within the constraints of the Eurozone policy framework. It has proven difficult to design a consensus solution to the ongoing crisis due to the divergence of views regarding its origins. For example, Mazier and Petit (2013:521) maintain that ‘[t]he present crisis arises from structural disequilibria linked to the heterogeneity of member countries and permanently asymmetric patterns of development’ (see also Simonazzi et al. 2013:653). The inference then is that a monetary union is a viable arrangement if countries are homogeneous and will remain so. On the other hand, Auerback (2012) argues that the fundamental policy contradiction is the presence of a monetary union without a fiscal union, when stimulatory monetary and fiscal policies need to be framed in a recession.

5a.3.2 ECB policy
The European Central Bank (ECB) reduced its main refinancing operation rate to a historic low of 0.25 percent in November 2013. The European Parliament (2013:8) recognised that monetary policy transmission channels to the real economy were severely impaired, given the persistence of low growth and high joblessness, and questioned the efficacy of further rate cuts in light of the potentially adverse impacts. First, very low interest rates, for a prolonged period, can harm private savings and pension plans. Second, prolonged low interest rates may encourage ‘aggressive risk taking, the build-up of financial imbalances, distortions in financial market pricing and incentives to delay necessary balance sheet repair and reforms’.

Consequently, the ECB has adopted unconventional measures since the advent of the GFC. Long-term refinancing operations in December 2011 and February 2012 generated over €1 trillion of funds to European banks as low-interest loans with a term
of three years. Also, Emergency Liquidity Assistance lines provided by national central banks amounted to €206b at the end of 2012. The European Stability Mechanism (ESM), which replaced the European Financial Stability Facility raises funds on capital markets and will finance new bail-outs up to a modest €500b.

The ECB conducted large-scale government debt purchases in the secondary market in June 2012, which was not contrary to Maastricht Treaty rules (Auerback 2012). Outright Monetary Transactions (OMT) were announced in September 2012 and replaced the Securities Market Programme. Under OMT, the ECB committed to make unlimited government debt purchases on the secondary market for those Eurozone countries subject to bailout agreements with the Troika. Austerity measures negotiated by these countries, however, continued. To placate the Bundesbank, (albeit unsuccessfully), the liquidity effects of OMT were fully ‘sterilised’ to convey the impression that public debt was not being monetised, which was considered inflationary. The program was successful with 10 year bond rates for Ireland, Greece and Portugal all declining from late 2012. These outcomes confirm the absence of solvency issues for a central bank with its own sovereign currency.

While the ECB’s policies appeared to stabilise liquidity conditions within the banking system and contributed to lower bond market spreads, credit growth stayed low. Small and medium-sized enterprises (SMEs) remain particularly vulnerable, which is problematic since SMEs represent about 98 percent of all Eurozone firms, generate about 60 percent of value added, employ 72 percent of the labour force and have much higher gross job creation (and destruction) rates than large enterprises (European Parliament 2013).

Credit tightening has had an asymmetric impact on firms with SMEs viewed as a higher default risk by banks and unable to switch to other sources of finance. The ECB should consider a programme geared to enhancing credit access by SMEs along the lines of the Bank of England’s (BoE) ‘funding for lending scheme’ (European Parliament 2013:8). European Parliament (2013:5) acknowledges that poor business sector growth in the Eurozone primarily reflects demand side, rather than supply side constraints over
investment sentiment, but continues to argue that ‘a low-inflation environment is the best contribution monetary policy can make towards creating favourable conditions for economic growth, job creation, social cohesion and financial stability’ [emphasis added]. Yet it would seem that fiscal stimulus and direct job creation, on the other hand, would be the best contribution that fiscal policy can make to the admirable objectives listed above. And given significant institutional and ideological barriers, policy sovereignty must first be restored (see below).

5a.3.3 Banking union

The close links between governments and banks in the Eurozone deepened with the onset of recession. Deteriorating fiscal balances and increased credit risk ‘in turn puts pressure on balance sheets of banks that hold government bonds but also depend on the same government for possible recapitalisation’ (Beck 2013). Banks in the peripheral countries remain the major holders of their domestic government bonds.

This interdependence between banks and governments exposed fragility in the Eurozone architecture which was neglected in the Maastricht Treaty (1992). Reforms to the EU supervisory framework, including micro- and macro-prudential pillars, targeted ‘a stable, reliable and robust single market for financial services’ (Enderlein et al. 2012:44). However the new agencies have limited powers and national authorities remain responsible for most decisions. Beck (2013) argues that the only viable option is ‘a Eurozone wide deposit insurance scheme with public back-stop funding by ESM and a regulatory and supervisory framework’.

The establishment of the Single Supervisory Mechanism (SSM) is a key step towards a banking union in Europe and severing the ties between banks and government. The SSM aims ‘to ensure the safety and soundness of the European banking system and to increase financial integration and stability in Europe’ (ECB 2013). The ECB will assess the asset quality of European banks, as the institution prepares to assume its full supervisory role under the SSM in November 2014. The SSM will also be combined with (preventive and corrective) frameworks for deposit insurance (Deposit Guarantee Directive) and the resolution of credit institutions (Bank Recovery and Resolution
Directive). The former overcomes the problem with national deposit insurance schemes which are designed for idiosyncratic bank failures, not systemic crises when major public funding is needed. While the SSM entails supervision at the supranational level, there is no indication that resolution will occur at this level.

European Parliament (2013:9) argues that the establishment of the SSM will ‘contribute to restoring confidence in the banking sector and to reviving interbank lending and cross-border credit flows’, but offers two key recommendations. First, the development of small and medium sized local banks should be encouraged which would strengthen the diversity and improve the resilience of the banking system. Second, a full separation of deposit and investment banks should be considered to strengthen the stability of the banking system, and avoid too-big-to-fail institutions and associated risk taking.

The current crisis has to be solved before banking union is in place. Beck et al. (2012) argue that this should be achieved via the establishment of an asset management company or European Recapitalization Agency, which would sort out fragile banks across Europe, and perhaps take an equity stake in restructured banks to benefit from possible upsides. This would help disentangle the government and bank links, and might make for a more expedient and less politicised resolution process than if undertaken at the national level.

5a.3.4 Eurobonds

The issue of Eurobonds or Stability Bonds would be a further step towards a fiscal/political union. European Commission (2011b) canvases the alleged benefits of jointly issued Stability Bonds, namely to (i) alleviate market pressure during debt crises and reinforce financial stability in the Eurozone; (ii) benefit high yield members from the creditworthiness of traditionally low yield members; (iii) generate a large pool of liquid assets to improve the effectiveness of Eurozone monetary policy and offer a solid benchmark for pricing other assets; and (iv) strengthen the Euro as a reserve currency.

Eurobond proposals vary according to the degree of substitution of national issuance and the nature of the guarantee. The best-known proposal is the blue/red scheme
devised by Delpla and von Weizsacker (2010) in which jointly backed, low yield blue Eurobonds would be issued for up to 60 percent of members’ GDP, whereas red bonds, which attract a risk premium, would be issued beyond this reference value. The higher yields should discourage their issuance (see also De Grauwe and Moesen 2009). Enderlein et al. (2012) recommend establishing a European Debt Agency to jointly guarantee EMU member debt.

There are some key practical and legal problems associated with jointly guaranteed debt. First, Stability Bonds may conflict with Article 125 (‘no bailout’ provision) of the Lisbon Treaty. Second, a ‘free-rider’ or moral hazard problem may arise as members exploit the reduced risk (and lower yields) attached to jointly guaranteed debt and issue too much. Strict conditionality attached to joint debt issuance would be required to address the latter. However, if OMT is maintained, which keeps borrowing costs down and stabilises confidence, Eurobond proposals which require increasingly strict conditions and higher costs attached to issuance to mitigate the moral hazard problem are not dissimilar from national debt issuance which already carries strict conditions.

In essence, while Eurobonds would help to finance structural imbalances, they do not resolve them on a permanent basis. In sovereign economies, net government spending does not need to be financed ex ante through a bond issue, and government is not captive to market pressure or so called bond vigilantes (see Sharpe 2013b). In Eurozone economies, while Treaty changes are possible, moral hazard associated with Eurobonds has generated much resistance among members, particularly Germany. Consequently Eurobond proposals were abandoned in July 2012.

5a.3.5 Trade reform
Simonazzi et al. (2013) explore the major trade imbalance between Germany and the peripheral Eurozone economies which they attribute to the reorganisation of the German economic system, based on internal demand repression through stagnant real wages, and the eastward reorientation of German trade.
The competitiveness of the peripheral economies is often compared to Germany’s, which is potentially misleading, since Germany’s exports are complex products and quite diversified (Felipe and Kumar 2011). Slow growth in the Eurozone has meant that the peripheral economies have been unable to achieve sufficient diversification and specialisation of their productive structures to boost their exports either within or outside the Eurozone. IMF (2013b) findings reveal that external demand from outside the Eurozone has been a key driver of export performance, particularly in Germany, Spain and Portugal. Consequently, the Euro area in aggregate now has a current account surplus.

While internal devaluations have contributed to reduced current account deficits among the periphery, the primary cause has been repressed domestic demand, due to wage cuts and increased unemployment, which has led to a collapse in import spending. Further, an internal devaluation exacerbates the burdens of servicing private debt and further dampens any hope of a recovery in private demand, in addition to the psychological and legal issues associated with nominal wage cuts.

Greece and Ireland, in particular, have experienced significant falls in unit labour costs ‘on the back of both productivity gains (as labour shedding generally exceeded the decline in output) and wage declines’ (IMF 2013b:46). Yet the link between declining unit labour costs (the wage share) and increased output is unclear. For wage-led economies including Germany, France, Italy, UK, US, Japan, (and for the Eurozone as a whole) a decline in the wage share leads, by definition, to a decline in growth whereas, for profit-led economies such as in Canada, Australia, Argentina, Mexico, China, India, and South Africa, growth rises (Onaran and Galanis 2012). Nevertheless, a simultaneous decline in the wage share in all countries leads to a decline in global growth, which explains why the transition to neoliberalism, after the stagflation episode of the early to mid-1970s, proved so detrimental to economic growth.

IMF (2013b:48) has warned however that ‘current account deficits could widen again significantly when cyclical conditions, including unemployment, improve, unless competitiveness improves further’. A reduction in current account deficits can be
achieved by further wage cuts and continued fiscal austerity which further dampens private demand, and raises unemployment, but is not a sensible policy to achieve sustained output growth.

Mazier and Petit (2013:518) appear to partially endorse this interpretation, arguing somewhat ironically, by reference to Greece, Portugal and Spain, that ‘[t]he strategy of internal devaluation, combined with budgetary austerity, has a strong negative impact in terms of growth and employment and is only efficient in the long-term, especially when it is implemented in large countries.’ They suggest that a multi-speed Eurozone could be accommodated through the introduction of member based currencies for internal trade with fixed parities against the external Euro. They also recognise the need for regulation to address free capital mobility (Mazier and Petit 2013).

This is an interesting but infeasible option, since it undermines the objective of the common currency particularly if internal parities also change over time. Second, it reduces the imperative for structural reform of those member countries that exhibit external imbalance, which would be unacceptable to Germany. Third, reliance on trade reform alone is insufficient to achieve policy sovereignty. Fourth, the introduction of new currencies, irrespective of whether they are linked to the Euro or result from exiting Eurozone, raise major transitional issues associated with the currency denomination of external debt, which is acknowledged by Mazier and Petit (2013).

In summary, reliance on large current account surpluses to attain high levels of economic activity is not a universal policy model. While the heterogeneity of member countries is a major factor in the disparate economic outcomes during the GFC, it is not the root cause of the Eurozone’s problems. Addressing the trade imbalances does nothing to ameliorate the constraints on the conduct of fiscal and monetary policy among Eurozone economies.

5a.3.6 Fiscal federalism

A major criticism of the EMU is that the central monetary authority was not complemented with a federal fiscal authority. Transition towards deeper fiscal
integration (e.g. a fiscal union) typically involves (i) a common set of fiscal rules; (ii) mechanisms for crisis intervention; (iii) fiscal equalisation and transfer mechanisms between countries; and (iv) a common budget (Vetter 2013). (i) and (ii) are largely conducted at the supranational level via Stability and Growth Pact requirements, reinforced by the Fiscal Compact, and recent steps towards a banking union via the Single Supervisory Mechanism, and ESM which is intended for (temporary) crisis management. Transition towards a genuine economic and monetary union is currently stalled because conditions (iii) and (iv) have not been met.

Integral to the theory of Optimum Currency Areas (OCA) is the presence of fiscal transfer arrangements which attempt to overcome the loss of a flexible exchange rate as an automatic stabiliser (Mundell 1961). The MacDougall report, a feasibility study of the EMU, had recommended an in-built fiscal transfer system to counter asymmetric shocks among member economies (see European Commission 1977). Similarly, Delors (1989) advocated a union-wide federal fiscal adjustment mechanism, but also binding limits on national budget deficits. The Maastricht Treaty (1992) however only considered fiscal rules vis-à-vis government deficit and debt targets.

Consequently there is no central fiscal authority charged with income redistribution and stabilisation policies in response to asymmetric shocks, which highlights the flawed architecture of the EMU, even in the context of orthodox OCA theory. Policymakers are now tasked with creating EMU fiscal capacity in the absence of political union. This may involve the establishment of a Euro area budget to allow for risk sharing. Allard et al. (2013) maintains that a Euro area budget would require a further loss of national fiscal sovereignty. European Council (2012a) warns that fiscal compliance mechanisms must be upheld which highlight the Council’s concerns of moral hazard.

Enderlein et al. (2012:31) suggest creating an automatic cyclical adjustment insurance fund. Eurozone members would contribute to the fund during good years, ‘when the cyclical growth component is significantly larger than the euro area average’. In turn, members could access the funds if, for example, their ‘growth rate [is] more than 2 percentage points lower than the euro area average’. The fund would facilitate the
difficult path towards an internal devaluation through real-wage adjustments, and mitigate pressure on national unemployment transfer schemes thus easing fiscal balances during severe downturns. Enderlein et al. (2012) stress that the fund does not constitute a permanent transfer scheme and there must be strict rules for its operation. While the idea is beset by measurement issues (e.g. defining potential output and the type of economic shock) the fund’s capacity to deal with a systemic crisis, when all members are seeking funds, may be problematic. Further, it facilitates rather than eliminates the need for internal devaluations.

Vetter (2013) discusses a common unemployment insurance scheme in which pooled funds would be available to assist with short-term unemployment benefits. Long-term unemployment benefits however would still remain the domain of national unemployment insurance mechanisms. Members with low unemployment (e.g. Austria, Luxembourg and the Netherlands) would persistently fund economies with high unemployment. Further, the resulting partial harmonisation of benefits from the scheme would present political and economic challenges to members with both generous and low benefits.

Likewise, Mazier and Petit (2013) advocate a permanent stabilisation fund which would authorise transfers to countries according to their unemployment performance, but the scheme fails to address the ongoing structural problems. Mazier and Petit (2013) also consider investment programs in education, research, infrastructure for sustainable development and suburban revitalisation, which could be financed partly by Eurobonds and through credits from the European Investment Bank (EIB) and refinanced by the ECB. Yet, as noted above, recourse to Eurobonds is not viable.

Auerback (2012) argues that the ECB should create and distribute trillions of Euros annually to national governments on a per capita basis to ultimately bring their debt ratios down to 60 percent (the SGP reference value). The per capita criterion attempts to overcome moral hazard since it is ‘neither a targeted bailout nor a reward for bad behavior’ of those countries that have been allegedly profligate with respect to fiscal policy. This distribution would adjust debt ratios downward, enabling additional
national government spending and restoring the normal functioning of credit markets for national debt. Since Auerback’s (2012) proposal is merely an asset swap, by substituting national bonds with reserves in the banking system, it will not increase bank lending and is not inflationary.  

Legal issues are relevant when considering the above proposals (Allard et al. 2013:24). For example, options to veto national budgets if deemed to conflict with common fiscal rules would require Treaty changes, and changes to national legislation and constitutions. Secondary legislation could be used to introduce a fiscal insurance mechanism (Articles 122, 136, and 352 TFEU) and a Euro area budget could be established as part of the larger EU budget. However, a common unemployment insurance scheme would require Treaty changes to adequately identify national and Euro area responsibilities.

Fiscal federalism is designed to reinstate fiscal policy as a countercyclical device. This was absent from the original Eurozone architecture, but is an essential stabilisation mechanism. Deeper fiscal integration raises some major issues. First, proposals which require the ECB to act as a quasi-fiscal authority would conflict with Treaty rules. Second, the overriding concerns with deeper fiscal integration pertain to issues of moral hazard, and democratic legitimacy and accountability, which require strengthened governance and enforcement provisions regarding fiscal outcomes and reinforce members’ loss of policy sovereignty. While the Euro may have been motivated by politics, the social, political and economic disparities among its members mean that forcing a fiscal/political union as an afterthought is sure to ignite tensions. Allard et al. (2013) suggest that a Euro area budget is unlikely to garner constituent support.

5a.4 Restoring policy sovereignty

While well intentioned, the aforementioned policy proposals will, at best, have a very modest impact on economic activity in the Eurozone. In essence, these measures will not restore policy sovereignty which we argue is a necessary but not sufficient condition.

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94 This is well documented in the MMT literature and by Constancio (2011).
to promote economic and social recovery in Europe. Restoring policy sovereignty inevitably involves exiting the EMU and reinstating a fiat (non-convertible) currency, a flexible exchange rate regime and monetary independence. We now briefly examine the economic issues associated with exiting the Eurozone. The discussion is prefaced by the observation that this strategy is beset by legal complexities.

Until the Lisbon Treaty (2009), neither the founding treaty nor successive amending treaties made provision for the withdrawal of a member state from the EU (or EMU). Article 50 of the Lisbon Treaty (2009) however embodies a unilateral right of withdrawal from the EU since: (i) ‘Any Member State may decide to withdraw from the Union in accordance with its own constitutional requirements’; (ii) withdrawal is not conditional on the outcome of a Member’s withdrawal agreement with the European Council provided that two years had elapsed since notification to the European Council on its decision to withdraw; and (iii) ‘the right to withdraw is not connected with the adoption of a constitutional change that a Member State cannot accept, but introduced without such restrictions…’ (Athanassiou 2009:24). However, the notification of the intention to withdraw does not have to be made public.

One can only speculate as to the motivation for the (late) addition of an exit clause. Athanassiou (2009:25, footnote 76) suggests that ‘[t]he reasoning may well have been that if Member States have an institutionalised right to withdraw from the EU, they are unlikely to object so strongly to surrendering more of their sovereignty to its institutions.’

The exit clause is particularly vague, and perhaps intentionally so. Specifically, it does not preclude multiple withdrawals or include a special provision for withdrawal of EU members participating in the EMU. One interpretation for the latter is that the drafters would then need to specify the procedure and consequences of withdrawal, which is a task shrouded with complexities. Unlike EU membership, EMU participation is a legal obligation for all member States, and so, withdrawing from the EMU would be in breach of this obligation unless the member also withdrew from the EU (Athanassiou 2009:28).
A related issue is expulsion from the EU or EMU. At present, there is no treaty provision for expelling a member State however the European Council can temporarily suspend some of a member State’s rights. One technical problem associated with a right of expulsion clause from the EU or EMU is that it would require a Treaty amendment for which the unanimous consent of all member States is required according to Article 48 of the TEU. Athanassiou (2009:36) concludes that persuading a member to withdraw would be an easier option.

Establishing that a withdrawal from the EU, and by extension the EMU, is legally permissible, the first practical step in the exit strategy would be to restore currency sovereignty by imposing a currency law and defining the conversion rates between the new currency and the Euro. To facilitate this process, the official exit should occur over the weekend when banks (and financial markets) are closed to prevent bank runs and allow new (physical) currency to be stocked. New physical currency or stamps for existing currency should be ordered (in secret) ahead of the public announcement of withdrawal. Legislation should be enacted to force domestic residents to exchange existing Euro currency for the new currency or have existing Euros stamped. National border monitoring should be strengthened to mitigate the risk of fleeing Euros.

Other financial obligations such as bonds, loans and derivatives (e.g. currency, interest rate) would also need to be redenominated. If such obligations are issued under local law, redenomination to the national currency is largely unproblematic. Variant Perception (2012) maintains that almost all sovereign borrowing in Europe is conducted under local law. For example, approximately 94 percent of Greek government bonds are issued under Greek law. If the obligation is governed by foreign law and there is no currency clause explicitly tying payment to the law of the exiting country, it may be up to the courts to determine the implicit nexus of contract (Nordvig and Firoozye 2012). To facilitate debt restructuring, the treaty establishing the ESM provides for mandatory inclusion of a standardised Collective Action Clause for all Eurozone government bonds issued after 1 January 2013.
The new national currency should be coupled with a flexible exchange rate regime. Real
devaluations, harsh price and wage cuts, geared to improved competitiveness would
become redundant as the nominal exchange rate would be able to make the necessary
adjustment (Mitchell 2012g). For overvalued economies, such as Greece, this would
likely result in a swift depreciation of the new currency against other major currencies.

The net effect of currency depreciation however is unclear. Positive effects may arise
from improved external competitiveness if translated into output gains, which would
largely be dependent on import and export price elasticities, the size of the export sector
and degree of inflation pass-through. Negative effects from currency depreciation would
arise due to balance sheet effects related to foreign currency denominated liabilities
which also attract a relatively high interest rate currently. Equally, Euro denominated
assets such as bank deposits would be redenominated in the new currency. Greece, for
example, could exploit its newfound currency sovereignty by compensating entities
exposed to foreign currency denominated liabilities, and guaranteeing the (€
equivalent) value of private sector bank deposits and financial asset holdings of banks.
However equity issues would need to be carefully considered, since any compensation
of wage earners is likely to be limited to tax cuts (see below).

Domestic capital controls could be implemented to help stem capital flight due to fear
of currency depreciation, even though such capital movements are already well
underway in some Eurozone economies, particularly Greece. Nordvig and Firoozye
(2012) note that market participants are moving to establish a (non-deliverable) FX
forward market which can be used to hedge against redenomination risks and exposure
to new national currencies.

Any attempt by unions to restore the Euro value of their wages would promote high
inflation arising from both demand pull, due to capacity constraints arising from the
enforced recession, and cost push. Also, as noted, to the extent that production is not
vertically integrated, the benefits of currency depreciation would be already reduced,
without compounding the problem of competitiveness by raising domestic wages. An

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95 An alternative is to facilitate the re-financing of Euro denominated debt, by offering government-backed low interest loans.
incomes policy would be useful to combat the risks of inflation pass-through igniting a wage-price spiral.

Restoring full policy sovereignty means that fiscal policy is no longer constrained by SGP/Fiscal Compact requirements. Well targeted (spatially sensitive) government spending should take place, particularly in areas with traditionally higher fiscal multipliers, such as infrastructure. Income tax cuts combined with a temporary cut in consumption based taxes would promote domestic consumption and act as the quid pro quo for wage restraint.

Abandoning the Euro and establishing a flexible exchange rate also allows national monetary policy to be restored which should immediately be geared to fostering liquidity and financial stability in domestic financial markets. National central banks should coordinate and implement central bank liquidity (currency) swap lines, and national deposit insurance schemes should be strengthened to facilitate these objectives. It may also be necessary to broaden acceptable collateral for the conduct of central bank Repo operations. Practical and legal issues associated with refunding the central bank’s capital contribution to the ECB, and also the reimbursing of foreign reserve assets transferred to the Euro-system would also need to be considered in due course.

A Job Guarantee should be implemented to underpin domestic demand and foster the restoration of household balance sheets. Implementing a Job Guarantee involves setting the minimum/liveable wage as nominal anchor and introducing an automatic price stability mechanism. Government expenditure on a Job Guarantee would not confront capacity constraints which could inhibit private sector spending following the enforced period of recession (Mitchell and Watts 2013).

By exploiting the fiscal powers of a sovereign government, the above strategies would address the criticism that ‘there exists no ‘optimal’ exchange rate that would satisfy both the needs of trade and the maintenance of stable balance sheets’ (Toporowski 2013:582).
5a.5 Conclusion

‘The drive for the Euro has been motivated by politics not economics. [The Euro] would exacerbate political tensions by converting divergent shocks that could have been readily accommodated by exchange rate changes into divisive political issues. Political unity can pave the way for monetary unity. Monetary unity imposed under unfavorable conditions will prove a barrier to the achievement of political unity’ (Friedman 1997).

The imposition of the Berlin-Washington Consensus policy framework on members of the Eurozone has meant that these countries have foregone their policy sovereignty with calamitous consequences for governments’ capacity to conduct independent macroeconomic policy. The political and economic constraints of the Eurozone mean that policy sovereignty cannot be restored within the monetary union, notwithstanding the array of recent and proposed policy reforms. The only viable solution involves exiting the EMU to re-establish full policy sovereignty. Only then can fiscal and monetary policy be geared to promoting an economic and social revival in Europe. However major distributional issues would need to be addressed in the transition.
More than six-years since the onset of the Global Financial Crisis, global growth remains weak and the Eurozone malaise continues. The Euro periphery is trapped in a vicious cycle of fiscal austerity and internal devaluation. The outcome is depressed domestic demand and high unemployment which ultimately worsen the debt dynamics. In this paper we investigate a Job Guarantee as an option for periphery Eurozone economies, specifically Spain, faced with this policy dilemma. To this end, we construct a two-economy stock-flow consistent macroeconomic model with Euro-system features to unpack the macro-dynamics of a Job Guarantee and fiscal adjustment scenarios.
5b.1 Introduction

More than six-years since the onset of the Global Financial Crisis (GFC), global growth remains weak. Advanced sovereign economies (e.g. US, UK and Japan) have experienced some output growth largely due to fresh rounds of fiscal and monetary stimulus. However the Eurozone malaise continues. High rates of joblessness and deteriorating debt dynamics have created a major dilemma for Eurozone policymakers.

Fiscal profligacy among the Euro periphery (i.e. Greece, Spain, Portugal, Ireland and Italy) has ostensibly contributed to the deepening crisis. Consequently, policymakers have adopted an increasingly rigid view of fiscal policy and supported efforts to reduce government deficit and debt ratios. In particular, the Fiscal Compact (2013) strengthens existing Stability and Growth Pact (SGP) regulations, requiring the new measures to be enshrined within national law. The so called Berlin-Washington consensus represents an extreme form of institutionalised neo-liberalism (see Fitoussi and Saraceno 2013).

Notwithstanding the discredited expansionary fiscal contraction hypothesis, it was recommended that further monetary easing accompany fiscal austerity to soften any contractionary effects. Yet conventional monetary policy channels are exhausted. Consequently, the European Central Bank (ECB) has engaged with more unconventional measures such as its Outright Monetary Transactions (OMT) program (2012) which seemed to stabilise rising bond yields on periphery government debt. However, other than supporting liquidity in the banking system and stabilising the long-end of the yield curve, further monetary interventions will do little to engender a sustainable return to output growth (see Sharpe and Watts 2013).

Given the constraints on additional fiscal and monetary measures, policy has been geared to address external sector imbalances within the Eurozone via the so called

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96 In a sovereign economy, the consolidated government sector (Treasury and Central Bank) issues a fiat, non-convertible currency and operates with a flexible exchange rate (e.g. Australia, US, UK and Japan). A flexible exchange rate regime allows for discretion regarding foreign exchange interventions (i.e. monetary independence). As the issuer of currency, government within sovereign economies can always meet national currency denominated obligations. Thus, national governments are not constrained by an ex-ante or inter-temporal budget constraint (see Watts and Sharpe 2013).
Macroeconomic Imbalance Procedure (MIP). Since nominal exchange rate adjustments are not possible at the individual country level, internal devaluation (price and wage cuts) is required to boost external competitiveness among the Eurozone periphery (IMF 2013b).

External demand from outside the Eurozone has contributed to some improvement in export performance, particularly for Germany, Spain and Portugal (IMF 2013b). Notwithstanding this, the decline in current account deficits among the periphery since the advent of the crisis has been largely driven by a collapse in imports due to depressed domestic demand, not increased competitiveness (Mitchell 2013b). Meanwhile core Eurozone economies, particularly Germany, have done little to reduce their current account surpluses by stimulating domestic demand and may face sanctions according to the disciplinary arm of the MIP (i.e. the Excessive Imbalance Procedure). The subsequent overvalued (undervalued) real effective exchange rates for periphery (core) economies reinforce proposals for a two-tiered Euro-system (see Mazier and Petit 2013).

The limited policy options, however, are a function of the deeply flawed architecture of the Euro-system. It was never an Optimal Currency Area (see Mundell 1961). Unable to withstand a systemic demand shock, the Euro periphery is trapped in a vicious cycle of fiscal austerity and internal devaluation. The outcome is depressed domestic demand and high unemployment which ultimately worsen the debt dynamics. Rising government deficit and debt ratios are interpreted as insufficient fiscal austerity and the vicious cycle continues. Further, internal devaluations geared to export competitiveness exacerbate private debt burdens, undermining the restoration of private sector balance sheets required for sustainable consumption growth.

Given the flawed architecture, Watts et al. (forthcoming) argue that a necessary but not sufficient condition to end the Eurozone crisis is to restore full fiscal-monetary sovereignty and flexible exchange rates to member economies which requires exiting

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97 At the macroeconomic level, declining unit labour costs, a common indicator of competitiveness, imply a declining labour share. There is no clear connection between a declining labour share and increased output growth (see Felipe and Kumar 2011).
the Euro. Yet, despite the severity of the crisis, policymakers’ commitment to the Euro-project is resolute. Thus alternative solutions are in demand.

In this paper we investigate a Job Guarantee as a policy option for periphery Eurozone economies, specifically Spain, faced with high rates of joblessness and deteriorating debt dynamics. A Job Guarantee or Employer of Last Resort programme ‘offers a basic wage (including a benefits package - sickness and holiday pay, superannuation, child care subsidies etc) to anyone ready and willing to work’ (Mitchell 2011e). The Job Guarantee has been developed extensively by Mitchell (1998, 2000), Forstater (1998), Mitchell and Watts (2001), and Mitchell and Mosler (2002) among others.98

IMF (2012g) concedes that public sector employment programs can be effective in the short-term but should be phased out as growth resumes. IMF (2012g:21-22) argue that public employment programs are ‘not cost-effective’, ‘risk permanent increases in the size of the public sector’ and ‘a large public sector tends to crowd out private employment, and at the same time, generate large fiscal costs.’

The rationale for a Job Guarantee in the Eurozone is twofold: First, the purpose of a Job Guarantee is to mitigate the ‘indignity and insecurity of underemployment, poverty and social exclusion’ (Quirk et al. 2006:2), along with the ‘amelioration of many social ills associated with chronic unemployment (health problems, spousal abuse and family break-up, drug abuse, crime), [while enhancing] skills due to training on the job’ (Wray 2012b). The implementation of a Job Guarantee will ensure that unemployment and poverty rates satisfy Europe 2020 targets.99

Second, guaranteed employment offers a stable foundation for a recovery in private sector consumption and investment. The initial demand shock and increased capacity utilisation associated with the implementation of the Job Guarantee, combined with the automatic budget stabilisers, would also work to attenuate the rising government deficit

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98 Juniper et al. (2013b) offers a detailed discussion of the design and implementation issues associated with the Job Guarantee and a response to critics of the program.

99 Two of the five Europe 2020 targets include: (i) 75% of the population aged 20-64 should be employed, and (ii) 20 million less people should be at risk of poverty (European Commission 2010:3).
and debt ratios. However, a Job Guarantee does not preclude fiscal adjustments geared to reductions in government deficit and debt ratios. In fact, the Job Guarantee acts as an automatic stabiliser to buffer the drag from fiscal consolidation, and so, may assist with the objectives of the adjustment process. Further, the Job Guarantee includes an in-built price stability mechanism.

Since the net effect of the macro-dynamics is unclear, we construct a two-economy stock-flow consistent macroeconomic model with Euro-system features (Section 5b.2) to unpack the implications of a Job Guarantee (Section 5b.3) and fiscal adjustment scenarios (Section 5b.4). Some concluding remarks complete the paper.

5b.2 A stock-flow macroeconomic framework

5b.2.1 Introduction
A stock-flow consistent (SFC) framework offers an integrated approach to macroeconomic modelling, as the balance sheets and flow-of-funds (dynamics) of each sector of an economy can be explicitly and rigorously modelled. With strong ties to the post-Keynesian tradition, SFC modelling was derived from the seminal work of Tobin (1980, 1982) and Godley and Cripps (1983) in response to criticisms of deficient analytical rigor within (post-) Keynesian economics (see Chick 1995).

SFC modelling identifies logical inter-relations among the transactions of different sectors of an economy within a given time period and between periods (Zezza and Dos Santos 2004). Unlike mainstream models, assumptions of optimisation, perfect information, rational expectations and market-clearing mechanisms are not required (Lavoie and Godley 2000). Furthermore, the ‘simulation method enables one to penetrate, with one’’s understanding, dynamic models of far greater complexity than can be handled by analytic means’ (Lavoie and Godley 2000:19).
Here, we construct a two-economy macroeconomic model consisting of households, firms, government, and central banks and trade.\textsuperscript{100} The base model derivation draws on the seminal work of Godley and Lavoie (2003, 2007). Table 5b.1 and 5b.2 display the balance sheet and transactions-flow matrices respectively.

Regarding notation, capitals denote nominal terms (current prices) and lowercase letters represent real terms (constant prices) except for interest rates ($r$). Country index superscripts $i$ and $j$ are suppressed where equations are not country specific to avoid congestion. Time subscripts ($t$) are also suppressed unless where identifying lags. $\Delta$ represents the simple difference (e.g., $Y - Y_{t-1}$), and $d$ denotes the proportional rate of change (e.g., $\frac{Y - Y_{t-1}}{Y_{t-1}}$). $\ln$ denotes a natural log.

In this paper we are concerned with Eurozone economies, principally Spain (country $i$), a periphery member, which has the highest unemployment rate within the Eurozone (above 26 percent). Germany (country $j$) is a major trading partner (both in exports and imports) with Spain. Since the Eurozone is a currency union we set the nominal exchange rate to one ($x_{r}^{i} = 1$) and the expected proportional change in the exchange rate to zero ($dx_{r}^{i} = dx_{r}^{j} = 0$). The inclusion of the exchange rate term is purely illustrative.

\textsuperscript{100} The model is parsimonious in the sense that we do not include commercial banking, private debt accumulation and a more diverse portfolio of financial assets. For this investigation it is unlikely that these additions would have material effects on the conclusions which would justify the added complexity.
Table 5b.1 Balance sheet matrix

<table>
<thead>
<tr>
<th>Country $i$</th>
<th>Wage earners</th>
<th>Unemployed</th>
<th>Capitalists</th>
<th>Firms</th>
<th>Govt</th>
<th>CB</th>
<th>ER</th>
<th>Country $j$</th>
<th>Wage earners</th>
<th>Unemployed</th>
<th>Capitalists</th>
<th>Firms</th>
<th>Govt</th>
<th>CB</th>
<th>ECB</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$+H^i_B$</td>
<td>$+H^j_B$</td>
<td>$+H^{ca}_i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$+H^i_B$</td>
<td>$+H^j_B$</td>
<td></td>
<td>$+H^{ca}_i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$+K$</td>
<td></td>
<td>$+K$</td>
<td>$+K$</td>
<td>$+\sum K$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$i$ Bonds</td>
<td>$+B^i_{id}$</td>
<td>$-B^i_{is}$</td>
<td>$+B^i_{cb}$</td>
<td>$x^i$</td>
<td></td>
<td></td>
<td></td>
<td>$+B^j_{id}$</td>
<td>$-B^j_{is}$</td>
<td>$+B^j_{cb}$</td>
<td>$x^i$</td>
<td></td>
<td>$+B^j_{cb}$</td>
<td>$+B^j_{ecb}$</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>$j$ Bonds</td>
<td>$+B^j_{id}$</td>
<td></td>
<td>$x^i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$+B^j_{id}$</td>
<td></td>
<td>$-B^j_{is}$</td>
<td></td>
<td></td>
<td>$+B^j_{cb}$</td>
<td>$+B^j_{ecb}$</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>TG2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$+TG2^i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$+TG2^j$</td>
<td>$-TG2^{ecb}$</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>IEA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$-IEA^i$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$-IEA^j$</td>
<td>$+IEA^{ecb}$</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Balance</td>
<td>$-V^w$</td>
<td>$-V^u$</td>
<td>$-V^{ca}$</td>
<td>$-K$</td>
<td>$+B^i_{is}$</td>
<td>$-V^c$</td>
<td>$x^i$</td>
<td>$-V^w$</td>
<td>$-V^u$</td>
<td>$-V^{ca}$</td>
<td>$-K$</td>
<td>$+B^j_{is}$</td>
<td>$-V^c$</td>
<td>$-V^{ecb}$</td>
<td>$-\sum K$</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Note: (+) represents an asset and (-) denotes a liability/net worth. The exchange rate ($x^i$) represents the value of one unit of $i$ currency in terms of $j$ currency (i.e. the number of $j$ currency units per $i$ currency units).
Table 5b.2 Transactions-flow matrix

<table>
<thead>
<tr>
<th>Country i</th>
<th>Country j</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage earners</td>
<td>Unemployed</td>
</tr>
<tr>
<td>Cons</td>
<td>$-C^W$</td>
</tr>
<tr>
<td>Govt exp</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>$+r_{i,t-1}B^{ie}_{j,t-1}$</td>
</tr>
<tr>
<td>Invest</td>
<td></td>
</tr>
<tr>
<td>Taxes</td>
<td>$-\theta_{i,t}WB$</td>
</tr>
<tr>
<td>Wages</td>
<td>$+WB$</td>
</tr>
<tr>
<td>TG2</td>
<td></td>
</tr>
<tr>
<td>IEA</td>
<td></td>
</tr>
<tr>
<td>Profits</td>
<td>$+PD$</td>
</tr>
<tr>
<td>Trade</td>
<td></td>
</tr>
<tr>
<td>Δ Cash</td>
<td>$-\Delta H^W_{i,t}$</td>
</tr>
<tr>
<td>Δ Bonds</td>
<td></td>
</tr>
<tr>
<td>ΔT Bonds</td>
<td></td>
</tr>
<tr>
<td>ΔIEA</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note:* The transactions-flow matrix ensures all flows in the economy sum to zero. (+) represents an inflow and (-) denotes an outflow. The changes in stocks are also displayed.
5b.2.2 Income, consumption and wealth

National income \((Y)\) at current prices includes total household consumption \((C)\), government expenditure \((G)\), firm’s investment \((I)\), and exports \((X)\) and imports \((M)\).

\[ Y \equiv C + G + I + X - M \tag{1-2} \]

Total household consumption is disaggregated into consumption by wage earners \((c^W)\), capitalists \((c^{Ca})\) and the unemployed \((c^U)\). The respective consumption functions are expressed in real terms and include marginal propensities to consume \((\alpha_1, \alpha_3, \alpha_5)\) out of real expected disposable income \((y^d_e)\) and marginal propensities to consume \((\alpha_2, \alpha_4, \alpha_6)\) out of (lagged) real wealth \((v_{t-1})\).

\[ c = c^W + c^{Ca} + c^U \tag{3-4} \]

\[ c^W = \alpha_1(y^d_{e,t}) + \alpha_2(v^W_{t-1}) \tag{5a-6} \]

\[ c^{Ca} = \alpha_3(y^d_{e,t}) + \alpha_4(v^{Ca}_{t-1}) \tag{7-8} \]

\[ c^U = \alpha_5(y^d_{e,t}) + \alpha_6(v^U_{t-1}) \tag{9-10} \]

Wage earners’ nominal disposable income \((YD^W)\) is derived from (post-tax) wage income. Capitalists’ derive \(YD^{Ca}\) from (post-tax) distributed profits \((PD)\) and interest income on their stock of domestic and foreign government bonds. The unemployed receive (untaxed) government transfer payments \((G^T)\).

\[ YD^W = (1 - \theta_W)WB \tag{13ai-14} \]

\[ YD^{Ca,i} = (1 - \theta^{Ca,i}_I)Y^{Ca,i} \tag{15ai} \]

\[ Y^{Ca,i} = PD^i + r_{b,t-1}^iB_{t,t-1}^i + r_{b,t-1}^jB_{j,t-1}^j \tag{16} \]

\[ YD^{Ca,j} = (1 - \theta^{Ca,j}_I)Y^{Ca,j} \tag{17} \]

\[ Y^{Ca,j} = PD^j + r_{b,t-1}^jB_{j,t-1}^i + r_{b,t-1}^iB_{i,t-1}^j \tag{18} \]

\[ YD^U = G^T \tag{19a-20} \]

The accumulation of nominal household wealth \((V)\) is given by the difference between disposable income and consumption.

\[ V^W = V^W_{t-1} + YD^W - c^W(\pi_{ds}) \tag{21-22} \]

\[ V^{Ca} = V^{Ca}_{t-1} + YD^{Ca} - c^{Ca}(\pi_{ds}) \tag{23-24} \]

\[ V^U = V^U_{t-1} + YD^U - c^U(\pi_{ds}) \tag{25a-26} \]

Nominal wealth is then normalised by the domestic price level \((\pi_{ds})\), yielding real wealth \((v)\).
\[ \nuW = \frac{\nuW}{\pi d_s} \]  
(27-28)

\[ \nu^cA = \frac{\nu^cA}{\pi d_s} \]  
(29-30)

\[ \nu^U = \frac{\nu^U}{\pi d_s} \]  
(31a-32)

Real disposable income \((yd)\) captures wealth effects from domestic price fluctuations.

\[ yd^W = \frac{y^dW}{\pi d_s} - \nu^W_{t-1} \frac{\Delta \pi_{d_s}}{\pi d_s} \]  
(33-34)

\[ yd^{ca} = \frac{y^dca}{\pi d_s} - \nu^{ca}_{t-1} \frac{\Delta \pi_{d_s}}{\pi d_s} \]  
(35-36)

\[ yd^U = \frac{y^dU}{\pi d_s} - \nu^U_{t-1} \frac{\Delta \pi_{d_s}}{\pi d_s} \]  
(37a-38)

In a stock-flow consistent model it is not particularly important how expectations about income are derived. Here, expectations are formed adaptively as in Godley and Lavoie (2007).

\[ yd^e^W = \frac{1}{2} (yd^W + yd^W_{t-1}) \]  
(39-40)

\[ yd^{ca}^e = \frac{1}{2} (yd^{ca} + yd^{ca}_{t-1}) \]  
(41-42)

\[ yd^e^U = \frac{1}{2} (yd^U + yd^U_{t-1}) \]  
(43a-44)

Capitalists’ ex ante allocation of wealth is among three assets; domestic bonds, foreign bonds and high powered money (cash). For brevity we assume that these asset allocations are based on realised wealth and omit transactions demand for money (see Godley and Lavoie 2007:459).

\[ B^c_{iD} = V^{ca,i} \left[ \lambda^{i}_{10} + \lambda^{i}_{11} (r^i_{b}) - \lambda^{i}_{12} (r^i_{b} + dxr^i_{e}) \right] \]  
(45)

\[ B^c_{iD} = V^{ca,i} \left[ \lambda^{i}_{20} + \lambda^{i}_{21} (r^i_{b}) + \lambda^{i}_{22} (r^i_{b} + dxr^i_{e}) \right] \]  
(46)

\[ H^{ca}_{iD} = V^{ca,i} \left[ \lambda^{i}_{30} - \lambda^{i}_{31} (r^i_{b}) - \lambda^{i}_{32} (r^i_{b} + dxr^i_{e}) \right] \]  
(47*)

\[ B^c_{jD} = V^{ca,j} \left[ \lambda^{j}_{40} + \lambda^{j}_{41} (r^i_{b}) - \lambda^{j}_{42} (r^i_{b} + dxr^i_{e}) \right] \]  
(48)

\[ B^c_{jD} = V^{ca,j} \left[ \lambda^{j}_{50} - \lambda^{j}_{51} (r^i_{b}) + \lambda^{j}_{52} (r^i_{b} + dxr^i_{e}) \right] \]  
(49)

\[ H^{ca}_{jD} = V^{ca,j} \left[ \lambda^{j}_{60} - \lambda^{j}_{61} (r^i_{b}) - \lambda^{j}_{62} (r^i_{b} + dxr^i_{e}) \right] \]  
(50*)

Subscript \(iD\) refers to bonds demanded (or held) by capitalists in country \(i\), and superscripts refers to the country of origin. Domestic bond demand is positively related to the nominal domestic interest rate on bonds, and negatively related to the nominal foreign bond rate plus the expected proportional change in the exchange rate \((dxr^i_{e})\).
Portfolio allocation principles, based on the vertical adding up constraints set out by Brainard and Tobin (1968) and Tobin (1969), can be illustrated by expressing equations (45-47*) in matrix form. 

\[
\begin{bmatrix}
B_{i0}^l \\
B_{iD}^l \\
H_{iID}^l
\end{bmatrix} = V^{Ca,i} \begin{bmatrix}
\lambda_{11}^l \\
\lambda_{21}^l \\
\lambda_{31}^l
\end{bmatrix} + \begin{bmatrix}
\lambda_{12}^l \\
\lambda_{22}^l \\
\lambda_{32}^l
\end{bmatrix} \cdot \begin{bmatrix}
r_{b}^i \\
r_{d}^i + dx_{r}^i
\end{bmatrix}
\]

where \( m = 1 \) to 3 

\[\sum_{i=1}^{3} \lambda_{m0}^l = 1 \]

\[\sum_{i=1}^{3} \lambda_{m1}^l = \sum_{i=1}^{3} \lambda_{m2}^l = \sum_{i=1}^{3} \lambda_{m3}^l = 0 \]

Friedman’s (1978) symmetry constraints imply, \( \lambda_{12}^l = \lambda_{21}^l, \lambda_{13}^l = \lambda_{31}^l \) and \( \lambda_{23}^l = \lambda_{32}^l \). However the latter two are redundant since the return on cash balances is zero. Further, in the 3x3 matrix above only the prime diagonal is positive, that is, the coefficients on the rates of return of domestically issued assets are positive (see Godley and Lavoie 2007:327-329; Greenwood-Nimmo 2009).

To ensure that the proportion of wealth accruing to one asset class cannot increase without reducing relative holdings of another asset class, we follow Godley and Lavoie (2007) and use the cash holdings as a ‘buffer’ asset. Thus equations (47*) and (50*) are replaced by (47) and (50) respectively.

\[H_{iID}^{Ca} = V^{Ca,i} - B_{iD}^l - B_{iD}^j \] (47)

\[H_{jID}^{Ca} = V^{Ca,j} - B_{jD}^j - B_{jD}^j \] (50)

There are no commercial banks so workers and the unemployed hold all wealth as non-interest bearing cash.

\[H_{ID}^W = V^W \] (51-52)

\[H_{ID}^U = V^U \] (53a-54)

5b.2.3 Government expenditure, tax and bonds

Total government expenditure (\(G\)) consists of consumption expenditure (\(G^C\)) and unemployment transfer payments (\(G^T\)). \(TR\) is the constant nominal transfer amount per unemployed person.

\[G = G^T + G^C \] (55a-56)

\[G^T = TR(U) \] (57a-58)

According to the Stability and Growth Pact requirements, and maintained in the new Fiscal Compact, Eurozone members should not allow (interest inclusive) budget deficits
to exceed 3 percent of GDP, though temporary deviations are permissible. This rule is
formalised below, where government consumption expenditure grows at an exogenous
(fixed) rate \((\dot{G})\) if the (interest-inclusive) deficit is less than 3 percent of GDP and
diminishes by the same rate otherwise.\(^\text{101}\) An autonomous component \((G_0)\) is also
included. Government expenditure at constant prices \((g)\) is then defined.

\[
G^c = \begin{cases} 
G_0 + G^c_{t-1}(1 + \dot{G}) & \text{if } \frac{(G_{t-1} - T_{t-1}) + (r_{b,t-1}B^S_{t-1}) - F_{cb,t-1} - F^{ecb}_{t-1}}{Y_{t-1}} < 0.03 \\
G_0 + G^c_{t-1}(1 - \dot{G}) & \text{if } \frac{(G_{t-1} - T_{t-1}) + (r_{b,t-1}B^S_{t-1}) - F_{cb,t-1} - F^{ecb}_{t-1}}{Y_{t-1}} \geq 0.03
\end{cases}
\]  

\[g = \frac{G}{\pi_{ds}}\]  

(59ai-60)

Workers’ nominal wage income, capitalists’ income and firms’ undistributed profits
(retained earnings) are taxed at the exogenous tax rates \(\theta_w, \theta_{ca}\) and \(\theta_F\) respectively.

\[
T^i = \theta^i_w WB^i + \theta^i_{ca}Y^ca,i + \theta^i_F PU^i \\
T^j = \theta^j_w WB^j + \theta^j_{ca}Y^ca,j + \theta^j_F PU^j
\]  

(63ai)

The change in the total supply of government bonds is given by \(\Delta B^S\). National central
bank and European Central Bank (ECB) profits, defined below, are transferred to
national governments. ECB profits are appropriated among the Eurozone economies
according to their relative size \((\Phi)\), measured by national income.

\[
\Delta B^{is} = G^i - T^i + r^i_{b,t-1}B^{is}_{t-1} - F^{cb}_{t-1} - \Phi F^{ecb}
\]  

\[
\Delta B^{js} = G^j - T^j + r^j_{b,t-1}B^{js}_{t-1} - F^{cb}_{t-1} - (1 - \Phi) F^{ecb}
\]  

\[
\Phi = \frac{y^i}{y^i + y^j}
\]  

(65)

(66)

(67)

The supply of bonds matches demand. For example, \(B^{is}_j\) refers to the supply of country
i bonds to capitalists in country j. \(B^{id}_j\) represents country j capitalists demand for
country i bonds.

\[
B^{is}_i = B^{id}_i \\
B^{js}_j = B^{jd}_j \\
B^{js}_j = B^{id}_j x r^j
\]  

(68)

(69)

(70)

\(^{101}\) \(\dot{G}\) parameter estimates are the average annual growth in general government consumption expenditure
for Germany and Spain using OECD data for the period 1988 to 2007. There is no guarantee that the
adjustment to government consumption expenditure will ensure the deficit \(ratio\) stabilises at the reference
value given endogenous output effects.
\[ B_{i}^{js} = B_{i}^{l} \times r^{-i} \]  

(71)

\( H_{D} \) denotes total demand for high-powered money (cash).

\[ H_{ID} = H_{iD}^W + H_{iD}^{Ca} + H_{iD}^U \]  

(72a)

\[ H_{JD} = H_{jD}^W + H_{jD}^{Ca} + H_{jD}^U \]  

(73)

5b.2.4 National central banks and the ECB

It is important here to introduce some of the unique features of the Euro-system, particularly banknote allocation and the Intra-Eurosystem Accounts (IEA). In the Euro-system, the so called ‘banknote allocation key’ specifies that 8 percent of total bank notes on issue are recorded as a liability of the ECB. The residual (92%) is allocated among national central banks according to their contribution to the capital of the ECB (the ‘subscription key’). Here, we will share the remainder equally among the balance sheets of the national central banks. Hence the supply of high-powered money matches demand.

\[ H^{ecbs} = \Omega(H_{iD} + H_{jD}) \]  

(74)

\[ H^{IS} = \frac{1}{2}(1 - \Omega)(H_{iD} + H_{jD}) \]  

(75)

\[ H^{IS} = \frac{1}{2}(1 - \Omega)(H_{iD} + H_{jD}) \]  

(76)

Intra-Eurosystem accounts (IEA) represent claims or liabilities of national central banks vis-à-vis TARGET2 balances, banknote related claims, foreign exchange positions and capital contributions to the ECB (Whelan 2012). Here, IEA denotes banknote related claims and TG2 denote TARGET2 balances.

Banknote related claims record any differences between the stock of high-powered money issued by each national central bank and the total amount allocated within the Euro-system (Mazier et al. 2013). The ECB do not issue banknotes, thus their claims equals the amount specified by the banknote allocation key. Equation (80R) is redundant; it is implied by the other equations in the model.

\[ IEA^{i} = H^{IS} - H_{iD} \]  

(77)

\[ IEA^{j} = H^{IS} - H_{jD} \]  

(78)

---

102 Mazier et al. (2013) provides a detailed representation of the Eurosystem within a stock-flow consistent framework.
\[ IEA^{ecb} = H^{ecb} \]  
\[ \Delta IEA^{ecb} = \Delta IEA^i + \Delta IEA^j \]  

In the Euro-system, TARGET2 (Trans-European Automated Real-time Gross Settlement Express Transfer System) is the automatic clearing system for all real and financial transactions. A positive TARGET2 balance on the balance sheet of a national central bank represents a claim on the ECB, which ensure transactions are cleared among national central banks. Thus, changes in TARGET2 balances \( \Delta TG2 \) are determined by balance of payments disequilibria.

\[ \Delta TG2^i = x^i - M^i + r_{b,t-1}^i B_{id,t-1}^i x r^j - r_{b,t-1}^i B_{id,t-1}^j - r_{b,t-1}^i B_{ecbd,t-1}^i + \Delta B_{id}^i + \Delta B_{ecbd}^i - \Delta B_{id}^j x r^i \]  
\[ \Delta TG2^j = x^j - M^j + r_{b,t-1}^j B_{id,t-1}^j x r^i - r_{b,t-1}^j B_{id,t-1}^i - r_{b,t-1}^j B_{ecbd,t-1}^j + \Delta B_{id}^j + \Delta B_{ecbd}^j - \Delta B_{id}^i x r^i \]  
\[ \Delta TG2^{ecb} = r_{b,t-1}^i B_{ecbd,t-1}^i + r_{b,t-1}^j B_{ecbd,t-1}^j - \Delta B_{ecbd}^i - \Delta B_{ecbd}^j + H^{ecbs} - \Delta IEA^{ecb} \]  

National central banks demand for domestic bonds is the result of fine-tuning operations (see Mazier et al. 2013). To ensure national bond markets clear we assume the ECB is a residual buyer. However we acknowledge that, under normal circumstances, the ECB does not purchase Euro member government debt.

\[ \Delta B_{cbD}^i = \Delta H^{is} - \Delta IEA^i - \Delta TG2^i \]  
\[ \Delta B_{cbD}^j = \Delta H^{js} - \Delta IEA^j - \Delta TG2^j \]  
\[ B_{cb}^{is} = B_{cb}^i \]  
\[ B_{cb}^{js} = B_{cb}^j \]  
\[ B_{ecbd}^{is} = B_{ecbd}^i - B_{i}^{is} - B_{j}^{is} \]  
\[ B_{ecbd}^{js} = B_{ecbd}^j - B_{i}^{js} - B_{j}^{js} \]  

National central bank and ECB profits are defined as follows.

\[ F_{cb}^i = r_{t-1}^{ecb} IEA_{t-1}^i + r_{t-1}^{ecb} TG2_{t-1}^i + r_{b,t-1}^i B_{cbD,t-1}^i \]  
\[ F_{cb}^j = r_{t-1}^{ecb} IEA_{t-1}^j + r_{t-1}^{ecb} TG2_{t-1}^j + r_{b,t-1}^j B_{cbD,t-1}^j \]  
\[ F^{ecb} = r_{t-1}^{ecb} IEA_{t-1}^{ecb} + r_{t-1}^{ecb} TG2_{t-1}^{ecb} + r_{b,t-1}^i B_{ecbd,t-1}^i + r_{b,t-1}^j B_{ecbd,t-1}^j \]  

The short-term interest rate \( r^{ecb} \) is exogenously set by the ECB. Specifically, \( TG2 \) balances and banknote related claims \( (IEA) \) are compensated at the rate the ECB set for its Main Refinancing Operations.
5.2.5 Wages, (un)employment and prices

Post-Keynesian models typically assume an inflationary process is initiated from: (1) conflicting claims regarding the distribution of aggregate income (see Lavoie 2002), or; (2) nominal demand growth exceeding real output capacity. Here, firms set the price level on total sales \( \pi_s \) as a mark-up \( z \) on unit costs, consisting of the wage bill \((WB)\) and imports \((M)\).

\[
\pi_s = (1 + z) \frac{(WB + M)}{y} \tag{93-94}
\]

The wage bill is derived from the unit wage \( W \) and the employment level \( N \). The latter is determined by real output and the (exogenous) level of labour productivity \( \sigma \).\(^{103}\)

\[
WB = W(N) \tag{95-96}
\]

\[
N = \frac{y}{\sigma} \tag{97-98}
\]

The unemployment level \( U \) equals the (exogenous) labour force \( LF \) less total employment \( N \). We assume the labour force equals the working age population. Thus the employment rate \( n \) is defined accordingly.

\[
U = LF - N \tag{99a-100}
\]

\[
n = \frac{N}{LF} \tag{101-102}
\]

Nominal wage growth \( \dot{W} \) is determined by a bargaining process between firms and workers (see Argitis and Dafermos 2011).

\[
W = W_{t-1} (1 + \dot{W}) \tag{103-104}
\]

\[
\dot{W} = \delta^W (\bar{W}^s - W^s) \quad \delta^W > 0 \tag{105-106}
\]

\[
\bar{W}^s = \omega_0 + \omega_1 n_{t-1} \quad \omega_0, \omega_1 > 0 \tag{107a-108}
\]

\[
W^s = \frac{WB}{s} \tag{109a-110}
\]

\( \delta^W \) (a constant) reflects speed of adjustment of the actual wage share \( W^s \) to the workers target wage share \( \bar{W}^s \). The latter is determined by the strength of labour unions \( \omega_0 \) and the bargaining power effects \( \omega_1 \) from a higher rate of employment \( n \).

\(^{103}\) We do not consider endogenous productivity growth such as a Kaldor-Verdoorn effect which can generate explosive behaviour (see Bortz 2011).
Firms increase the mark-up \((z)\) where target profit share \((\bar{P}^s)\) exceeds actual profit \((P)\) relative to total sales \((S)\).

\[
z = \delta^P (\bar{P}^s - P^s) \quad \delta^P > 0 \tag{111-112}
\]

\[
\bar{P}^s = \phi_0 + \phi_1 u_{t-1} \quad \phi_0, \phi_1 > 0 \tag{113-114}
\]

\[
P^s = \frac{P}{S} \tag{115-116}
\]

\(\delta^P\) (a constant) reflects speed of adjustment of the actual profit share \((P^s)\) to the firms target profit share. Target profit share is determined by the degree of competition in the product market \((\phi_0)\) and capacity utilisation \((u)\).

The value and volume of total sales, the price level of domestic sales, the GDP deflator and real income are defined respectively.

\[
S \equiv s(\pi_s) \tag{117-118}
\]

\[
s \equiv c + g + i + x \tag{119-120}
\]

\[
\pi_{ds} \equiv \frac{(s-x)}{(s-x)} \tag{121-122}
\]

\[
\pi_y \equiv \frac{y}{y} \tag{123-124}
\]

\[
y \equiv s - m \tag{125-126}
\]

**5b.2.6 Utilisation, investment and profit**

Capacity utilisation \((u)\) is given as the actual level of output to a sustainable maximum level of output. The latter is defined as a fixed multiple \((\rho)\) of the (lagged) capital stock.

\[
u = \frac{y}{(k_{t-1})^\rho} \tag{127-128}
\]

Capital accumulation in current prices is conventionally defined as the lagged capital stock, adjusted for depreciation \((\vartheta)\), plus current investment. Capital in constant prices is then defined.

\[
K = (1 - \vartheta)K_{t-1} + I \tag{129-130}
\]

\[
k = \frac{K}{\pi_{ds}} \tag{131-132}
\]

Undistributed (and distributed) profits are assumed to be a fixed proportion of firms total (gross) profit \((P)\). \(\psi\) denotes the profit retention rate.

\[
P \equiv Y - WB \tag{133a-134}
\]

\[
PU = \psi P \quad 0 < \psi < 1 \text{ is constant} \tag{135-136}
\]
Undistributed profits (PU) (i.e. retained earnings) are taxed at the corporate tax rate $\theta_F$. 

$$PU^n = (1 - \theta_F)PU$$  

We use a Kaleckian-type investment function. Firms nominal investment is determined by (undistributed) net profit share and capacity utilisation (see Bhaduri and Marglin 1990). Capital replacement ($b_0$) is also considered. Using the rate of profit is problematic since different combinations of capacity utilisation and profit share can yield different investment outcomes with the rate of profit remaining unchanged. Real investment ($i$) is then defined.

$$i = \frac{l}{\kappa_{t-1}} = b_0 + b_1 \left(\frac{PU}{\kappa_{t-1}}\right) + b_2 u_{t-1} \quad b_0, b_1, b_2 > 0$$

5b.2.7 Trade volume and prices

The external sector implications of the Job Guarantee have been subject to criticism, particularly the risk of imported inflation (see Ramsay 2002-03; Palley 2001, 2013). Following Godley and Lavoie (2007), we incorporate trade to capture external balance effects. Only intra-Eurozone trade is considered. Import ($\pi_m$) and export ($\pi_x$) prices for country $i$ and $j$ are defined as follows.

$$\ln(\pi_m^i) = f_0 - f_1 \ln(x^i) + (1 - f_1) \ln(\pi_y^i) + f_1 \ln(\pi_y^j) \quad 0 < f_1 < 1$$  

$$\ln(\pi_x^j) = \kappa_0 - \kappa_1 \ln(x^i) + (1 - \kappa_1) \ln(\pi_y^j) + \kappa_1 \ln(\pi_y^j) \quad 0 < \kappa_1 < 1$$  

$$\pi_m^i = \pi_x^i x^i$$  

$$\pi_x^j = \pi_m^i x^i$$

Import ($m$) and export ($x$) volumes (at constant prices) are determined by relative price ($\eta_1, \kappa_1$) and income elasticities ($\eta_2, \kappa_2$) (see Godley and Lavoie 2007:454).

$$\ln(x^i) = \eta_0 - \eta_1 \left[\ln(\pi_m^j) - \ln(\pi_y^j)\right] + \eta_2 \ln(y^j)$$  

$$\ln(m^i) = \kappa_0 - \kappa_1 \left[\ln(\pi_m^i) - \ln(\pi_y^i)\right] + \kappa_2 \ln(y^j)$$

$$x^i \equiv m^i$$  

$$m^i \equiv x^i$$

Trade volumes in current prices are now defined.

$$X \equiv x(\pi_x)$$
\[ M \equiv m(\pi_m) \]  
(155-156)

The model is solved for baseline values using appropriate parameter specifications.\textsuperscript{104}

We now extend the base model to include a Job Guarantee and fiscal adjustments.

### 5b.3 Job Guarantee

Implementing a Job Guarantee in country \( i \) (Spain) requires only minor adjustments to the base model. Principally, the unemployed sector is replaced with the Job Guarantee sector. The amendments to the balance sheet and transactions matrix are minor and are not reported. Equation modifications are as follows.

\[ c^i = c^{W,i} + c^{Ca,i} + c^{JG,i} \]  
(5b)

\[ c^{JG,i} = \alpha_s(yd^{JG,i}_e) + \alpha_e(v^{JG,i}_{t-1}) \]  
(11b)

\[ YD^{JG,i} = (1 - \theta^{JG,i}_G)G^{JG,i} \]  
(19bi)

\[ V^{JG,i} = V^{JG,i}_{t-1} + YD^{JG,i} - c^{JG,i}(\pi_{ds}^i) \]  
(25b)

\[ v^{JG,i} = \frac{\gamma^{JG,i}}{\pi_{ds}^i} \]  
(31b)

\[ yd^{JG,i} = \frac{YD^{JG,i}}{\pi_{ds}^i} - v^{JG,i}_{t-1} \Delta \pi_{ds}^i \]  
(37b)

\[ yd^{JG,i}_e = \frac{1}{2}(yd^{JG,i} + yd^{JG,i}_{t-1}) \]  
(43b)

\[ H^{JG,i}_D = V^{JG,i} \]  
(53b)

\[ G^i = G^{JG,i} + G^{C,i} \]  
(55b)

\[ G^{JG,i} = W^{JG,i}N^{JG,i} \]  
(57b)

\[ T^i = \theta^W_i WB^i + \theta^C_{Ca} Y^{Ca,i} + \theta^P_i PU^i + \theta^G_{JG} G^{JG,i} \]  
(63bi)

\[ H_{iD} = H_{iD}^W + H_{iD}^{Ca} + H_{iD}^{JG} \]  
(72b)

\[ N^{JG,i} = LF^i - N^i \]  
(99b)

\[ P^i \equiv Y^i - WB^i - G^{JG,i} \]  
(133b)

Unemployment transfers (\( G^{T,i} \)) are replaced with government expenditure on Job Guarantee wages (\( G^{JG,i} \)). In the model, \( G^T \) reflects social transfers of which are unemployment benefits. In Spain, this totalled 18.8 percent of GDP in 2012 which consists of social transfers in kind (2.7 percent) and social benefits (not in kind) (16.1

\textsuperscript{104} Parameter values are reported in appendix Table 5b.A1.
percent) (see European Commission 2012). The Job Guarantee wage \( W_{JG,i} \) represents a complete benefit package and is determined exogenously. In the model, initial expenditure on the Job Guarantee is approximately 22 percent of GDP which is based on an unemployment rate of 29 percent and a Job Guarantee wage 2.5 times the transfer amount.

Job Guarantee workers are taxed at the lowest (exogenous) income tax rate \( \theta_{JG} \) (24.75 percent in Spain). The disposable income and tax equations are adjusted to reflect the additional tax revenue. \( N_{JG,i} \) denotes employment in the Job Guarantee sector, where \( N^i \) is private sector employment. Profit \( (P^i) \) is also adjusted for Job Guarantee wage income.

A key feature of the Job Guarantee is its price stability mechanism which disciplines inflationary pressures on two fronts: First, via the buffer employment ratio \( \text{ber}^i \), that is, the ratio of Job Guarantee employment to total employment. Here, we assume no wait or frictional unemployment thus total employment equals the labour force. A larger \( \text{ber}^i \) represents a larger pool of job ready workers from which employers can recruit. Second, the Job Guarantee ‘disciplines the wage-price pressures in the private sector by asserting the buffer stock wage as the numeraire’ (Mitchell 1998:548). Thus, wage-differentials serve to discipline the inflationary process by imposing a sanction in the form of income loss. These mechanisms are added to the model as follows.

\[
\begin{align*}
\text{ber}^i &= \frac{N_{JG,i}}{L^i} \\
\bar{W}^s,i &= \omega_0^i + \omega_1^i n_{t-1}^i - \omega_2^i \text{ber}^i_{t-1} - \omega_3^i \left( \frac{W^i_{t-1}}{W_{JG}^i} - 1 \right)
\end{align*}
\]

Given that the labour force is fixed, \( \bar{W}^s,i \) can be simplified:

\[
\begin{align*}
\bar{W}^s,i &= \omega_0^i + \omega_1^i n_{t-1}^i - \omega_2^i (1 - n_{t-1}^i) - \omega_3^i \left( \frac{W^i_{t-1}}{W_{JG}^i} - 1 \right) \\
\omega_0^i, \omega_1, \omega_2, \omega_3 &> 0 \quad (107b)
\end{align*}
\]

\[
\begin{align*}
W^s,i &= \frac{WB^i + G_{JG,i}}{S^i} \quad (109b)
\end{align*}
\]

\( \omega_2^i \) and \( \omega_3^i \) reflects the strength to which the Job Guarantee conditions wage demands. \( \omega_2^i \) is determined by the degree to which the Job Guarantee program reduces hiring and on-the-job training costs, lessens skill atrophy and therefore the ‘hysteretic inertia’
embodied in the long-term unemployed, allowing for a smooth transition between the Job Guarantee sector and private sector (Mitchell 1998:551-552). Unlike the NAIRU, the shift in the composition of sectoral employment avoids the costs of high unemployment (Mitchell 1998). All other variables and parameters are as previously defined.

Figure 5b.1 illustrates the impact of a Job Guarantee in country $i$ (Spain) on key macroeconomic variables. The impact on country $j$ is negligible and is not reported. The Job Guarantee is implemented in period zero and the results are expressed as deviations from baseline values either in percentage points (p.p.) or thousands (‘000).

As expected, the Job Guarantee increases aggregate demand as government expenditure rises and Job Guarantee workers’ incomes and associated consumption spending increase. Given excess capacity, the shock to aggregate demand increases utilisation rates and firms respond to the stimulus by increasing investment. Consequently, the private sector employment rate quickly rises and the buffer employment ratio declines correspondingly as Job Guarantee workers move into the private labour market.\(^{105}\)

The budget deficit (interest-inclusive) to GDP ratio increases rapidly, reflecting the initial expenditure shock but is attenuated by the increased tax revenues and output growth, and eventually stabilises below the baseline value. The debt to GDP ratio decreases initially, due to the output shock, before quickly rising reflecting the increased deficit. The debt ratio finds some stability at approximately 10 percentage points above the baseline estimate.

The current account balance for country $i$ (Spain) deteriorates rapidly (moves further into deficit). The external balance effect, however, is marginal and reflects a small shock to import expenditure. While import prices increase (very) slightly, it does not trigger an alleged domestic wage price-spiral (see Palley 2001). Rather, the inflation rate spikes before returning to its base value about which it oscillates thereafter.

\(^{105}\) In practice, it is likely that discouraged workers would re-enter the labour force which may affect the buffer employment ratio.
A Job Guarantee would certainly improve the current state of the Spanish labour market. However, government debt and deficit ratios may still conflict with voluntary adopted fiscal sustainability requirements. Consequently, fiscal adjustment may be necessary.

5b.4 Fiscal adjustment

5b.4.1 MTO budget adjustments

The ‘Treaty on Stability, Coordination and Governance in the Economic and Monetary Union’, otherwise known as the Fiscal Compact, is an extension of the Stability and Growth Pact (SGP) regulation (see European Council 2012b). The Treaty, signed by all European Union members (except the Czech Republic and the UK) in March 2012, became effective as of January 1, 2013 to those members who had completed the ratification process.

Article 3 of the Treaty outlines the Fiscal Compact requirements (see European Council 2012b:11). Specifically, the general government budget must be balanced or in surplus. This requirement is satisfied if the general government annual structural balance (cyclically-adjusted, net of one-offs and temporary measures) is at its country-specific medium-term objective (MTO), with a structural deficit limit of 0.5 percent of nominal GDP. However, if the general government debt is below 60 percent of nominal GDP and where risks to long-term sustainability of public finances are benign, the limit of the structural deficit may be 1 percent of nominal GDP.

Members may temporarily deviate from their respective MTOs or the ‘adjustment path’ towards it in exceptional circumstances, such as periods of severe economic downturn, yet the deviation must not endanger medium-term fiscal sustainability. According to Article 8, Treaty signatories repeatedly in breach of the ‘adjustment path’ towards their MTO and the fiscal requirements of the SGP may face a (lump sum) penalty of up to 0.1 percent of GDP.
Figure 5b.1 Job Guarantee simulations

(a) Employment ratio

(b) Debt ratio

(c) Deficit ratio
(d) Investment

(e) Utilisation

(f) Inflation

(g) Current account balance
Spain pioneered the adoption of Treaty rules in its constitution with an amendment to Article 135 of the Spanish Constitution in September 2011. The amendment specified (1) a ‘principle of a structural balanced budget for the central government and the regions; local governments will also be required to run zero headline balances; (2) a ceiling for public debt of 60% of GDP; and (3) a change in the priority of government expenditures, whereby interest payments and amortisations of public debt will have the highest priority’ (Pascual and Seimen 2012). The amendment was followed by the approval of the *Organic Law on Budgetary Stability and Financial Sustainability* (2012) which is automatically updated to reflect further developments at the European Union level, and endows central government with more power regarding preventative and compliance mechanisms for regional budgets.

For the following model simulations we use Spain’s MTO convergence budgetary plan, as outlined in the 2013-2016 *Stability Programme update* (see European Commission 2012). Spain has been granted a two-year extension (until 2016) to restore the public deficit below 3 percent of GDP. Budgetary projections reveal a (overall) budget deficit of 2.7 percent of GDP in 2016, 4.3 percentage points down from 7 percent in 2012 (excludes the banking sector restructuring measures). The structural deficit is expected to reach 0.2 percent of GDP in 2016.

The fiscal adjustment includes both revenue and expenditure measures, with a largely front-loaded expenditure-based adjustment. Overall, total public revenue to GDP is expected to increase by 0.7 percentage points over the adjustment period, principally from direct tax measures. Total public expenditure to GDP is expected to be cut by 7.3 percentage points. The latter will be associated with a reduction in the share of public expenditure in GDP principally in housing and community services, economic affairs, and leisure activities, culture and religion.

Equation modifications are required to implement Spain’s MTO adjustments. The amendments to the balance sheet and transactions matrix are minor and are not reported.

\[ G^{C,i} = G^i_0 + G^{C,i}_{t-1} (1 - g^i_t) - \sum_{n=1}^{m} \alpha_n G^{C,i}_{n-1} \]  

(59a)
The expenditure-based adjustment requires an amendment to government consumption expenditure in country \( i \), \( G_{i}^{c} \). According to the SGP rules, breach of the 3 percent deficit to GDP implies that growth in government consumption expenditure should already be slowing, \((1 - \dot{G}_{i}^{c}) < 1\). The expenditure-based adjustment \( a_{n}^{E} \), an exogenous variable, in adjustment period \( n \) is added.

\[
YD_{i}^{W} = (1 - \theta_{W}^{i})W^{i} - \sum_{n=1}^{m} a_{n}^{R}T_{n-1}^{i} \left( \frac{\theta_{W}^{i}W_{n}^{i}}{T_{n}^{i}} \right) 
\]  
(13aii)

\[
YD_{i}^{Ca} = (1 - \theta_{Ca}^{i})Y^{Ca,i} - \sum_{n=1}^{m} a_{n}^{R}T_{n-1}^{i} \left( \frac{\theta_{Ca}^{i}Y_{Ca}^{i}}{T_{n}^{i}} \right) 
\]  
(15aii)

\[
PU_{n,i} = (1 - \theta_{P}^{i})PU^{i} - \sum_{n=1}^{m} a_{n}^{R}T_{n-1}^{i} \left( \frac{\theta_{P}^{i}PU_{n}^{i}}{T_{n}^{i}} \right) 
\]  
(139aii)

\[
T^{i} = \theta_{W}^{i}W^{i} + \theta_{Ca}^{i}Y^{Ca,i} + \theta_{P}^{i}PU^{i} + \sum_{n=1}^{m} a_{n}^{R}T_{n-1}^{i} \left( \frac{\theta_{W}^{i}W_{n}^{i}}{T_{n}^{i}} + \frac{\theta_{Ca}^{i}Y_{Ca}^{i}}{T_{n}^{i}} + \frac{\theta_{P}^{i}PU_{n}^{i}}{T_{n}^{i}} \right) 
\]  
(63aii)

The revenue-based adjustment requires amendments to the disposable income of wage earners and capitalists, undistributed net profits and total tax revenue. \( a_{n}^{R} \) denotes the exogenous revenue-based (lump-sum) adjustment in adjustment period \( n \). The effect of the revenue-based adjustment is apportioned according to agents’ contribution to total tax revenue. The implementation of the Job Guarantee also introduces an additional taxpayer. Thus, Job Guarantee workers’ disposable income and the total tax revenue equations also require alteration. Expenditure- and revenue-based MTO adjustment values are reported in Table 5b.3.

\[
YD_{i}^{JG} = (1 - \theta_{JG}^{i})G^{JG,i} - \sum_{n=1}^{m} a_{n}^{R}T_{n-1}^{i} \left( \frac{\theta_{JG}^{i}G_{n}^{JG,i}}{T_{n}^{i}} \right) 
\]  
(19bi)

\[
T^{i} = \theta_{W}^{i}W^{i} + \theta_{Ca}^{i}Y^{Ca,i} + \theta_{P}^{i}PU^{i} + \theta_{JG}^{i}G^{JG,i} + \sum_{n=1}^{m} a_{n}^{R}T_{n-1}^{i} \left( \frac{\theta_{W}^{i}W_{n}^{i}}{T_{n}^{i}} + \frac{\theta_{Ca}^{i}Y_{Ca}^{i}}{T_{n}^{i}} + \frac{\theta_{P}^{i}PU_{n}^{i}}{T_{n}^{i}} + \frac{\theta_{JG}^{i}G_{n}^{JG,i}}{T_{n}^{i}} \right) 
\]  
(63bi)

Table 5b.3 MTO adjustment values: Spain

<table>
<thead>
<tr>
<th>Adj. Period (n)</th>
<th>( a_{n}^{E} )</th>
<th>( a_{n}^{R} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.07688</td>
<td>0.01852</td>
</tr>
<tr>
<td>2</td>
<td>0.00551</td>
<td>0.01250</td>
</tr>
<tr>
<td>3</td>
<td>0.00263</td>
<td>0.03235</td>
</tr>
<tr>
<td>4</td>
<td>0.00654</td>
<td>0.03100</td>
</tr>
</tbody>
</table>

*Note: Author’s calculations from European Commission (2012).*
5b.4.2 Debt brake

The so called ‘debt brake’ is outlined in Article 4 of the Treaty (see European Council 2012b). That is, members in breach of the 60 percent general government debt to GDP requirement must reduce the debt ratio at an average rate of one twentieth (5 percent) per year of the excess percentage points. While members with an ongoing Excessive Deficit Procedure are temporarily exempt from the new debt brake requirements, the general government debt ratio should still be diminishing towards the 60 percent reference value (i.e. the ‘old debt brake’). In Spain there will be a transition period until 2020.

A (simplified) debt brake can be added to the model by adjusting government consumption expenditure \((G^{C,i})\) in country \(i\) (Spain). If the debt to GDP ratio does not exceed the 60 percent reference value in the previous adjustment period, \(n - 1\), the adjustment factor is zero and government consumption expenditure is as defined in (59a(ii)).

\[
G^{C,i} = G^i_0 + G^{C,i}_{t-1}(1 - G^i_t) - \sum_{n=1}^{m} \left( a^n_{i} G^{C,i}_{n-1} + DB^i_n \right) \tag{59a(iii)}
\]

\[
DB^i_n = \begin{cases} 
B^{S,i}_{n-1} \left[ \frac{1}{20} \left( \frac{B^{S,i}_{n-1}}{Y_{n-1}} - 0.6 \right) \right] & \text{if } \frac{B^{S,i}_{n-1}}{Y_{n-1}} > 0.60 \\
0 & \text{if } \frac{B^{S,i}_{n-1}}{Y_{n-1}} \leq 0.60 
\end{cases} \tag{157}
\]

Three points are warranted vis-à-vis the fiscal adjustments: First, the Stability Programme assumes that reductions in deficits and debt will reduce (long-term) interest rates. Recent empirical studies suggest that Eurozone economies face debt threshold effects with respect to high debt ratios and high long-term interest rates largely due to so called ‘market pressure’ (see Baum et al. 2012; Sharpe 2013b). It is unclear from the evidence however that the interest rate effect works in reverse. In the Eurozone, it has not been a reduction in deficit and debt ratios which has reduced long-term interest rates but rather the ECB’s commitment to purchase government securities on the secondary market (i.e. Outright Monetary Transactions). Thus endogenous interest-rate effects with respect to deficit and debt ratios are not considered in the simulations.

Second, the debt brake adjusts government consumption to reduce nominal debt by a specified percentage. There is no assurance that the debt ratio will reach the reference
value since the change in output is not fully incorporated into the adjustment value. The endogenous nature of the deficit and debt ratios highlights the inherent problem with fiscal rules.

Finally, the composition of reductions in government expenditure would need to be considered. However, given that these expenditure cuts are to take place in housing and community services, economic affairs, and leisure activities, culture and religion, it is beyond the scope of this investigation.

Figure 5b.2 illustrates the fiscal adjustment scenarios in country \( i \) (Spain). The impact on country \( j \) (Germany) is negligible and is not reported. The results are expressed as percentage point (p.p.) deviations from baseline values, where MTO\( [db] \) and MTO denote the medium-term objective adjustment with and without the debt brake respectively. Given that the debt brake augments the expenditure-based adjustment when the debt ratio exceeds the reference value, in most cases the debt brake scenarios intensify the MTO adjustment effects.

Initially, the government debt to GDP ratio increases and then declines slightly as the expenditure and revenue adjustments affect aggregate income and government debt respectively. However, as the adjustment begins to work through the economy, the reduction in aggregate income exceeds the fall in debt, and so, the debt ratio steadily increases. This result is consistent with the Stability Programme forecasts to 2016, where Spain’s gross government debt ratio is expected to increase by approximately 8.4 percentage points.
Figure 5b.2 Fiscal adjustment simulations

(a) Employment ratio

(b) Debt ratio

(c) Deficit ratio
While the government deficit to GDP ratio initially falls quickly, as the adjustments continue to work through the economy the aggregate income losses begin to undermine the adjustment process and the deficit ratio subsequently increases. The collapse in national output is evident from the declines in private sector employment. With no Job Guarantee and a fixed labour force, the unemployment rate increases correspondingly.

The noticeable effect of the Job Guarantee is that it stabilises aggregate income, and so, reduces the private sector employment losses. However these losses are matched by a corresponding increase in Job Guarantee employment rather than unemployment. In practice, however, frictional unemployment may still be present.

By stabilising aggregate income, the Job Guarantee also eliminates much of the volatility in the deficit ratio, allowing it to steadily decline over the adjustment period. Further, with the MTO adjustments the rise in the debt ratio is less when coupled with the Job Guarantee.

Interestingly, in the MTO scenario including the debt brake and the Job Guarantee, the government debt to GDP ratio begins to steadily decline below its baseline value as aggregate income losses are slowed and government debt is reduced by the adjustment process. Thus, by stabilising aggregate income or at least slowing its decline, the Job Guarantee allows the fiscal adjustments to reduce the deficit and debt ratios below their baseline values without increasing unemployment.

**5b.5 Conclusion**

Eurozone members have suffered a debilitating loss of policy freedom. This is particularly apparent when government are faced with a systemic demand shock (e.g. GFC).

In this paper we investigate a Job Guarantee as a policy option for periphery Eurozone economies, specifically Spain, faced with high rates of joblessness and deteriorating debt dynamics. To this end, we construct a two-economy stock-flow consistent
macroeconomic model with Euro-system features to unpack the macro-dynamics of a Job Guarantee and fiscal adjustment scenarios.

The simulations reveal: First, the Job Guarantee does not significantly worsen or lead to exploding deficit and debt dynamics. Rather the Job Guarantee promotes a stable base for consumption growth, and increases utilisation and private investment. Further, the Job Guarantee has marginal external balance effects and does not ignite an inflationary spiral.

Second, the Job Guarantee does not inhibit fiscal adjustments geared to reductions in government deficit and debt ratios (e.g. Fiscal Compact requirements), and so, does not necessarily imply high fiscal costs (cf. IMF 2012g). Rather the Job Guarantee offers an automatic stabiliser to buffer the drag from fiscal adjustments, allowing for reductions in government deficit and debt ratios. Most importantly, fiscal adjustments are not accompanied by increased unemployment (and associated social costs) when implemented with a Job Guarantee.
## 5b.6 Appendix

### Table 5b.A1 Parameter values

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \alpha_1 )</td>
<td>Wage earner mpc (real disposable income)</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>( \alpha_2 )</td>
<td>Wage earner mpc (real wealth)</td>
<td>0.015</td>
<td>0.015</td>
</tr>
<tr>
<td>( \alpha_3 )</td>
<td>Capitalist mpc (real disposable income)</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>( \alpha_4 )</td>
<td>Capitalist mpc (real wealth)</td>
<td>0.015</td>
<td>0.015</td>
</tr>
<tr>
<td>( \alpha_5 )</td>
<td>Unemployed mpc (real disposable income)</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>( \alpha_6 )</td>
<td>Unemployed mpc (real wealth)</td>
<td>0.015</td>
<td>0.015</td>
</tr>
<tr>
<td>( \lambda_{10}, \lambda_{40} )</td>
<td>Domestic bonds (demand elasticity)</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>( \lambda_{11}, \lambda_{41} )</td>
<td>Domestic bonds (demand elasticity)</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>( \lambda_{12}, \lambda_{42} )</td>
<td>Domestic bonds (demand elasticity)</td>
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<td>0.3</td>
</tr>
<tr>
<td>( \lambda_{20}, \lambda_{50} )</td>
<td>Foreign bonds (demand elasticity)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>( \lambda_{21}, \lambda_{51} )</td>
<td>Foreign bonds (demand elasticity)</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>( \lambda_{22}, \lambda_{52} )</td>
<td>Foreign bonds (demand elasticity)</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>( TR )</td>
<td>Individual nominal transfer amount</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td>( G_0 )</td>
<td>Autonomous government expenditure</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>( \dot{G} )</td>
<td>Government consumption exp. growth rate</td>
<td>0.048</td>
<td>0.008</td>
</tr>
<tr>
<td>( \theta_W )</td>
<td>Tax rate (wage income)</td>
<td>0.30</td>
<td>0.14</td>
</tr>
<tr>
<td>( \theta_{ca} )</td>
<td>Tax rate (capitalist income)</td>
<td>0.32</td>
<td>0.45</td>
</tr>
<tr>
<td>( \theta_F )</td>
<td>Tax rate (retained earnings)</td>
<td>0.26</td>
<td>0.30</td>
</tr>
<tr>
<td>( r_p )</td>
<td>Long-term government bond rate</td>
<td>0.045</td>
<td>0.016</td>
</tr>
<tr>
<td>( \Omega )</td>
<td>ECB share of banknotes on issue</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>( r^{ecb} )</td>
<td>ECB policy interest rate</td>
<td>0.005</td>
<td>0.005</td>
</tr>
<tr>
<td>( \sigma )</td>
<td>Labour productivity (level)</td>
<td>3700</td>
<td>5342</td>
</tr>
<tr>
<td>( LF )</td>
<td>Labour force</td>
<td>12000</td>
<td>25000</td>
</tr>
<tr>
<td>( \delta^W )</td>
<td>Adjustment factor (wage share)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>( \omega_0 )</td>
<td>Labour unions (elasticity)</td>
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<td>0.5</td>
</tr>
<tr>
<td>( \omega_1 )</td>
<td>Bargaining power (elasticity)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>( \delta^P )</td>
<td>Adjustment factor (profit share)</td>
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<td>0.3</td>
</tr>
<tr>
<td>( \phi_0 )</td>
<td>Market competition (elasticity)</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>( \phi_1 )</td>
<td>Target profit share (elasticity)</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>( \rho )</td>
<td>Maximum utilisation factor</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>( \vartheta )</td>
<td>Depreciation rate (capital)</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>( b_0 )</td>
<td>Capital replacement coefficient</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>( b_1 )</td>
<td>Profit share coefficient</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>( b_2 )</td>
<td>Capacity utilisation coefficient</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>( \psi )</td>
<td>Profit retention rate</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>( f_0 )</td>
<td>Import price constant</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td>( f_1 )</td>
<td>Import price elasticity</td>
<td>0.4</td>
<td>-</td>
</tr>
<tr>
<td>( \kappa_0 )</td>
<td>Export price constant</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td>( \kappa_1 )</td>
<td>Export price elasticity</td>
<td>0.6</td>
<td>-</td>
</tr>
<tr>
<td>( \eta_0 )</td>
<td>Export volume constant</td>
<td>0.3</td>
<td>-</td>
</tr>
<tr>
<td>( \eta_1 )</td>
<td>Relative export price elasticity</td>
<td>0.4</td>
<td>-</td>
</tr>
<tr>
<td>( \eta_2 )</td>
<td>Income elasticity</td>
<td>0.8</td>
<td>-</td>
</tr>
<tr>
<td>( \kappa_0 )</td>
<td>Import volume constant</td>
<td>0.3</td>
<td>-</td>
</tr>
<tr>
<td>( \kappa_1 )</td>
<td>Relative import price elasticity</td>
<td>0.4</td>
<td>-</td>
</tr>
<tr>
<td>( \kappa_2 )</td>
<td>Income elasticity</td>
<td>0.8</td>
<td>-</td>
</tr>
</tbody>
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MMT: contributions and critics

Post-Keynesian economists have responded to the Global Financial Crisis (GFC) by contrasting post-Keynesian and mainstream economics, particularly in the context of the austerity debate and hence the conduct of fiscal policy. Despite a post-Keynesian vision for broadened pluralism, there has been limited formal engagement with principles of Modern Monetary Theory (MMT) in their analysis of post-GFC macroeconomic policy in sovereign and non-sovereign economies. In this paper we argue that the incorporation of MMT principles enhances the post-Keynesian framework. We substantiate this claim by (1) outlining the common theoretical elements which unite post-Keynesian and MMT advocates; (2) addressing the post-Keynesian contentions regarding the MMT interpretation of money and the monetary system; and (3) examining the differing perspectives on the role of fiscal policy vis-à-vis macroeconomic stability and the achievement of sustained full employment, with particular reference to pump-priming and the Employer of Last Resort.
6.1 Introduction

Mainstream economics has faced intense scrutiny since the advent of the GFC, particularly in the light of the weak recovery of many developed economies, but the responses of policymakers suggest that the hegemony of mainstream economics remains largely intact. Post-Keynesian economists have responded with a flood of journal articles, many within special issues (e.g. *Cambridge Journal of Economics*, vol. 36(1) and vol. 37(3); *International Journal of Political Economy*, vol. 41(2); *Review of Keynesian Economics*, vol. 1(1)), which address the relationship between (post-) Keynesian and mainstream economics, particularly in the context of the austerity debate and related debates over the role and conduct of fiscal policy.

In a recent symposium, Lee (2012:348) calls for ‘strengthening the foundations of the future of heterodox economics.’ King (2012:305) opines that ‘Post-Keynesians should remain open to ideas from other heterodox traditions…’ Further, there is the need to become more engaged with policymakers (Vernengo 2010).

The vision for a broadened pluralism does not appear to extend to the integration of Modern Monetary Theory (MMT) or neo-chartalist principles into the post-Keynesian discourse. A lone voice in the above journals, Lavoie (2012:332), argues:

‘[T]he so-called modern monetary theory is a result of an in-depth study by some neo-chartalist Post-Keynesian authors of how the payment system operates. While one may not agree with all the implications that are drawn by neo-chartalists [see Lavoie 2013], their detailed institutional analysis reinforces Post-Keynesian monetary theory and our comprehension of policy failures.’

While MMT appears to have gained additional adherents, consisting of both academics and lay people, and has engaged with leading US orthodox economists via blogs since the advent of the GFC, there has been limited formal engagement with MMT principles by post-Keynesians in their analysis of post-GFC macroeconomic policy.
There has been a series of critical papers over the last decade or so by post-Keynesians which explore the MMT theoretical and policy framework. Rossi (1999); Parguez and Seccareccia (2000); Merhling (2000); Gnos and Rochon (2002); Van Lear (2002-03); Rochon and Vernengo (2003); Febrero (2009); Fiebiger (2012) and Lavoie (2013) challenge monetary perspectives, and the operation of an Employer of Last Resort (ELR) scheme to achieve full employment is subject to criticism (see Lopez-Gallardo 2000; Aspromourgos 2000; Kadmos and O’Hara 2000; King 2001; and Sawyer 2003, 2005). Palley (2013) offers a particularly hostile and ill-founded critique of the general MMT discourse (see also Tymoigne and Wray 2013 for a response).

In this paper we argue that the incorporation of MMT principles enhances the post-Keynesian framework, principally with respect to understanding the distinction between sovereign and non-sovereign economies, the role of the payments system and the implications for the conduct of macroeconomic policy, all of which have assumed increased importance since the beginning of the crisis.

Section 6.2 outlines the common theoretical elements which unite post-Keynesian and MMT advocates, and then canvasses some important points of difference. Section 6.3 addresses the post-Keynesian critiques arising from the MMT interpretation of money and the monetary system. Section 6.4 examines the post-Keynesian and MMT perspectives on the role of fiscal policy vis-à-vis macroeconomic stability and the achievement of sustained full employment. Concluding remarks complete the paper.

**6.2 Broad consensus and specific departures: post-Keynesianism and MMT**

We briefly explore common theoretical principles unifying post-Keynesian and MMT advocates. MMT and post-Keynesian economists accept the distinction between uncertainty and risk, and also recognise the time-varying influence of ‘uncertainty aversion’ over key macroeconomic parameters, including the marginal propensity to consume, the marginal efficiency of capital, and the preference for liquid over illiquid assets.

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106 The terms ‘Employer of Last Resort’ and ‘Job Guarantee’ are interchangeable.
Both post-Keynesians and MMT advocates acknowledge the crucial importance of the point-of-effective-demand in determining the level of involuntary unemployment and rate of capacity utilisation. This was first set out in Keynes’s Z, D analysis in *The General Theory*. The point of effective demand represents a coincidence of the desired and actual remuneration flowing to firms. It defines an equilibrium in the sense that expectations are fulfilled and firms have no incentive to vary their levels of employment.

Post-Keynesian and MMT economists also agree that the money supply is endogenous. In a modern credit-based economy, the money supply expands or contracts automatically to meet the demand for money balances, unless there is credit rationing. Hence mainstream (financial) crowding-out theory is also rejected.

These schools of thought share the view that there are, at best, negligible self-correcting mechanisms (i.e. Pigou effects) at the macroeconomic level that would be initiated by a fall in the general price level (cf. Palley 2013:8-13). The Fisherian view that most contracts are denominated in nominal rather than real terms, has major distributional consequences that are ignored by the real balance effect, which is predicated on a general fall in prices raising real levels of wealth in general, and money balances, in particular. Minsky emphasises the process of debt-deflation and generalises it to situations in which economic growth and stability are endogenously undermined by rising financial fragility due to a loss of diversification, a deferment of (present value) break-even times, and increasing reliance on external rather than internal sources of finance, by corporations and/or households.

Post-Keynesians and MMT advocates acknowledge that the capital debates instigated by Robinson and Sraffa undermined the role played by marginal productivity theory in the explanation of income distribution, optimal growth, and the neutrality and super-neutrality of money. Robinson’s original argument that Ricardo’s pursuit of a standard commodity (an artificial construct with a value that is invariant to shifts in the distribution of income between capital and labour) is a ‘will-o-the-wisp’, has been extended by MMT proponents who emphasise that the absence of a unique and
invariant numéraire justifies the government’s role in setting nominal anchors for both rates of return and the general level of prices, through the determination of the overnight cash rate and the minimum wage, respectively.

Finally, post-Keynesians and MMT advocates agree that government debt comprises real wealth to the non-government sector. While similar views have been promoted by certain New Growth Theorists, for whom externalities deriving from public infrastructure are claimed to boost private sector productivity, MMT advocates take this notion further by arguing that a wider range of social benefits can be derived from employment based on ELR principles.

Notwithstanding the broad theoretical consensus, many post-Keynesians have reservations about MMT views and policy prescriptions, which surprise some MMT advocates (see, for example, Fullwiler et al. 2012:17). Lavoie (2013:5) suggests that this uneasiness ‘may, in part, be attributed to their [post-Keynesians] unwillingness to entertain the mechanics of the clearing and settlement system as well as the horizontalist position’, even though he argues that more transparent Central Bank procedures have vindicated the horizontalist position, and also improved our understanding of the clearing and settlement mechanics (see, for example, BoE 2013).

MMT proponents make the distinction between a sovereign and non-sovereign economy. In the former, the consolidated government sector (Treasury and Central Bank) issues a fiat, non-convertible currency and operates with a flexible exchange rate (e.g. Australia, US, UK and Japan). A flexible exchange regime allows for discretion regarding any foreign exchange market interventions (i.e. monetary independence). As the issuer of currency, the consolidated government sector can always meet national currency denominated debt obligations (Watts and Sharpe 2013).

By contrast, a government that pegs its currency or dollarizes must cover both the relevant overseas interest rate(s) plus any risk premia that may be imposed by the market due to fears of default or a delay in repayment. Thus, nations with pegged or fixed currencies can end up in a Ponzi situation where they must borrow to pay the
interest on their lending and have little or no prospect of repaying any principal in the face of escalating borrowing rates.

MMT advocates depart from some of their post-Keynesian colleagues by: (1) advocating the consolidation of Treasury and Central Bank functions for purposes of exposition, thereby highlighting the key features of a modern monetary system, as summarised above; (2) introducing a distinction between vertical transactions (between government and non-government sectors) and horizontal transactions (between banks, households and firms); (3) arguing that unemployment arises because the government has failed to create enough net financial assets (through deficit spending) to meet the non-government sector’s desire to net save; (4) suggesting that concerns about the rising levels of national currency denominated debt are misplaced for economies which enjoy full fiscal-monetary sovereignty; and, consequently have greater scope for effective macroeconomic policy interventions; (5) eschewing traditional Keynesian policies of pump-priming and large scale public investment which typically run into inflationary bottlenecks before full labour utilisation has been achieved; and (6) advocating instead an Employer of Last Resort (ELR) policy. An ELR acts as an effective anti-inflationary mechanism and, as a means for eliminating lags in the conduct of active fiscal policy. We return to these areas of debate throughout the paper when we consider the arguments of post-Keynesian critics of MMT.

6.3 Money and the monetary system

The origin and nature of money has, for centuries, proved to be a controversial and difficult topic. Post-Keynesians accept that money is endogenous and so the creation of bank money (demand deposits) is not constrained by state money (reserves) (Parguez and Seccareccia 2000; Nesiba 2013). Further, Mehrling (2000:404) notes that ‘practical chartalism is fairly universally accepted economic doctrine these days.’ However, Nesiba (2013) suggests that disagreement remains among post-Keynesians (and Institutionalists) and MMT advocates regarding the degree to which Chartalism is applicable to the contemporary financial system. In particular, there has been some
criticism regarding the use of the term *leverage*, the reference to a *hierarchy of money* and the *value of money* within MMT analysis (see Sections 6.3.1, 6.3.2). Furthermore, the MMT consolidation of the Treasury and Central Bank, termed the ‘state’, has been criticised (see Section 6.3.3).

6.3.1 *Hierarchy of modern money*

Parguez and Seccareccia (2000:120) are critical of suggestions by some MMT authors that ‘bank money is hierarchically inferior or subordinate to state money’ and ‘[b]anks’ credit activity is a leverage on the existing stock of state money.’ Febrero (2009:532) maintains that ‘neo-chartalists use the term leverage to mean that (1) fiat money logically precedes bank credit money and/or that (2) private banks can create money if they have previously collected a certain amount of state money.’ Both interpretations are incorrect.

Febrero’s (2009:532) first assertion has a *chronological* basis, namely that bank money predates state money.¹⁰⁷ In modern economies, very few commercial banks can issue their own private banknotes. Some commercial banks in Scotland and Northern Ireland are an exception, but the Banking Act (2009) requires that these liabilities are asset-backed (perhaps by pound denominated Treasuries, i.e. a form of state money). Wray (2007:6) makes the simple point that this and other examples do not challenge ‘the argument that the most common and important arrangement in modern capitalist countries today follows the model described by Innes and Knapp [i.e. chartal money].’

Febrero’s (2009:532) second assertion has a *transactional* basis. Here, the temptation is to interpret ‘leverage’ in the usual finance sense. For example, Rochon and Vernengo (2003:61) deduce that ‘[f]or chartalists, state money is exogenous, and credit money is a multiple of the former.’ Febrero’s (2009:533, footnote 14) comment suggests he also had the ‘money multiplier’ in mind: ‘[S]ome countries, such as Canada and New Zealand, for instance, have zero reserve requirements. How can we explain the working of these monetary systems out of leverage on fiat currency?’

¹⁰⁷ The MMT interpretation of the origins of money has also been criticised (see Wray 2012 for the MMT view).
MMT advocates emphatically reject the standard money multiplier model (see Watts and Sharpe 2013). Leverage denotes the positional advantage of state money in what is referred to as a ‘debt-pyramid’ or ‘hierarchy of money’ (see Bell 2001; Tymoigne and Wray 2013:37). The hierarchy of money describes the relationship between state money, bank money and other privately issued IOUs. Wray (2003:87) is clear:

‘When a private party issues a liability there is a clear “hierarchy of monies”…one must retire one’s liability by delivering another liability – usually, one issued by an agent higher in the hierarchy. Liabilities of firms are mostly extinguished by delivering liabilities of banks; and banks extinguish their liabilities by delivering liabilities of the central bank.’

MMT maintains that state liabilities (reserves) are positioned at the top of the hierarchy, since ‘[n]o other economic agent can issue liabilities that represent final means of payment for itself’ (Wray 2003:98). While ‘state’ often refers to Government/Treasury (e.g. Parguez and Seccareccia 2000), MMT often consolidates the Government/Treasury and Central Bank, which is referred to as the ’state’, for purposes of exposition (see Section 6.3.3).

Gnos and Rochon’s (2002:48) argument that ‘contrary to what chartalists claim, the public in no way has to worry about obtaining state money in order to pay taxes. They just have to pay with bank money and the central bank will then do its job’ is in fact consistent with MMT analysis.

‘When one uses a bank liability to pay “the State”, it is really the bank that provides the payment services, delivering the State’s fiat money which results in a debit of the bank’s reserves. When the State spends, it provides a check which once deposited in a bank leads to a credit to the bank’s reserves [vertical transaction]…Note that payments using bank money within the private sector merely cause reserves to shift pockets from one bank to another [horizontal transaction]…’ (Wray 2003:91).

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The MMT distinction between *vertical* (between government and non-government sectors) and *horizontal* (within the non-government sector) transactions is used to illustrate the hierarchy. While the horizontal dimension is consistent with circuit theory, MMT emphasises the importance of the state to capture the role of vertical transactions (see Mitchell 2009d). To avoid unwarranted conclusions, however, this terminology should not be confused with verticalism and horizontalism along the lines of Moore (1988).

6.3.2 Value of modern money

The MMT perspective on the value of money has also been criticised. Parguez and Seccareccia (2000:118) argue that ‘by varying the public’s tax liability, it is assumed [by MMT advocates] that the state can even determine the value of money.’ Febrero (2009:523) interprets the MMT view along the lines that ‘money has value because it is what the state accepts for tax discharge’ and ‘the state has the ability to determine the value of money’. Mehrling (2000:402) concludes; ‘the [MMT] argument that the power to tax is the source of money’s value does not seem very compelling’ (see also Palley 2013:2-3).

For circuitists, ‘[m]oney exists and has a value only as long as it is spent by non-bank agents for the purpose of creating future wealth’ (Parguez and Seccareccia 2000:105). Critical of the MMT view, Parguez and Seccareccia (2000:119-120) conclude that ‘[t]he state can endorse central and/or private bank liabilities, but it cannot impose the value of money.’

Wray (2003:89) follows Knapp insisting that ‘the State is liable only to accept its fiat money in payments made to itself.’ These payments consist of taxes, fees, fines, and interest, but taxes are the most significant. Wray (2003) is critical of acceptance by *social convention* since it relies on an infinite regress, so it is not clear how the

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108 Juniper and Mitchell (2008) show that the creation of sufficient net financial assets to meet the non-government sector's desire to net save is simply the 'other side of the coin' to creating sufficient effective demand to achieve full employment through deficit spending.

109 Lavoie (2013:6-7) highlights the extent of agreement between MMT advocates and horizontalist post-Keynesians and circuitists, with respect to monetary theory (see also Parguez and Seccareccia 2000:110-111).
convention was established. Acceptance based on legal tender laws along the lines of Schumpeter (1954) is also dismissed (see Tcherneva 2006).

For modern sovereign economies with a flexible exchange rate ‘it is the acceptance of the paper money in payment of taxes and the restriction of the issue in relation to the total tax liability that gives value [purchasing power] to the paper money’ (Wray 1998:23). ‘[I]f government money in circulation far exceeds the total tax liability, the value of the currency will fall. So it is not only the requirement to pay taxes, but also the difficulty of obtaining that which is necessary for payment of taxes, that give money its value’ [emphasis in original] (Tcherneva 2006:80).

Thus Mehrling’s (2000:402) understanding of the MMT position and Febrero’s (2009:523) first assertion are incomplete. This may arise from a simple misinterpretation. For example, arguing that ‘[money’s] value stems from the powers of the money-issuing authority’ [emphasis in original] (Tcherneva 2006:75) is different to arguing ‘the power to tax is the source of money’s value’ (Mehrling 2000:402). These are important semantics.

Notwithstanding this, Mehrling (2000:403) argues ‘[t]he fact that the state is the issuer of the ultimate domestic money does not mean that it has the ability to set the price level or the rate of interest as an exogenous policy datum.’ First, the Central Bank can and does set the rate of interest (e.g. the interbank rate) as an exogenous policy datum. Further, a sovereign economy has an inherent ability to set the interest rates on all national currency denominated government debt via a commitment to purchase unlimited quantities at the desired price (Fullwiler and Wray 2010). Second, ‘the ability to set the price level’ should not be interpreted as setting the general price level, but it relates to setting the nominal anchor for the general price level (i.e. the minimum wage).

On determining the value of money Parguez and Seccareccia (2000:120) note that ‘neo-chartalists seem to identify a positive relation between the value of money and the amount of tax liability in an economy…’ The authors argue that ‘consequential to the
value of money is primarily the ability of state [government] expenditure to increase the real wealth of society either directly, through the production of public goods, or indirectly, through their capacity to foster private investment expenditures.’

MMT authors would agree that the government can influence the value of money via its expenditure decisions, but its taxing decisions can also influence this value. ‘Taxation, in a sense, is a vehicle for moving resources from the private to the public domain’ (Tcherneva 2006:77; Lerner 1943). Thus government taxes and spending decisions can determine/influence both directly and indirectly the value of money by affecting the non-government sector’s capacity to generate future real wealth. In this sense, circuitist (Parguez and Seccareccia 2000) and MMT views on the value of money are similar.

6.3.3 Consolidation of Central Bank and Treasury

The MMT characterisation of the nexus between fiscal and monetary operations has been challenged by some post-Keynesians. By consolidating the Treasury and Central Bank, MMT advocates are alleged to misrepresent the capacity of governments to conduct fiscal policy in sovereign economies which have voluntarily adopted particular institutional arrangements, sometimes in the form of legislation (see, for example, Gnos and Rochon 2002:48; Van Lear 2002-03:254). On the other hand, Parguez and Seccareccia (2000:106) argue that the Central Bank as ‘the ultimate purveyor of liquidity…empowers commercial banks to lend their own debt to credit worthy borrowers without constraint. At the same time, the [government] is now entitled to finance its desired expenditures by credits granted by the central bank.’ The essence of the consolidation issue is how these credits are first obtained.

Lavoie (2013) offers a coherent analysis of the consolidated Treasury and Central Bank within MMT. Using a balance sheet illustration, he highlights the prevailing institutional arrangements in the US. Both he and Fiebeger (2012) argue that the level of Treasury deposits at the Federal Reserve limits the Treasury’s capacity to net spend unless more borrowing is undertaken. While the Federal Reserve has the capacity to create credit, it is explicitly precluded from operating in the primary market for Treasury bonds. The need to obtain finance from issuing bonds to the non-government
sector is alleged to rebut the MMT claim that bond sales are principally an interest rate maintenance mechanism.

Hence the consolidation of the Treasury and Central Bank would hide the reality that, in the US at least, the government must borrow from the non-government sector when it deficit spends. But despite the initial need to sell Treasury Bills to the non-government sector, the balance sheet outcomes are the same because the Central Bank subsequently purchases Treasury Bills from the Commercial Banks on the secondary market. Lavoie (2013:17) then chastises MMT advocates for ‘presenting counter-intuitive stories, based on abstract consolidation, and an abstract sequential logic, deprived of operational and legal realism.’

MMT proponents acknowledge that sovereign economies, such as Japan and the USA, have adopted measures to prevent their Treasuries from obtaining credits to their deposit accounts at the Central Bank by selling debt to the Central Bank on the primary market.

Sovereign economies, such as Australia, New Zealand, Canada and the UK, are not subject to legal restrictions on their Central Banks participating in the primary market for government debt (Jácome et al. 2012). Lavoie (2013:16) acknowledges that Canada has the highest degree of currency sovereignty since its Central Bank is unregulated, its debt is denominated in Canadian dollars and there is a pure currency float. The Bank of Canada has also been an active participant in Treasury Bill auctions.

Further, debt management arrangements in the UK and Australia have changed in the last 30 years. For example, HM Treasury, via the Debt Management Office, chooses to fully fund its financing requirement by selling debt in line with a pre-announced schedule, which can be revised. The following rationale is provided:

‘[T]he Government believes that the principles of transparency and predictability are best met by full funding of its financing requirement; and to avoid the perception that financial transactions of the public sector could affect monetary

\[110\] It is important to note that this exercise is balance sheet accounting not theory (Tymoigne and Wray 2013:27).
conditions, consistent with the *institutional separation between monetary policy and debt management policy*’ [emphasis added] (HM Treasury 2012:8).

Post-Keynesian economists and advocates of MMT would acknowledge that no single model can capture the different institutional arrangements prevailing in these economies. But, the relevant question to ask is whether the MMT depiction of the operation of fiscal policy misrepresents the intrinsic features of a modern monetary system within a sovereign economy.

In fact, the MMT academic position has always been more nuanced than the discussion found in blogs to a different target audience (see Bell 2000, 2002; Bell and Wray 2002-03). Bell (2000) argues that Treasury may coordinate spending, taxing and bond sales to reduce fluctuations in bank reserves within the private banking system, and hence reduce the need for more extreme monetary management. However, it is not evident why it is necessary to avoid the ‘perception that financial transactions of the public sector could affect monetary conditions’ unless it is considered appropriate to mislead the public as to the fiscal capacity of a government with full fiscal-monetary sovereignty.

The irony is that there is no interest rate corridor in either the US or the UK interbank markets, so the target (official) rate and the rate paid on reserves are equal. Thus the interbank rate does not deviate from its target rate, unless reserves are scarce, and hence there is no imperative to mop up excess reserves via bond sales (Watts and Sharpe 2013).

Notwithstanding prevailing institutional arrangements, a Treasury within a sovereign economy is not budget constrained, unless the Central Bank can veto its proposed spending or there is a political constraint, such as a debt limit. The first proviso would imply that the incumbent political party had ceded all responsibility for the conduct of macroeconomic policy to its independent Central Bank which is divorced from the democratic process. The inability of the Central Bank to operate in the primary market does not financially constrain a Treasury which sells government securities
denominated in its own currency. ‘[T]he only limit on sovereign government expenditure lies in the productive capacity of the economy in the context of planned private sector spending...’ (Watts and Sharpe 2013:78).

The assumption of a consolidated Treasury and Central Bank, however, cuts through a lot of complexity within the MMT discourse to reveal the intrinsic features of a modern monetary economy (see also Tymoigne and Wray 2013:13-14). In doing so, MMT advocates ‘raise fundamental questions about the role of government in advanced capitalist economies’ (Pilkington 2011). By reframing the terms of the debate, MMT advocates have been successful in attracting many non-academic supporters.

While MMT advocates ‘have no say in obscure institutional practices between certain Treasuries and their Central Banks’, their failure to pose these profound questions would be a major error, equivalent to ‘Friedman fleeing from his prescriptions for controlling the money supply because central bankers were then not adopting this approach’ (Pilkington 2011).

MMT advocates would acknowledge the distinction between MMT as rhetoric and as scholarly practice in which, for example, the distinction can be clearly made between a government with full fiscal-monetary sovereignty which chooses to engage in debt management practices, ostensibly due to the need for accountability, transparency and to reduce the scale of monetary management, and a Eurozone economy which does not enjoy full policy sovereignty and faces the possibility of insolvency.

6.4 Fiscal policy and full employment

To structure our analysis of recent post-Keynesian literature, we apply two tests: First, in their post-GFC commentary on the conduct of macroeconomic policy, do post-Keynesians distinguish between sovereign economies which enjoy full fiscal-monetary sovereignty, and others, in particular Eurozone economies, which do not? Second, while post-Keynesians generally oppose austerity measures, do they rely on an unspecified degree of pump-priming to achieve higher levels of economic activity, rather than
committing to sustained full employment, defined as the level of employment at which vacancies exceed unemployment (Beveridge 1944)? We then explore the debate about the merits of an Employer of Last Resort (ELR) or Job Guarantee scheme to achieve sustained full employment.

6.4.1 Post-crisis fiscal policy

King et al. (2012:2) fail to differentiate between sovereign and non-sovereign economies, by arguing that ‘[r]egardless of the fact that the high level of sovereign debt was, to a large extent, attributable to bank bailouts and their economic consequences; the financial markets soon resumed speculation against nation states, creating a growing “sovereign debt crisis”.’ Also, ‘risk premia on the sovereign debt of weaker countries’ have contributed to rising fiscal deficits (King et al. 2012:9; see also Rochon and Vernengo 2003:66). ‘Weaker’ is undefined, so it could refer to a country with a large debt to GDP ratio, such as Japan, which continues to experience 10 year bond rates of under 2 percent.111 Arestis and Sawyer (2012:148) acknowledge that ‘appropriate government deficits do not present financial risks’, but are unclear in this and other published work as to what ‘appropriate’ is (see, for example, Sawyer 2003, 2010). Sawyer (2012) does agree with functional finance principles so that, in contrast to say Greece, the UK government can always service its debt (see also Sawyer 2010).

Taylor et al. (2012:189) note that in 2010, US economic debate was obsessed with the impact of fiscal policy on economic performance. They fail to make the distinction between sovereign and non-sovereign economies, noting that ‘with historically low interest rates in mid-2011, no vigilantes could be seen on the horizon of the US economy’ (Taylor et al. 2012:190). A countercyclical response of the primary deficit to growth is found, with higher deficits stimulating faster growth, particularly during recessions, but with minimal impact on interest rates. Given the political aversion to raising primary deficits, Taylor et al. (2012:204) advocate the exploitation of the balanced budget multiplier, which can only sustain positive net private sector saving if

111 Van Lear (2002-03:261, footnote 11) does not recognise Japan to be a sovereign economy, suggesting ‘[t]he sustainability of government budget deficits is prompting bondholders to sell government bonds, raising the state’s financing costs.’
the US runs a current account surplus. Further a balanced budget strategy may well entail a high tax and government expenditure share of GDP.

Crotty (2012:91) argues that ‘[t]o address the [US] deficit problem over the coming decade, we need to restrain expenditure as well as raise tax revenue, but other than in defence spending and health care, the gains from sensible spending cuts are limited.’ Further, ‘[b]y raising rates and cutting loopholes we could generate much greater tax revenue from both the individual and corporate income taxes to lower the deficit and finance essential government programmes’ (Crotty 2012:92). Also in reference to the USA, Pollin (2012a:74) argues that ‘[t]he reality of low interest rates, in particular, also greatly alleviates concerns about worsening long-term debt burdens’. He outlines a longer term deficit reduction strategy, which is designed to balance the operating component of the budget (see also Pollin 2012b).

Boyer (2012:307) fails to make a clear distinction between sovereign and non-sovereign economies: ‘[T]his does not mean that many countries do not need to consolidate their public finances; however, such a strategy has to be planned over a sufficiently long time horizon’. King et al. (2012:6) concur, arguing that when the recovery is fully underway, national debt as a proportion of GDP would decline.

From these articles, it appears that (1) bond vigilantes can and will drive up interest rates of any nation state; and (2) long-term deficit/debt reduction is an appropriate policy objective. Ireland, Greece, Portugal and Spain, all recipients of IMF/ECB/EC supported (bailout) loans, experienced a significant decline in their 10 year government bond rates following an announcement of Outright Monetary Transactions by the ECB in September 2012. Thus, a sovereign Central Bank has the capacity to manipulate yields on long-term government debt, notwithstanding the sentiment of international investors.

In a recent Special Issue of the Cambridge Journal of Economics (vol. 37(3) 2013), the economic prospects for the Eurozone countries are assessed. The contributions note the deeply flawed institutional and governance structure of the Eurozone, particularly as it
relates to the conduct and powers of the ECB and the imperative for fiscal austerity measures for most countries, which are reinforced in the *Treaty on Stability, Coordination and Governance* (2013) (Blankenburg et al. 2013).

Contributors to the Special Issue do not have a common view as to why policy reform is necessary. ‘The present crisis arises from structural disequilibria linked to the heterogeneity of member countries and permanently asymmetric patterns of development’ (Mazier and Petit 2013:521; see also Simonazzi et al. 2013:653). The inference is that a monetary union is a viable model if members are homogeneous and remain so. However, while Eurozone countries each need to run current account surpluses to stimulate their economies, in the absence of a medium-term private sector recovery, sustained full employment is unlikely, since the Eurozone architecture does not encompass fiscal union, which is a necessary, but not sufficient condition for sustained full employment (Watts et al. forthcoming).

Both Toporowski (2013) and Bellofiore (2013) briefly explore the economics of a Eurozone breakup, with currency sovereignty restored to the departing Eurozone member. Toporowski (2013:582) argues that ‘there exists no ‘optimal’ exchange rate that would satisfy both the needs of trade and the maintenance of stable balance sheets’. Bellofiore (2013:509) is equally pessimistic maintaining that a devaluation after leaving the Eurozone would generate an untenable debt burden, in the absence of ongoing primary budget surpluses.

Neither author recognises the consequences of fiscal-monetary sovereignty being restored to the departing country, so that the Euro-equivalent value of domestic (bank) deposits and financial asset holdings of banks could be guaranteed, and primary budget surpluses would not be required for fiscal sustainability. However attempts to restore the Euro-equivalent value of wages would promote high inflation of both a cost push and demand pull variety, with the latter likely due to capacity constraints from the enforced recession. Careful use of (wage) income and consumption-based tax cuts could encourage domestic consumption without promoting inflation (Watts et al. forthcoming). Capacity constraints can be alleviated by new investment and an ELR
program which would underpin domestic demand (see Mitchell and Watts 2013). Independent monetary policy can also be restored.

This cursory account of the Special Issue does not do justice to its content, but we plead space restrictions. In their discussions of government debt and deficits and a Euro exit the aforementioned authors do not acknowledge the policy freedoms of sovereign economies as distinct from the constraints of Eurozone members, and what this implies for the achievement of sustained full employment. This is a key contribution of MMT.

6.4.2 Pump-priming to achieve full employment

(Post-)Keynesians generally advocate an unspecified amount of aggregate demand stimulus (pump-priming) to achieve full employment. The key problem with traditional Keynesian policies of ‘pump-priming’ or public investment relates to the threat of rising inflation. MMT/ELR advocates claim that these traditional policies, even when public investment is supplemented by training to improve job matching, will encounter inflationary bottlenecks well before full labour utilisation has been achieved. This problem arises from the unevenness and persistence of existing patterns of regional underemployment and unemployment.

In private correspondence in September 2013, referring specifically to the UK, Sawyer maintained that ‘full employment requires the creation of sufficient productive capacity appropriately located; fiscal policy has to be supported by industrial and regional policies’. Post-Keynesians have also acknowledged the distributional constraints associated with pump-priming (see Aspromourgos 2000; Kadmos and O’Hara 2000; Sawyer 2003; Arestis and Sawyer 2012; and US policies devised by Pollin 2012a,b).

The UK government, however, appears to have embraced the OECD argument that, in response to a major demand shock, ongoing stimulus measures are inappropriate due to the reduced level of potential output.\footnote{OECD (2009c:219) asserts that, following a deep recession, the rise in unemployment is partially translated into higher structural unemployment (and lower potential output) via hysteresis effects, but ‘hysteresis effects are asymmetric in the sense that they tend to raise the NAIRU when unemployment rises, but do not lower the NAIRU when unemployment falls’ (OECD 2009c:230). Thus, by exaggerating the impact of the deep recession on potential output, via an asymmetric hysteretic process, the OECD can...} Sawyer (2012) is critical of the fiscal austerity...
measures conducted in the UK since the GFC (see also Fontana and Sawyer 2012), and questions whether potential output has declined and why it cannot be restored by stimulus measures. He argues that automatic stabilisers should be strengthened through a more progressive tax regime and investment is necessary to shift out the inflation barrier, but the mechanism by which it is correctly provisioned is not spelled out.

Sawyer views ‘inflation as more driven by global factors, and largely outside the control of national authorities’. This means that ‘incomes policy could be a useful way to limit the spill over effects of global inflation into national inflation’. The shift to incomes policy should be accompanied by the use of monetary policy to achieve financial stability (see also Arestis and Sawyer 2013). Tymoigne and Wray (2013) concur.

Arestis and Sawyer (2013) need to explain how the use of incomes policy will impose a sufficient sanction on the inflationary process, when all workers are paid market wages in a fully employed economy (Mitchell and Wray 2005:241-243).

Pump-priming suffers from other problems. Palley (2013:27) lucidly explains that discretionary fiscal policy is blighted by the presence of well-known inside and outside lags (Friedman 1948). Pump-priming also causes a more inequitable income distribution if it favours rentier incomes, profits and high wage workers, and fails to ‘trickle-down’ to address low-wage employment or structural unemployment of low-skilled workers (Tcherneva 2011).

While Keynes’ approach to full employment is often framed in terms of closing Okun’s output gap, the issue is deficient demand for labour (Tcherneva 2012). ‘Keynes specifically endorsed labor-demand targeting policies in the form of direct job creation for the unemployed that would be implemented irrespective of the phase of the business cycle’ (Tcherneva 2012:58). The ELR, to which we now turn, presents a contemporary approach to sustained full employment which is consistent with Keynes’ recommendations.

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justify at best short-term fiscal stimulus measures. The higher unemployment, which is mainly structural, then reaffirms the need for further structural reform (OECD 2009:214).
MMT advocates, including Mitchell (1998), Wray (1998), Forstater (1998) and Mosler (1997-98) argue that, by exploiting the policy freedoms of a sovereign economy, an ELR or Job Guarantee offers the best option for sustained full employment and price stability. We briefly summarise the key properties of an ELR before addressing some of the criticisms.

The ELR offers a job at a fixed money wage (including a benefit package) to any individual ready, willing and able to work. ELR employees can undertake up to say 35 hours of work per week or less if preferred, so job creation is perfectly calibrated to the degree of labour underutilisation. The buffer stock of ELR jobs expands (declines) when private sector activity declines (expands). A smooth transfer of labour between sectors occurs, because (i) ELR workers are paid the minimum wage (the numéraire) to avoid upsetting the private sector wage structure (cf. Palley 2013) and (ii) ELR workers are job ready which reduces hiring and on-the-job training costs and skill atrophy, and hence the hysteretic inertia embodied in the long-term unemployed. Thus the ELR addresses uneven and persistent labour underutilisation and minimises the personal/social costs, from unemployment or reduced work hours. Private sector employers paying minimum wages are likely to face greater competition for workers which may promote job restructuring and higher productivity. Policy lags can be largely eliminated through the rapid creation of employment opportunities (see below). Also, it would be unnecessary to ‘subsidise’ vulnerable firms when ELR opportunities are readily available.

The ELR has an inbuilt anti-inflationary framework because wage-differentials serve to discipline the inflationary process. In contrast to the unemployed, ELR workers are a credible threat to current private sector employees. Thus employers are more likely to resist inflationary wage demands from current employees. If inflation does exceed the government’s announced target, tighter macroeconomic policy would lead to workers being displaced from the inflating private sector to the fixed price ELR sector which imposes a sanction, in the form of income loss. The ability of government to control these wage differentials, through both the adoption of solidaristic incomes policies and
the setting of a minimum/liveable wage, thus provides a superior mechanism for the control of inflation.


The design of ELR jobs is often criticised because (i) in the absence of benefits, the unemployed are forced to take ELR jobs even if the positions do not accord with their preferences and skills, which raises the spectre of invisible underemployment (Sawyer 2003: 894-897) or there may be insufficient low-skilled ELR jobs (Sawyer 2003:891); (ii) the ELR wage is not ‘market’ determined due to its function as a numéraire; (iii) wages in public sector jobs can be undercut by ELR wages (Sawyer 2003:893); and (iv) the flux in the number of ELR jobs can undermine the ongoing provision of important (social) services (Sawyer 2003, 2005). We now address each criticism.

No realistic job creation scheme can match jobs to the preferences and specific skills possessed by the labour force. Nesiba (2013:55) incorrectly interprets the ELR as a ‘work-for-the-dole scheme’ which he claims would be repugnant to many on the left (see also Ramsay 2002-03:283). The ELR provides ongoing employment at the minimum wage and attracts the usual working conditions, including annual leave and superannuation. The ‘left’ has every right to complain about the imposition of compliance regimes such as Work for the Dole, in an environment of insufficient jobs. The ‘left’ has not devised a coherent strategy by which to generate an adequate supply of jobs to match the desires of the working age population in an environment of stable inflation. The distinctive feature of an ELR is that all workers enjoy employment security which is a quid pro quo for earning the minimum/liveable wage for an indeterminate period, as opposed to being unemployed. King (2001) considers different forms of employment and income support, but considers all of them impractical and settles on the ELR as the ‘last resort’ (see also Nesiba 2013).
MMT advocates are accused of political naivety with their full employment policy. Yet it is drawing a long bow to argue that, in the presence of sufficient jobs, political and public opinion would support an unemployed person having the choice of taking up a minimum wage job or receiving benefits or *Basic Income* (see Cowling et al. 2006).

Cook et al. (2008) surveyed council economic development officers and found that a wide range of jobs, many with low skill requirements, could be created under an Australian ELR. Thus, rather than creating jobs to absorb the unemployed, ‘social priorities decide the nature of the government’s spending programme’ (Kalecki 1944:368, quoted in Sawyer 2003).

Sawyer (2003) raises the spectre of public sector wages being undercut, via jobs being transferred to the ELR sector. Under a more enlightened public sector administration in which cost cutting and cost shifting were not viewed as a badge of honour by senior management and politicians, ELR jobs and standard public sector jobs would be distinguished. Also public sector expansion at market wages and the establishment of an ELR are not mutually incompatible (cf. Sawyer 2005:259; Kadmos and O’Hara 2000:16).

Sawyer (2003, 2005) expresses concern about the impact of private sector flux on say the ongoing provision of assistance to the elderly. There are many services which, subject to political choice, should be provided by the public sector on an ongoing basis and/or require a critical mass of workers. This justifies the provision of these services at market rates of pay. With a commitment to full employment, however, which is driven by both government employment at market wages, as well as the ELR, non-government employment at market wages is likely to exhibit less fluctuation. This will reduce the incidence of low wage employment and also the disruption to the provision of services by ELR workers caused by fluctuations in their employment, due to both the flux of non-Government employment and the imperative of stable inflation (Mitchell and Watts 2013).

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113 The claim that ‘organised labour’ would not be prepared to accept an ELR (Ramsay 2002-03:283) is convincingly rejected by Mitchell and Watts (2003:10).
There is a consensus that a private sector expansion may be capacity constrained, when the economy has been in recession, due to subdued investment during the recession and private sector caution in the upturn (see, for example, Malinvaud 1980; Mitchell and Muysken 2002; Arestis and Sawyer 2005). This constraint on economic expansion does not apply to the introduction of an ELR program, which can be designed to accommodate a range of viable capital-labour ratios. Subject to adequate planning, particularly prior to the implementation of the scheme, the offer of an ELR job would simultaneously create the extra productive capacity required for the viability of this program (Mitchell and Watts 2013).

By reference to the *ex post* ‘budget constraint’, Aspromourgos (2000:149-151) provides a reasonably accurate account of the processes involved in expansionary fiscal policy, notwithstanding his use of misleading terminology including *printing money* and *financing* (see also Palley 2013). He considers the consequences of private agents declining to take up the additional net financial assets (government securities and high-powered money), in sufficient quantities, which he claims implies a financing limit to government expenditure consistent with an ELR policy. Palley (2013:17) appears to think that the Treasury makes an *ex ante* choice regarding the mix of high-powered money and bonds to finance a fiscal expansion. By way of response, (1) ‘[t]he private sector can only dispense with unwanted cash balances in the absence of government paper by increasing their consumption levels’ (Mitchell and Mosler 2001:18) and (2) after a fiscal expansion, the *ex post* mix of additional high-powered money and government securities held by the non-government sector is the outcome of Commercial Bank preferences for reserves, and the institutional features characterising the interbank market (see also Tymoigne and Wray 2013:6,33).114

For Aspromourgos (2000:151-152), the existence of a maximum sustainable deficit necessarily requires a balanced budget multiplier to generate sufficient employment. But, this is alleged to strengthen concerns of political sustainability due to the increased ‘size’ of the public sector. If there were no financial constraints on government

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114 As noted, both the Bank of England and Federal Reserve pay a rate on bank reserves equal to the target rate, so debt sales are not required to sustain the interbank rate at its target level, following net government spending.
expenditure, Aspromourgos (2000) suggests expanding employment at market wages. He concludes that the only reason for not doing so, aside from the anti-inflationary role of the ELR, is that there are insufficient useful activities.

The ELR is not an aggregate demand policy (Mitchell and Wray 2005). If monetary policy is not employed to control inflation, given a low interest rate policy, Treasury can raise taxes or cut expenditure so that some market wage workers are redeployed to the ELR sector. King (2001, quoted in Nesiba 2013:5) is critical of Kadmos and O’Hara (2000:7) for claiming that the ELR is a powerful ‘built-in stabiliser’. This reveals an aggregate demand fetish on the part of some ELR critics, rather than noting its focus on direct employment creation.

6.5 Conclusion

Since the GFC the disastrous macroeconomic outcomes in many advanced sovereign and non-sovereign economies have presented a unique challenge to orthodox policy prescription. Most post-Keynesian economists, however, merely reject fiscal austerity and advocate the adoption of additional stimulus measures by sovereign economies. Further, while noting the flawed Eurozone architecture, they fail to appreciate the implications for the pursuit of sustained full employment by member countries which result from the absence of full policy sovereignty.

Tymoigne and Wray (2013:3–4) acknowledge the roots of MMT in earlier work, but argue that many of the insights of MMT have been lost in the post-war period. We suggest that the evidence sketched in this paper confirms that most leading post-Keynesians have not embraced the principles of MMT.\(^{115}\)

The unwillingness to engage with MMT largely reflects: (1) misunderstandings and misrepresentations of MMT views and policy prescriptions (see also Fullwiler et al. 2012; Tymoigne and Wray 2013); and (2) the failure to embrace the mechanics of the payments system (see also Lavoie 2013). The latter is essential to understand the

\(^{115}\) On the other hand, given their understanding of the payments system, circuitist analysis of post-GFC fiscal policy is aligned with the MMT view (see, for example, Bougrine 2012).
constraints on the conduct of fiscal and monetary policy among sovereign and non-sovereign economies.

While we agree with Nesiba’s (2013:56) claim that arguments in favor of and against MMT are being made on the pages of leading heterodox journals, we remain surprised that many post-Keynesian authors have largely ignored fundamental MMT principles in their post-GFC analysis. The formal incorporation of MMT principles would enhance the post-Keynesian framework. We must acknowledge, however, that a thorough review of all post-Keynesian work since the GFC has not been possible due to the constraints of space.

There is also hostility to the imposition of an ELR by post-Keynesians, which appears to be based on an antipathy to minimum wage employment and the implied coercion of accepting an ELR job in the absence of unemployment benefits. Yet post-Keynesians who reject the ELR have not devised a coherent alternative economic strategy to achieve sustained full employment and price stability.
Summary

The Global Financial Crisis (GFC) and ongoing Eurozone crisis have exposed disparities in the conduct of fiscal and monetary policy and subsequent macroeconomic outcomes among Eurozone and advanced non-Eurozone economies. By drawing on the principles of Modern Monetary Theory (MMT), this thesis has developed an integrated and coherent theoretical and empirical framework for understanding the constraints on the conduct of fiscal and monetary policy, and to explain these different outcomes.

The central contribution of the thesis is to highlight the policy freedoms of economies which enjoy full fiscal-monetary policy sovereignty. The thesis has been highly critical of the European Monetary Union since it is incompatible with policy sovereignty. Consequently, the conduct of fiscal and monetary policy among Eurozone economies has been severely impaired, and the economic and social malaise continues.

By distinguishing between sovereign and non-sovereign economies, the thesis has also been highly critical of the mainstream theories underpinning the post-crisis policy agenda. Particularly the (i) mainstream interpretations of fiscal sustainability and debt dynamics; and (ii) theories regarding the role and efficacy of fiscal and monetary policy for economic stabilisation.

The thesis has been presented as a series of published and submitted research articles, arranged chronologically into chapters to demonstrate a coherent progression of thought.

Chapter 1 critically assessed the evolution of policy advice from major Inter-Governmental Organisations (e.g. IMF, OECD) during the crisis. Despite the profound macroeconomic consequences of the GFC, the IMF and OECD, in particular, have not departed in a meaningful way from their core neo-liberal principles. They continue to advocate the pursuit of sound public finance, monetary policy geared to low inflation, and energetic supply-side reform.

The policy advice however has been severely compromised by the failure of these organisations to differentiate between sovereign and non-sovereign economies. Moreover, by not challenging the economic principles underpinning the European Monetary Union, the IGOs have provided overt support for an extreme form of institutionalised neo-liberalism with respect to the conduct of macroeconomic policy.

Chapter 2 argued that the algebra of debt dynamics has reinforced ideological prejudices about the conduct of fiscal policy, particularly since the advent of the GFC. Its ostensible rigor has been persuasive about the urgency of fiscal consolidation in all countries with rising debt (and deficit) ratios, notwithstanding differences in their institutional arrangements and the assumption of constant real growth and interest rates.

Using reasonable parameter values it was shown that fiscal stimulus can reduce the debt to GDP ratio. While the debt dynamics are largely irrelevant for sovereign economies, the obsession with these accounting identities has meant fiscal policy has been divorced from the advancement of public purpose. Under their current institutional arrangements,
it was acknowledged that highly indebted Eurozone (non-sovereign) economies have limited scope for policy manoeuvre.

Chapter 3 offered a theoretical and empirical investigation of the relationship between government deficit and debt ratios, interest rates and economic growth. Despite similar trends in government debt and deficit indicators, the emerging data revealed differences in the response of long-term interest rates among advanced economies following the GFC. These disparities were most distinct between Eurozone and advanced non-Eurozone economies. Mainstream financial crowding-out theory and literature on so-called public debt threshold limits could not reconcile these differences. On the other hand, MMT offers an explanation consistent with the empirical evidence by making the necessary distinction between sovereign and non-sovereign economies. Specifically, Eurozone (non-sovereign) economies as ‘users’ of currency can become insolvent. Fear of insolvency may materialise as rising long-term government bond rates.

In part (a), econometric analysis indicated that fiscal proxies (cyclically-adjusted financial balance; the ratio of government gross financial liabilities to nominal GDP; and the ratio of government net debt interest payments to general government revenues) are positive and significant determinants of the long-short interest rate spread among Eurozone (non-sovereign) economies, but are insignificant in sovereign economies. The evidence also indicated a possible non-linear relationship between public debt to GDP ratios and long-term interest rates among Eurozone economies.

Part (b) investigated potential public debt threshold limits. The econometric analysis supported a transmission mechanism linking public debt accumulation to reduced economic growth via increased long-term government bond rates and decreased gross fixed capital formation among Eurozone economies. Specific threshold limits in the relationship between gross government debt ratios and long-term interest rates were identified.

Chapter 4 examined the conduct of monetary policy since the advent of the GFC. In particular, the theory and evidence of unconventional monetary measures such as quantitative easing and its variants were critically assessed. Evidence regarding the effectiveness of unconventional monetary policy in influencing macroeconomic outcomes is found to be unconvincing and heavily qualified. The policies of the Bank of England were also examined and their Monetarist undertones were critically assessed.

For the UK, a sovereign economy, the preference for unconventional monetary measures over fiscal stimulus reflects the strength of the prevailing neo-liberal doctrine. The Coalition government instead remains committed to its small government agenda, even though fiscal stimulus offers a proven transmission mechanism to stimulate aggregate demand growth without promoting adverse debt and deficit dynamics.

With the Eurozone framework considered to be incompatible with policy sovereignty, Chapter 5 assessed the future of the European Monetary Union.

Part (a) critically examined recent and proposed policy reforms within the Eurozone. The reforms were found to be piecemeal and failed to address the problematic
architecture of the EMU. Instead, it was argued that restoring policy sovereignty is a necessary but not sufficient condition to promote a sustained economic and social recovery in Europe. This involves exiting the EMU, reinstating a fiat (non-convertible) currency, flexible exchange rate regime and monetary independence.

Economic and legal issues associated with exiting the EMU were briefly examined. While it was acknowledged that a withdrawal from the EMU is beset by practical uncertainties and legal complexities, remaining in the Eurozone and enduring the hardship of real devaluations and austerity measures given the flawed architecture is not a sustainable (or desirable) alternative.

Part (b) acknowledged that the modest policy proposals have been guided by what is feasible within the political and economic constraints of the Eurozone given the political commitment to the Euro-project. Thus, a Job Guarantee was examined as a policy option for periphery Eurozone economies, specifically Spain, faced with high rates of joblessness and deteriorating debt dynamics.

A two-economy stock-flow consistent macroeconomic model with Euro-system features was developed to unpack the macro-dynamics of a Job Guarantee and fiscal adjustment scenarios. Simulations revealed that the Job Guarantee leads to improve macroeconomic outcomes and does not significantly worsen or cause exploding deficit and debt dynamics. Further, the Job Guarantee buffers the drag from fiscal adjustments, which are not accompanied by increased unemployment, allowing for reductions in government deficit and debt ratios.

The final chapter, Chapter 6, examined the contributions and critics of Modern Monetary Theory (MMT). It was argued that the incorporation of MMT principles would enhance the post-Keynesian framework, principally with respect to understanding the distinction between sovereign and non-sovereign economies, the role of the payments system and the implications for the conduct of macroeconomic policy.

While the analysis of post-Keynesian literature is not exhaustive, it is concluded that the unwillingness of post-Keynesians to engage with MMT largely reflects (i) misunderstandings and misrepresentations of MMT views and policy prescriptions; and (ii) the failure to embrace the mechanics of the payments system.

The merits of a Job Guarantee (or Employer of Last Resort) as a desirable full employment policy were also critically assessed. Hostility to the imposition of a Job Guarantee by post-Keynesians appears to be based on an antipathy to minimum wage employment and the implied coercion of accepting a Job Guarantee position in the absence of unemployment benefits. Yet, it was noted that post-Keynesians who reject the Job Guarantee have not devised a coherent alternative economic strategy to achieve sustained full employment and price stability.

The implication of the thesis is that government has a central policymaking role which no market-based rhetoric should undermine. It has been argued that sovereign economies are not adequately exploiting their inherent financial capacity to implement a full employment policy and advance the public purpose. Economies which do not enjoy
policy sovereignty, such as Eurozone members, face a unique set of institutional constraints which have undermined not only policymakers’ attempts to address the deepening crisis, but the achievement of sustained full employment. The thesis has been highly critical of these institutional arrangements and recommends that policy sovereignty is restored since it promotes flexibility in the design and implementation of fiscal and monetary policy, and eliminates any financial constraints vis-à-vis implementing a full employment policy, such as a Job Guarantee.

The post-crisis period can be characterised by full employment, modest inflation and economic prosperity. But the inherent capacity of economies endowed with policy sovereignty must first be fully realised.
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