

Initial, Final, and Functional Finance

Timothy P. Sharpe, James Juniper and Martin J. Watts¹

Abstract

Modern Monetary Theory (MMT) shows that it is instructive to unpack specific Treasury and Central Bank operations to fully appreciate the financial capacity of a sovereign currency government. Recently, Tymoigne and Wray (2015) have discussed these interrelations to defend the so called ‘consolidation hypothesis’ which is sometimes used to simplify MMT exposition. In doing so, the Circuitist distinction between initial finance (financing) and final finance (funding) is particularly helpful in supporting MMT arguments (see Graziani, 1987; 1990). This paper further unpacks the Circuitist financing distinction, and its extension to include the government sector (i.e. vertical transactions). The finer details of the operational relationship between the Bank of England and HM Treasury (Debt Management Office) are drawn on to strengthen the discussion. A more enlightened view of ‘fiscal responsibility’ emerges: sovereign currency governments must be ‘functional’, not ‘sound’, fiscal managers. Thus, functional finance principles, which have their origins in Lerner (1943), provide a useful framework for prescriptive macroeconomic and social policy.

Keywords: Modern Monetary Theory, financing, Bank of England

JEL Classification: E42, E58, H63

¹ Corresponding author: *martin.watts@newcastle.edu.au*. Paper prepared for the 17th annual Association for Heterodox Economics (AHE) Conference, 2-4 July 2015, Southampton Solent University, United Kingdom.

1. Introduction

In recent times UK macroeconomic policy has been informed by the principles of sound finance and price stability. Sound finance calls for Treasury spending and taxing decisions to be largely geared to fiscal accounting imperatives.² Monetary policy targets price stability and, due to the constraints on fiscal policy, must promote macroeconomic stability more broadly.

The institutional arrangements have contributed to the framing of policy objectives according to the imperatives of sound finance. For example, there has been increased political emphasis on the separation of monetary policy and debt management, through the operation of the Debt Management Office (DMO), which led to the emergence of specific advisory institutions (e.g. Office for Budget Responsibility) and legislation (e.g. Budget Responsibility and National Audit Act 2011).

The Global Financial Crisis (GFC) and associated policy responses have demonstrated the limitations of conducting macroeconomic policy according to the sound finance framework. The lead up to the crisis exposed the inadequacies of conventional monetary policy geared to macroeconomic stability via the ongoing manipulation of policy rates. On one hand, lax monetary policy can motivate over-borrowing or encourage excessive risk-taking. On the other hand, tight monetary policy can accelerate the progression through Minsky's financial instability taxonomy to generate widespread defaults and the collapse of asset prices. Also, as the active arm of macroeconomic policy, monetary policy is compromised by being expected to influence inflation and GDP growth, in addition to moderating asset price growth.

After the GFC became a real crisis across many developed economies, UK policymakers were committed to fiscal austerity measures which sought to prevent so-called 'adverse' deficit and debt dynamics. The endogenous nature of the budget outcome, however, meant that fiscal drag tended to generate a self-reinforcing negative feedback loop, and so, high rates of joblessness and low output growth persisted. The Bank of England (BoE) then faced increased pressure to stimulate real economic activity, but, despite official rates having been reduced to the (effective) lower nominal bound and the introduction of unconventional monetary measures, the Bank lacked the capacity to do so. Like conventional monetary policy, unconventional measures work through long and variable transmission channels. Modest business expectations, low consumer confidence, and banks' concerns for their liquidity and capital positions, which resulted from the financial and economic crisis, severely weakened the links between both conventional and unconventional monetary policy, and real economic activity (see Sharpe and Watts, 2013).

The depth and severity of the GFC has promoted debate about monetary reform and the appropriate conduct of both monetary and fiscal policy. Given the nature of the crisis, a strong

² A 'key pillar' of HM Government's economic strategy is; 'deficit reduction, returning the public finances to a sustainable position and ensuring that sound public finances and fiscal credibility underpin low long-term interest rates' (Osborne, 2015).

theoretical and empirical case can certainly be made for strengthened regulatory structures. But, despite recent concessions from central bankers (see McLeay et al. 2014) which provide support to long-standing Post-Keynesian/endogenous money views, certain institutional practices still need to be better understood to (i) challenge the dominant sound finance view; and, (ii) facilitate the design of appropriate macroeconomic policy.

Modern Monetary Theory (MMT) offers an institutionally based understanding of the conduct of monetary and fiscal policy and their interaction via liquidity management, which yields greater insights about policy options for a sovereign currency government. Here we are referring to, a government that issues its own fiat, non-convertible currency which ‘floats’ on foreign exchange markets (e.g. UK, USA, Australia).³ This perspective enables the policy debate to be reframed in terms of Lerner’s functional finance and Minsky’s managerial-welfare state capitalism, whereby government policies are undertaken in the pursuit of specific economic and social objectives, notably full employment, price stability, equality, and reduced financial fragility.

In this paper we, first, show how the formal separation of UK debt management and monetary policy frames macroeconomic objectives which appear to align with the sound finance principle. These institutional practices obscure the ways in which the objectives are pursued by (i) complicating the operational relationship between monetary and fiscal policy; and (ii) limiting the macroeconomic outcomes by disguising the financial capacity of HM Government. Here, the Circuitist distinction between initial finance (financing) and final finance (funding) is particularly helpful in supporting MMT arguments (see Graziani, 1987; 1990; Parguez and Seccareccia, 2000). While our analysis draws on the finer details of the operational relationship between the BoE and HM Treasury (Debt Management Office), these insights can be extended to other sovereign currency governments (see, for example, Watts, 2012 for Australia; and Tymoigne, 2014 for USA).

Second, the discussion of the institutional arrangements offers the foundations for an informed debate regarding the *appropriate* policy goals and conduct of monetary and fiscal policy. A policy framework is outlined which combines structural macroeconomic programs and dynamic financial supervision. The consequences for monetary policy that derive from pursuing ‘functional’ macroeconomic policy are investigated, including making changes to existing institutional arrangements and adopting policies to reduce financial fragility.

³ A sovereign currency government establishes their own money of account, imposes liabilities (e.g. taxes) in that abstract unit, and issues the money-thing denominated in the same unit that are accepted to extinguish those liabilities. The money-thing can take a physical (e.g. banknotes) or non-physical (e.g. reserves) form.

2. Initial and final finance

The distinction between initial finance (financing) and final finance (funding) appears in Augusto Graziani's explanation of the monetary circuit. However, in much of the extant literature, initial finance is either ignored or initial and final finance are conflated. Graziani (1987) argues that the failure to distinguish between financing and funding leads to misspecified macroeconomic models, and creates a reduced and distorted view of monetary policy.

While Graziani's (1987; 1990) exposition tends to focus on the monetary relationship between banks and firms (i.e. horizontal transactions), MMT emphasises the vertical dimension of the monetary circuit.⁴ Circuit theory and MMT show that *financing* always involves money creation, and that *funding* (e.g. the sale and settlement of government securities) involves money destruction. The so-called Government Budget Constraint (GBC) is simply an *ex post* accounting statement which details periodic vertical payment flows. On the other hand, the mainstream interpretation of the GBC, as an *ex ante* construct representing Treasury's financing options for fiscal policy, demonstrates that the failure to distinguish between financing and funding also leads to a misunderstanding of the institutional arrangements.

2.1 (Central) bank money

Initial finance is the prior provision of liquidity in order to cover the current costs of production (Graziani, 1987). For example, firms obtain initial finance, to cover wage costs, from commercial banks, building societies, credit unions, etc. ('banks' hereafter) when the latter create credit. While banks can extend credit *ex nihilo*, money comes into existence the moment a payment is made (Graziani, 1990). Thus, in its very nature, money is a credit-debt relationship (see Tcherneva, 2006).

Since money is debt, that is a promise or IOU, anyone can issue money, but, as Bell (2001) explains, a debt becomes money only after it is accepted.⁵ Acceptance, in turn, depends on the stratified order of social debt relationships; each IOU or promise is convertible into a higher and more acceptable form of debt (Bell, 2001; Tcherneva, 2006). For example, a household or firm promises to convert their IOUs to a bank's promise (i.e. deposits). Banks create money *ex nihilo* when they extend credit, however, 'a bank cannot make a payment

⁴ A vertical transaction is a transaction between the government sector and the non-government sector which alters the net financial assets held in the non-government sector. These are distinct from horizontal transactions which occur within the non-government sector, and so, do not alter the net financial assets of the non-government sector since the creation of an asset is always accompanied by an offsetting liability within the sector, so that they net to zero (see Mitchell, 2009a).

⁵ The discussion of money presented here serves to briefly outline the seminal contributions of Innes (1914), Knapp (1924) and Lerner (1947) which have been extended and reinforced by advocates of MMT such as Wray (1998a), Bell (2001) and Forstater (2006), and others, including Goodhart (1998) and Ingham (2004). The reader should consult these sources for a more extensive treatment.

just by issuing a promise to pay, since this would be a credit transaction and not a monetary payment' (Graziani, 1990:18). A monetary payment can only be made by using the promise of a third party. Banks must obtain state promises (i.e. central bank money) to settle transactions with other banking institutions, and meet the non-bank demand for the state's physical currency.⁶

State promises are not convertible into anything else, and so, define the top of the debt hierarchy. A sovereign currency government is the monopoly supplier of its currency and can issue promises in physical or non-physical forms denominated in its chosen money-of-account. Thus, a sovereign currency government faces no *financial* constraint; it cannot be *forced* to default on a promise to deliver its own currency (Tymoigne and Wray, 2013).

While households, firms and banks must obtain a higher and more acceptable promise to make a monetary payment, the state can make a monetary payment using its own IOU. This promise is readily accepted by non-government domestic agents since the state declares that they must be used to extinguish taxes and other obligations to the state, which makes them the most acceptable money in the hierarchy.⁷

Once banks have extended credit to firms (initial finance), firms must then repay (or refinance) their debts to remain solvent. That is, '[i]f firms are to be in equilibrium, they must get back, by way of sales on the market, an amount of liquidity at least equal to their outlays' (Graziani, 1987 [1994:175]). 'Final finance is liquidity that firms get back as proceeds from sales of commodities or from new issues on the financial market' (Graziani, 1990:15).

Sales of consumption goods will bring back the part of the wage bill that wage earners have decided to consume, while issues on the financial market, if successful, will bring back to the firms their money savings. It may well seem that, when successful in placing bonds on the financial market, firms are being financed by the market. What in fact they are trying to do is get back from the market the same money they have injected in it when paying the wage bill. To a certain extent, this can be defined as the problem of having an adequate amount of saving channelled to the financial market, preventing it from going into banking deposits. (Graziani, 1987 [1994:175])

So, firms issue securities to obtain liquidity to extinguish their initial debt.⁸ The most common form of bank money destruction occurs when firms and households repay their loans. Banks also issue securities to obtain liquidity (i.e. wholesale funding) which involves bank money destruction. For example, when bank securities are purchased, say by the non-bank sector, buyers draw down their bank deposits destroying bank money. If the deposit accounts of

⁶ Central bank money consists of banknotes used in everyday transactions and the balances ('reserves') that are held by commercial banks and building societies ('banks') at the central bank (BoE, 2012b:3).

⁷ All money in the debt hierarchy is denominated in the state's own money-of-account.

⁸ Graziani (1990:16) maintains that 'investment finance is supplied by final finance and not by bank advances'. Bougrine and Seccareccia (2002:63-4) clarify this point further by indicating that 'final finance' is compatible with the 'internal finance' generated when firms can recoup some of the previously created credit money by selling products directly to customers from which they can derive retained earnings and 'external' finance from the issue of securities in financial markets. By the same token, an increase in liquidity preference would prevent such reflux by increasing household deposits within the banking system.

some buyers are at a different bank to the one issuing the securities, then the transaction must be settled (in part) by transferring central bank money (reserves) from the buyers' banks to the issuing bank. As a result, the issuing bank obtains the liquidity needed to honour their obligations.

While final finance which is associated with 'reflux' involves money destruction, it is an integral part of the monetary circuit. 'Credit money, as a rule, is [...] created only to be destroyed in the circulatory process and not to be held' (Parguez and Seccareccia, 2002:417). This reflects a fundamental law of finance; 'the right of the holder of the credit (the creditor) to hand back to the issuer of the debt (the debtor) the latter's acknowledgment or obligation' (Innes 1914:161, quoted in Tymoigne and Wray, 2013). It is in the very nature of credit money, and a central means to give value to financial instruments, that issuers of IOUs accept them back in payment.

2.2 Taxes and government securities

Monetary payments by households, firms or banks into government accounts must involve the prior provision of central bank money (or, including coins, high-powered money). In other words, the means to pay taxes and purchase government securities must have already been injected into the system otherwise these transactions cannot be settled (Tymoigne and Wray, 2013). Thus, issues of government securities and tax receipts cannot be initial finance ('efflux'), which always involves money creation.

The settlement of tax payments ultimately involves the transfer of central bank money from banks' reserve accounts into Treasury deposit accounts (e.g. the 'Consolidated Fund' in the UK).⁹ The argument that taxes receipts cannot be initial finance is most apparent where taxes are paid in cash; the payer must have obtained the banknotes (i.e. physical central bank money) first.

Under existing institutional arrangements, sales of newly issued securities by Treasury must be settled with central bank money which the central bank has already injected.¹⁰ This means that part of the (settlement) banks' current claim on the central bank (i.e. reserves) becomes the Treasury's claim on the central bank (e.g. recorded as 'public deposits repayable on demand' with the BoE) which is a debt of the state to itself. Banks are willing to convert their

⁹ The Consolidated Fund (CF) 'receives the proceeds of taxation and certain other government receipts, makes issues to finance Supply Services, meets the Standing Services directly charged by statute, and reimburses the [National Loans Fund (NLF)] for net interest costs. The CF finishes every day with a nil balance on its bank account because any surpluses or deficits are offset by transfers to or from the NLF' (National Audit Office, 2014:2).

¹⁰ To facilitate the efficient settlement of securities trades, the BoE provides intraday liquidity (reserves) to CREST settlement banks via an 'Auto Collateralising Repo'. From the BoE's perspective it is an automatically generated reverse repo operation against eligible collateral (i.e. gilts, Treasury bills or Bank of England bills). The securities used as collateral by the settlement bank (i.e. the buyer) can be the securities (e.g. gilts) that are being purchased (see BoE, 2012a).

central bank money into government securities since they attract higher interest rates and are highly liquid.

So, the sale and settlement of government securities and tax receipts involves central bank money destruction. But, as instruments of final finance, taxes and government securities serve important functions. Taxes, denominated in the state's own money-of-account, create a demand for the associated money-thing(s), and extract purchasing power from domestic agents to assist with price stability (Tymoigne and Wray, 2013). While government securities serve a number of functions, they are used by the central bank to accommodate the changes in its liabilities that arise from its role as the ultimate purveyor of liquidity (see below).

As noted, the GBC is commonly understood as a set of *ex ante* financing options by the mainstream literature. For example, '[t]he government budget constraint is an accounting identity linking the monetary authority's choices of money growth or nominal interest rate and the fiscal authority's choices of spending, taxation, and borrowing at a point in time' (Leeper and Nason, 2008:1). In the examination of debt dynamics which is underpinned by the GBC, increases in the stock of high-powered money are considered to be inflationary and sometimes are excluded (see, for example, Auerbach et al. 2003; Ferguson and Kotlikoff, 2003).¹¹ These interpretations of the GBC represent a profound misunderstanding of the monetary circuit.

3. Debt management and monetary policy

As final finance, tax receipts and issues of government securities cannot be a binding constraint on spending by a sovereign currency government, since they are not different (*ex ante*) financing methods.

However, given the present nature of the institutional separation between debt management and monetary policy, it may well seem that, when successful in placing bonds on the financial market, net Treasury outlays are being financed by the market. Net spending by Treasury is then ostensibly constrained by the willingness of primary dealers to extend credit in the first instance. Thus, Treasury's capacity to achieve appropriate macroeconomic objectives is seemingly limited.

In practice, the BoE ultimately provides the financing. UK debt (and cash) management policy is concerned with maintaining a liquid and efficient market for government securities, which are used by the BoE for liquidity management and the associated role of accommodating changes in projected short- and longer-term net positions of public accounts held with the

¹¹ ECB Vice-President Vitor Constancio 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 (Constancio, 2011, quoted in Watts and Sharpe, 2013:61-2).

Bank. Also, an institutional separation does not imply an *operational* separation. In fact, the DMO and BoE must work together to implement monetary policy.

3.1 Debt management policy

The DMO – an executive agency of HM Treasury – was established in 1998 with the responsibility for the implementation of debt management policy in the UK. The capacity to set the policy interest rate was transferred to the BoE from the Chancellor of the Exchequer, though the Chancellor determines the annual inflation target.

At present, HM Treasury use a ‘full funding’ issue policy. This means that Treasury chooses to ‘[issue] sufficient wholesale and retail debt instruments to enable it to meet its projected financing requirement’ (HM Treasury, 2015:6). HM Treasury sets a financing remit for the DMO for the following financial year which is largely determined by the forecast central government net cash requirement (CGNCR) and gilt redemptions. Notwithstanding this, the UK government retains complete discretion over their issue *policy*.¹²

HM Treasury (2015:7) provides a rationale for the full funding rule, namely: ‘that the government believes that the principles of transparency and predictability are best met by full funding of its financing requirement to avoid the perception that financial transactions of the public sector could affect monetary conditions, consistent with the institutional separation between monetary policy and debt management policy’.¹³

As noted, the overriding function of debt management policy is to develop a deep, liquid and efficient market for gilts, including issuing gilts that achieve a benchmark premium, which facilitates their use in liquidity management and also in benchmark pricing or to balance the risk structure of investment portfolios.

The DMO achieves this in a number of ways. First, the composition of the gilt issue is informed by market demand for securities by type (index-linked and conventional gilts) and maturity (short, medium and long), and the shape of nominal and real yield curves (HM Treasury, 2015).

Second, the DMO’s auction calendar promotes predictability by setting out the planned dates, type and sizes of gilt sales, thereby reducing market disturbances. The auction system, which is the primary method of gilt sales, also addresses the shortcomings of the previous ‘tap’ system, whereby it was common that new issues were not fully subscribed. This meant that the BoE would take the unsubscribed proportion (see Goodhart, 2012).

¹² For example, ‘overfunding’ was used in the early 1980s as a part of the Conservatives’ commitment to controlling the growth of the broad money stock, £M3, as the centrepiece of its monetary policy (see Goodhart, 1989). On the other hand, ‘underfunding’ which is consistent with Quantitative Easing was implemented in March 2009 (see Goodhart, 2012; Sharpe and Watts, 2013). In principle, a ‘zero-funding’ issue policy could also be adopted (see Section 4.3).

¹³ Adoption of the full funding rule would reduce the required liquidity management by the Bank of England to maintain the integrity of monetary policy.

Third, the DMO's funding operations are flexible. The remit could be revised during the year given exceptional circumstances and/or changes to: forecasts of the government's net financing requirement; the level and/or the shape of gilt yield curves; expectations of future interest and inflation rates; and, market volatility (HM Treasury, 2015). Further, in exceptional circumstances, to enhance market management, the DMO's auction programme could be supplemented by sales or purchases of gilts 'on tap' to ensure sufficient liquidity in the market for gilts.¹⁴

While debt management policy takes a longer-term perspective, since April 2000, the DMO has been responsible for conducting the government daily cash management operations. The DMO's role is to make arrangements for *funding* and for placing net cash positions, primarily by carrying out market operations in the light of forecasts provided by HM Treasury of daily net cash flows into or out of the National Loans Fund.

The Exchequer's cash position is now funded by a range of market instruments including issues of UK Treasury bills at weekly tenders by the DMO. The change in practice reflects HM Government's preference that 'the short-term net cash position of the Exchequer will be held with market counterparts' (HM Treasury, 2015:7). The DMO also stands ready to provide additional Treasury bills to the market at the request of the BoE to assist with the '[BoE's] operations in the sterling money market for the purpose of implementing monetary policy while meeting the liquidity needs of the banking sector as a whole' (HM Treasury, 2015:32).

3.2 Monetary policy

'The primary aim of the Bank of England's operations in the sterling money markets is to implement the Monetary Policy Committee's interest rate decisions while meeting the liquidity needs, and so contributing to the stability, of the banking system as a whole' (BoE, 2002:4).

Given the prevailing Bank Rate (i.e. the policy interest rate), arbitrage determines the rate on government financial assets of longer maturity. The Bank Rate then conditions the market rates that commercial banks are willing to charge or pay on short-term loans or borrowings. 'In implementing monetary policy, the Bank normally seeks to affect only the risk-free element of market rates and seeks to avoid distorting the credit and other spreads established in the market' (BoE, 2012b:3).

The BoE maintains the overnight rate close to this announced rate through its day-to-day liquidity management, via the implementation of Open Market Operations (OMOs) and other measures. Thus the BoE does not sell assets to finance net government expenditure, but rather asset sales represent an interest rate maintenance mechanism, because they drain the

¹⁴ Taps (reverse taps) are sales (purchases) of gilts undertaken directly with the GEMMs by the DMO when the secondary market has become, or is likely to become, dislocated (HM Treasury, 2015).

excess reserves, thereby removing the downward pressure on the overnight interest rate (Wray, 1998a; Fullwiler, 2006).

There are various mechanisms by which a bank can alter the liquidity and maturity structure of its assets, to ensure that it will have sufficient funds to resolve its daily interbank transactions. Same day, interest free financing through intra-day repos is available if a bank has a temporary shortage of funds. If a bank was not able to repay its intra-day borrowing by the end of the day, it can use the Operational Standing Facility to borrow overnight from the Bank, but at a rate above the Bank Rate.

Government securities are used by the central bank to accommodate the changes in its liabilities that arise from its role as the ultimate purveyor of liquidity. As above, banks' (retail and wholesale) funding operations seek to attract liquidity, specifically central bank money.¹⁵ To preserve financial stability and the integrity of the payments system, the central bank must accommodate the banking system's demand for central bank money, including the provision of banknotes.

The provision of central bank money (liabilities) means that the Bank will seek an asset to 'fund' its issue and banking operations.¹⁶ The BoE's *Banking Department* handles the OMOs, within its Sterling Monetary Framework, when implementing monetary policy and providing liquidity to the banking system. OMOs largely involve sale and repurchase (i.e. repo) operations using government securities as eligible collateral rather than outright securities transactions.¹⁷ The BoE's *Issue Department* deals with the issue of banknotes and the acquisition of the assets 'backing' or funding those notes (BoE, 2015).

So, when providing liquidity, the BoE will either directly create or seek to attract additional assets, mostly government securities. This means that the market for government securities should be liquid and efficient, which is facilitated by the operations of the BoE and is an objective of debt management policy (see above).¹⁸

The BoE also provides banking services to HM Government, which involves the management of the payment flows to and from the public deposit accounts. While all drawings on these accounts, that is spending by HM Government including net spending (i.e. the deficit), are

¹⁵ Due to their role in maturity transformation, banks have an inherent exposure to liquidity risk.

¹⁶ This probably reflects good/exemplary accounting practice. While a central bank may have a small amount of foreign-currency denominated liabilities, it cannot become insolvent with respect to liabilities denominated in its own money-of-account.

¹⁷ The Banking Department's largest asset is typically 'loans and advances to banks and other financial institutions', which include 'advances and reverse repurchase agreements arising as part of the Bank's open market operations, as well as advances matching the deposits taken' (BoE, 2014b).

¹⁸ Under the reserve-averaging ('corridor') framework, the BoE 'manages its balance sheet in such a way that participants in the wholesale money markets normally seek refinancing (i.e. borrow money) from it on a daily basis' (BoE, 2002:5), which reflects the short-term nature of the refinancing. This, first, reflects the BoE's preference to conduct OMOs using reverse repo operations – lending reserves against eligible collateral (e.g. gilts) – so that its holdings of government securities are not run down. Second, it facilitates a liquid market for government securities since banks need them (for collateral) to participate in the BoE's Standing Facilities (see BoE, 2012b:10).

already financed by central bank money creation in the initial stage of the monetary circuit (i.e. the account credits have been already granted), the payment flows implicate the BoE's issue and banking operations which involve government securities. These payment flows necessarily affect system liquidity and, depending on the interbank money market framework, impact on interest rate stability. As noted, for the purpose of conducting monetary policy, system liquidity must be carefully managed by the BoE.

Since March 2009, however, monetary policy has included both aligning short term market interest rates with the Bank Rate and conducting Quantitative Easing (QE). Consequently, the supply of reserves largely varies with QE decisions rather than changes in the banks' demand for reserves. Consequently the BoE suspended reserves averaging (see footnote 18) and operated a 'floor' system so that all reserves were remunerated at Bank Rate. This means that the demand for reserves becomes infinitely elastic beyond the point at which 'there are sufficient reserves in the system for banks to manage their day to day liquidity needs' (BoE, 2012b:9).¹⁹ Thus if reserves are supplied in excess of this level, market interest rates should remain in line with the Bank Rate and the BoE's repo operations to drain excess reserves would be unnecessary.

4. Functional macroeconomic policy

The previous discussion of monetary institutional arrangements allows for a more informed debate regarding the appropriate goals and conduct of macroeconomic policy. The policy debate can be reframed in terms of Abba Lerner's *functional finance* and Hyman Minsky's *managerial-welfare state capitalism*. In this case, government policies are undertaken with an eye to their macroeconomic and social outcomes: notably full employment, price stability, equality, and reduced financial fragility. Distinct from 'fiscal fine-tuning' of the neo-classical synthesis, a functional policy framework combines structural (and permanent) macroeconomic programs and dynamic financial supervision (see Section 5).

4.1 A Functional Perspective on the Limitations of Monetary Policy

There was a brief period of short term fiscal stimulus measures in 2009 and 2010 in countries, including the USA and Australia, with the encouragement of inter-governmental organisations including the OECD and the IMF (Sharpe and Watts, 2012). However, most developed economies have been reliant on conventional and unconventional monetary policy to address the aggregate demand shocks in 2008.

The reliance on monetary policy means that a single policy instrument is used to address sluggish growth and the ever-present threat of asset bubbles, primarily in the housing market.

¹⁹ At present, the BoE largest asset is 'other loans and advances' which represent its loan to the Bank of England Asset Purchase Facility Fund Ltd – a subsidiary company of the Bank of England – which purchased high-quality assets, mostly gilts, to improve liquidity in credit markets. The transactions are funded by a loan from the Bank.

In addition, should energy costs start rising due to supply uncertainty in the Middle East, say, monetary policy in its various guises would then be used to address three policy objectives. However Tinbergen (1952) pointed out that the number of effective policy instruments must equal the number of policy goals in order that the latter could be achieved. Thus the pursuit of three policy goals requires three policy instruments rather than one, when these goals are potentially in conflict (Mitchell, 2015).

Also, while developed economies, including Eurozone member countries, have adopted low official rates, there is no convincing evidence that this has contributed to sustained growth. Also, another version of Keynes' 'pushing on a string' through manipulation of the yield curve via QE has also largely failed (Blyth, 2012). Thus, there is a serious question as to whether the exclusive adoption of monetary policy to promote full employment is fit for purpose, particularly since there have been poor macroeconomic outcomes despite a below trend rate of inflation in most developed economies which, in the short term, removes one source of policy conflict.

Friedman (1972) concluded that 'monetary changes take much longer to affect prices than to affect output'. Despite changes in the way monetary policy is conducted (i.e. from the targeting of the money stock to setting the official rate of interest) and the associated institutions, Batini and Nelson (2002) find that the lags in the impact of monetary policy have persisted. Uncertainty about factors influencing the length of policy lags can lead to monetary (and fiscal) policy being destabilising.

Without directly invoking Tinbergen's insights, Bernanke (2015) is sceptical about the capacity of monetary policy in the USA to promote full employment while simultaneously maintaining financial stability by 'popping' asset bubbles. The stance of monetary policy to achieve the latter objective would 'have many unintended side effects', so it is essential to understand the trade-offs. He argues that 'it's better to rely on targeted measures to promote financial stability, such as financial regulation and supervision, rather than on monetary policy.' Bernanke (2015) quotes a paper by Ajello et al. (2015) which assesses the impact of trying to reduce the chances of financial instability through tighter monetary policy. Bernanke (2015) concludes that it is not worthwhile and that 'In their efforts to promote financial stability, central banks should focus their efforts on improving their supervisory, regulatory, and macro-prudential policy tools'.

4.2 The Zero Interest Rate Policy Alternative

MMT theorists follow Keynes in arguing that the central bank should abandon (both conventional and unconventional) monetary policy and maintain a fixed low (zero) target overnight interest rate in the interbank money market. Its focus should be solely on financial stability and supervision.

A (permanent) zero-interest rate policy (ZIRP) would reduce interest rates across the term structure, ease monetary distortions, and could stimulate investment, output and

employment under conditions of robust business and consumer confidence (see Mitchell, 2009b). It is important to note that it is not just a low interest rate, per se, but also that, notwithstanding the vagaries of the Yield Curve, the variation of borrowing rates is likely to be small, thereby providing a more stable economic environment for planning investment projects. The BoE has (effectively) maintained a ZIRP since 2009, so it could leave Bank Rate at the current level (0.5%) indefinitely.

While saving would attract less interest income, a ZIRP is still consistent with positive deposit rates due to competition among banks for retail funding. In any case, a commitment to full employment means that aggregate income and savings would be higher. Tax concessions and rebates can also be applied or strengthened to support low income earners, and seniors and pensioners.

Second, it may be feared that asset bubbles would emerge. Monitoring asset markets and avoiding 'bubbles', however, is a financial regulation and tax policy issue (e.g. capital gains taxes), not a monetary policy issue, as such. For example, in Australia, tax concessions associated with so called 'negative-gearing' have contributed to housing market distortions and asset price inflation. In the UK, applying tax deductions from negatively-gearred investment housing to other income is not permitted. Mitchell (2009c) argues that 'an appropriately designed taxation system with targeted policies to stop housing speculation would be far more efficient at controlling asset price bubbles than using the blunt end of monetary policy.'

Third, price stability should be pursued using other means. Monetary policy geared to price stability largely works through changes to policy interest rates which bring about adjustments to aggregate demand but are known to be long, variable and uncertain (see BoE, 1999). Fiscal policy, on the other hand, affects aggregate demand via more direct channels so can be better calibrated to a maintaining a moderate and stable inflation rate (see below).

4.3 Fiscal Policy

For Treasury, '[t]he policy problem is to develop a strategy for full employment that does not lead to instability, inflation, and unemployment' (Minsky, 1986:308). Following Lerner and Minsky, the Treasury should manage the level of employment, level and composition of investment, and the growth of income and pricing mechanisms more broadly (see Tymoigne, 2008).

Minsky and MMT advocates, including Mitchell (1998), Wray (1998b), Forstater (1998), and Mosler (1997-98) argue that an employer-of-last-resort policy or Job Guarantee offers the best option for sustained full employment and price stability.²⁰ The Job Guarantee (JG) offers a job at a fixed money wage (including a benefit package) to any individual ready, willing and able to work, which creates an infinitely elastic labour demand at that wage.

The fixed JG wage may be set higher than the current minimum wage to facilitate an industry policy function. Notwithstanding this, the JG wage should be an expression of the aspiration of the society of the lowest acceptable standard of living. Any private sector employers who cannot 'afford' to pay the minimum/liveable wage should exit the economy (Mitchell, 2013).

The JG programme would be financed by a sovereign currency (federal) government, but operated by local government where urgent social needs would be identified and addressed by meaningful, value-adding employment (Mitchell, 2013). Since JG employment is divorced from private profitability, employment generation can be designed to promote social efficiency by addressing rising poverty and wage inequality, and threats to ecological sustainability (see Forstater, 2003; Juniper et al. 2014).

The JG supports price stability in three ways. First, the government does not compete with the non-JG (private/public) sector for workers. It simply offers a fixed wage to any labour that is unwanted by other employers, and so, has no market price.

Second, the JG and associated training programs facilitate 'job-readiness' which reduces hiring and on-the-job training costs, and lessens skill atrophy. Unlike the short- and long-term unemployed under current policy, JG workers are a credible threat to non-JG sector employees. Thus, employers are more likely to resist inflationary wage demands from the existing workforce.

Third, the JG has an in-built inflation control mechanism so that full employment can be sustained. In a manner characteristic of the dominant NAIRU framework, the JG uses a 'buffer stock' principle to alleviate price pressures, which does not result in the indignity and insecurity of (chronic) unemployment and associated social and economic issues. For example, if inflation exceeds Treasury's announced target, tighter macroeconomic policy would lead to workers transferring from the inflating non-JG sector to the fixed price JG sector with a loss of wage income.

The JG's buffer stock mechanism also supports macroeconomic stability. That is, the JG sector expands (declines) when non-JG sector activity declines (expands). So the government continuously absorbs into employment, workers displaced from the non-JG sector. In this way, the JG acts as an automatic stabiliser to help minimise the economic and social costs associated with 'normal' economic flux, and alleviate the impact of lead-lag times associated with other aspects of fiscal policy.

²⁰ Juniper et al. (2014-15) offers a detailed discussion of the Job Guarantee, including a response to critics of the programme.

The growth of investment expenditure can also contribute to price pressures and instability. Following Minsky, Tymoigne (2008) argues that the socialisation of investment would help manage inflation and promote financial stability since the positive macroeconomic feedback loop between investment and profit is largely eliminated. Investment can be ‘socialised’ by managing the rewards received by entrepreneurs, and allocating resources towards the most socially useful investment projects (e.g. housing, infrastructure, etc.) (Tymoigne, 2008). But, ‘[t]his does not mean that all individual decisions would be removed because the government could just bring forward the areas that need investment and let the private companies propose solutions’ (Tymoigne, 2008:20). Minsky’s proposed ‘community development banks’ could be used to assist with project implementation (see Section 5).

The JG and the socialisation of investment would help to alleviate price pressures stemming from wage and profit growth, and associated bargaining dynamics. These programmes could be further augmented with incomes policies which, for example, define general rules vis-à-vis wage bargaining and firms’ pay-out ratios (Tymoigne, 2008). Unlike conventional monetary policy, incomes policies can also be targeted to encourage the development of certain sectors.

4.4 Implementation: Financing and funding

A complete understanding of the fiscal-monetary policy nexus of sovereign currency governments, such as the UK, shows that existing institutional arrangements are not necessarily a binding constraint on the pursuit and achievement of functional macroeconomic objectives. Thus, the above macroeconomic programme can be implemented, within these institutional arrangements, by fully utilising *available* policy space.²¹

But, when government securities are viewed as a form of financing (opposed to funding), principles of sound finance determine the *effective* policy space, which is unlikely to coincide with the achievement of functional macroeconomic objectives. In this case, more radical institutional reform, such as Overt Monetary Financing should be considered.

Overt Monetary Financing (OMF) is a simple intra-government procedure whereby the monetary authority (central bank) credits the fiscal authority’s (Treasury) deposit account following instructions by the latter to do so (Mitchell et al. 2014). OMF does not involve the sale of government securities. From an MMT perspective, the rationale for conducting OMF is to avoid political constraints (i.e. debt rhetoric) and any self-imposed institutional constraints on net government sector spending which should be geared to achieving functional macroeconomic objectives.

²¹ For a sovereign currency government, available policy space vis-à-vis expenditure measures are determined by real, not financial, constraints.²² Government securities are also used towards satisfying international capital and liquidity standards (i.e. Basel III). However, central bank reserves and high quality government bonds are both recognised high-quality liquid assets so are perfect substitutes vis-à-vis satisfying capital and liquidity requirements.

Liquidity management issues can arise once the Treasury draws on its deposit account to spend. Treasury spending associated with a functional macroeconomic programme will generate excess reserves in the interbank money market and put downward pressure on the interbank lending rate. To avoid this, the central bank would need to implement a (permanent) 'floor' interbank money market framework whereby all reserves are remunerated at the policy interest rate. As noted, the BoE has operated a 'floor' system since March 2009 due to similar effects created by its Asset Purchase Facility for the operation of QE.

It is widely feared that OMF would be inflationary due to the excess reserves in the banking system (see, for example, Turner, 2013). First, reserves are not held by non-financial sector agents so are not an inflationary type of liquidity (see earlier quote from Constancio, 2011). Second, we have shown in this paper that all government spending is financed by money creation, regardless of whether OMF is used or the existing practice of 'full funding'. Price pressures can emerge from excess demand, bottlenecks, commodity price rises, wage or profit pressures, composition of demand, etc. (Wray, 2009a). The use of highly liquid government securities for funding does not weaken price pressures or prevent them from emerging, *per se*.

OMF and the termination of government securities sale and management raise, at least, three operational issues.

First, OMF means that an offsetting asset would not accompany the increased liabilities of the central bank. But this is not a solvency issue since a central bank can operate with permanent negative equity. As the sole issuer of government/state money, a central bank has unlimited financial capacity to meet all obligations denominated in its own money of account. Rather, government securities are used by the central bank to accommodate the changes in its liabilities that arise from its role as the ultimate purveyor of liquidity. We have argued that this is to help create a liquid and efficient government securities market (redundant under OMF), but also to uphold good/exemplary accounting practice.

To preserve conventional accounting practice, HM Government could utilise its 'ways and means advance', like cash management prior to the DMO takeover in April 2000. While this overdraft facility represents a gross liability for HM Government, for the purposes of UK fiscal policy, intra-public sector holdings of assets/liabilities are netted out (see ONS, 2015). This means that political constraints could still be avoided since public sector net debt would be zero.

Second, secured lending in the overnight money market typically involves government securities for collateral. While OMF would be associated with excess system liquidity (reserves), individual banks may experience a daily shortage for various reasons so interbank lending (unsecured and secured) would still take place to address distributional issues. Further, non-bank financial institutions (such as money market funds, pension funds and

insurers) and non-financials (such as non-financial corporates and local authorities) also operate in the overnight money market on a secured basis (see Jackson and Sim, 2013).

To address the need for high quality collateral for secured lending in the overnight money market, the BoE could offer a collateral upgrade facility (like the Funding for Lending Scheme). This would allow market participants to borrow Central Bank bills from the BoE in exchange for a broad range of eligible collateral (e.g. portfolios of loans or various forms of asset-backed securities and covered bonds). The Central Bank bills could then be used as collateral in the overnight money market or in repo transactions with the BoE. The BoE could simply transact with reserve account holders on an unsecured basis, but this must be coupled with tight regulation of banks' exposures.

Third, (sovereign currency) government securities are default risk free assets which serve the functions of benchmark pricing and balancing the risk structure of investment portfolios. In the absence of 'safe' government securities, market participants (e.g. futures traders) would have to establish another pricing standard. However, the removal of these default risk free assets might encourage portfolio managers to be more cautious of their exposures and conduct robust due diligence, which is needed to enhance financial stability.²²

5. Financial stability and supervision

Many Post Keynesians turn to the works of Hyman P. Minsky for insights into the regulation of financial institutions. Like the Circuitists, Minsky (1993:36-7) argues that 'the key role of banking is lending or, better, financing' and in his view, the main objective of banking should be the capital development of the economy.

Mainstream economists hold to the ideal of contingent contracts existing for all states and future dates. Thus all risks can be hedged to prevent insolvency. From this perspective, a combination of innovation and market diversification promotes completeness along with a wider distribution of risk thus resulting in greater stability.

The instability of banks and other financial institutions is usually described in term of runs and defaults at particular institutions without a clear explanation of why such strong asset substitution quite suddenly becomes the rule of the day. A particular bank fails because of its own, idiosyncratic attributes, such as its management being incompetent or committing fraud. It is recognised, however, that such a failure may have repercussions for other banking institutions, because financial markets fail to work normally for a time and this may create transitory refinancing problems for otherwise solvent banks.

Minsky argued that regulators must recognize the cyclical nature of interactions between the financial system and the real economy (Kregel, 2014:7). Under his 'Financial Instability Hypothesis' (FIH) Minsky warns that it is impossible to prevent financial disruption because it

²² Government securities are also used towards satisfying international capital and liquidity standards (i.e. Basel III). However, central bank reserves and high quality government bonds are both recognised high-quality liquid assets so are perfect substitutes vis-à-vis satisfying capital and liquidity requirements.

is an endogenous process. Moreover, he observes that innovation is always driven by regulatory arbitrage (Minsky and Campbell, 1987:254-5). Mainstream approaches predicated on institution-specific risk ignore how system as a whole evolves over time. Therefore, regulation should be linked to the structure of financial system. Legislative reforms often provide no alternative to the very structure that produced crisis. Accordingly, he suggested that regulators should adopt a broader approach based on “dynamic” macro-prudential regulation.

Like other Post Keynesian economists (Crotty, 2009; Wray, 2009b, 2011), Minsky contends that the move to market-based regulation has distorted incentive structures around the globe, promoting a shift from the more robust “originate-and-hold” model to “originate-and-distribute” strategies (where banks act as principals in provision of client services). He cautions that this has encouraged financial institutions to take on higher risk due to the implicit guarantees provided by government. At the same time they have moved to rapidly off-load any potential risk to both the institution and its management by transferring it to capital market investors (as occurred during the 1980s Leveraged Buy Out debacle).

The resulting growth of large, global, multi-functional, financial conglomerates was justified by mainstream regulators due to the presumption of economies from cross-sales of financial services, the scope for cross-hedging of risks, and, in the US, the spurious notion that home-grown corporations should be able to compete on a level playing field (despite fact that the Gramm-Schmidt legislation applied to foreign firms and did not apply to US firms abroad).

The actual consequences were (Levy Institute 2011 Report: 9) a dramatic increase in the size of these new conglomerates, which were much larger than the deposit-taking banks they replaced; a greater correlation of risk associated with cross-hedging, the isolation of information needed for effective regulation within financial management ‘silos’; and processes of integration that made it hard either to prevent, resolve or even determine counter-party risk. Although profits rose, Minsky warned that the overall efficiency of the financial system declined because government guarantees lowered borrowing costs; and concentration increased monopoly power over the pricing of services, while moral hazard was augmented by riskier “within-bucket” returns as risk takers were temporally rewarded with higher returns because higher leverage drove up the prices of the underlying assets.

Minsky favoured a move away from these conglomerate structures, and recommended policies to encourage the growth of Community Development Banks (CDBs), including through Public-Private Partnerships (PPPs). Where institutions with a large capital base would privilege ‘big deals’, he argued that smaller CDBs would encourage wider range of services, particularly to low-income consumers, and small or start-up firms, thus helping to reduce the need to resort to costly credit card debt.

Largely in response to these growing global and systemic weaknesses, the UK Government introduced *The Financial Services Act 2012*. Previously, the management of financial stability was the responsibility of the ‘tripartite authorities’: HM Treasury, the BoE, and the Financial

Services Authority (FSA). It was widely appreciated, however, that respective responsibilities and powers were not appropriately specified by the existing Memorandum of Understanding (MoU) between these authorities. There was a widespread view that the FSA, in particular, had neglected macro-prudential supervision (HoL, 2009), given the systemic rather than idiosyncratic character of fragility (Turner, 2009).

Accordingly, the FSA was replaced under the Act by the Financial Conduct Authority (FCA) which held responsibility for identifying, monitoring, and taking action with respect to the resilience of the UK financial system as a whole. In addition, the Prudential Regulation Authority (PRA) and the Financial Policy Committee (FPC) were established with the latter responsible for the BoE's macro-prudential authority, with powers to issue recommendations to the FCA and the PRA, and other bodies; and, to give directions to the PRA and FCA in regard to the deployment of specific macro-prudential tools.

These powers were strengthened with the introduction of Basel III (EU, 2014), which introduced three important mechanisms: a *capital conservation buffer*, *countercyclical capital buffer* (CCB) and *systemic risk buffer* (Farag et al. 2013). As Buiter (2008) has argued, regulation should target excessive risk, not institutions, products, services or activities. Nevertheless, not only can the FPC raise the CCB, but it can now raise sectorial capital requirements (SCRs) on bank exposures to specific sectors (e.g. residential property) when more localised forms of financial instability threaten.²³

In October 2014, the FPC recommended that the PRA set leverage ratio (capital to total assets) requirements and buffers for PRA-regulated institutions. The proposed tools include a *minimum leverage ratio requirement*, a *supplementary leverage ratio* for systemically important institutions, and a *countercyclical leverage ratio buffer*. To help calibrate SCRs, CCBs and leverage ratio tools, the BoE and PRA have designed stress testing methodologies to regularly assess the UK banking system's capital adequacy (see BoE, 2015). The stress tests represent 'a coherent 'tail-risk' scenario that has been designed specifically to assess the resilience of UK banks and building societies to a deterioration in global economic conditions' (BoE, 2015:3).

Nevertheless, critics of the existing regulatory framework complain that banks are still allowed to (i) measure their own risk which influences their capital holdings; and, (ii) hold assets off balance sheet (OBS) with no capital required to support them (Wray, 2011). Moreover, stress testing can still underestimate the probability of extreme loss events, which can contribute to capital complacency.²⁴ Wray (2011) argues that banks which have recourse to the central bank as a lender-of-last-resort and market-maker-of-last-resort are public

²³ In September 2014, the FPC also recommended that the PRA place limits on residential mortgage lending, both owner-occupied and buy-to-let, via *loan to value ratios* and *debt to income ratios*, including interest coverage ratios in respect of buy-to-let lending (BoE, 2014a).

²⁴ For example, according to VaR models, a tail event, say 7.3 standard deviations, would occur once every 13 billion years. Yet, just prior to the crisis, tail events of 25 standard deviations were occurring several days in a row (Crotty, 2009).

utilities, and so, should serve the public purpose and be tightly regulated. Protected banks should hold loans to maturity and be prohibited from securitising which removes the 'originate to distribute' incentives (Wray, 2011). Buiter (2009) recommends that their 'unprotected' counterparts could be subject to scale constraints by making regulatory capital ratios an increasing function of bank size (e.g. total assets), and compelled to develop and maintain annual bankruptcy contingency plans to encourage tracking and recording exposures

In addition, securitization procedures continue to undermine good underwriting practices, since information is not bundled with the loans so that the quality of the assets backing the security is unknown to investors, and even to the rating agencies (Buiter, 2009). For this reason, Buiter (2009) has recommended that originators be required to retain a sizable fraction of the equity tranche or first-loss tranche of the securitised instrument. And in 2009, G20 Leaders recommended that standardised over-the-counter (OTC) derivatives should be cleared through central counterparties (CCPs) (BoE, 2015). As the BoE (2015: 11) has observed, 'CCPs centralise, net and manage counterparty credit risk in the markets they clear, by acting as the buyer to every seller and the seller to every buyer'. The shift to exchanges means that OTC securities become more transparent and counterparty risk is reduced (Crotty and Epstein, 2009). Buiter (2009) and Crotty and Epstein (2009) suggest that new financial products should be rigorously tested, akin to new pharmaceuticals. New products could also be subject to a 'cooling off' period to avoid them being hurried into the market.

The structure of incentives and rewards can also be changed to one which encourages less risky bets, lower leverage ratios, and longer-term profits. Crotty and Epstein (2009:20) recommend creating a more symmetrical remuneration structure by implementing 'clawbacks' whereby 'excessive salaries and bonuses paid during the upturn would have to be repaid in the downturn'. Turner (2009) argues that a significant portion of bonuses should be paid in deferred cash or shares with a deferral period appropriate to the nature of the business and its risks. Buiter (2009) suggests that shareholders should have an annual vote on the individual and total remuneration packages of the top five managers of a company and top five earners. If the remuneration package is rejected, the default package cannot exceed that of the head of government.

More radical proposals for reform have been made. For example, Minsky's one-time colleague, Ronnie Phillips, endorsed Tobin and Friedman's 100% reserve system (Kregel, 2014; Levy 2011 Report). Nevertheless, in Minsky's view: "this proposal loses sight of 'the main object: the capital development of the economy'" (Minsky, 1993:36-7). His own preferred alternative was to adopt direct controls: (Levy Institute Report, 2011: 39). This would force banks "into the (Fed) bank" giving it more leverage over their activities. At the same time, the CB would acquire more knowledge of both balance-sheet structures, and of the income and competence of bank clients, a situation which, Minsky contended, was entirely justifiable for an institution responsible for lender of last resort provisions.

6. Conclusion

Sound finance principles and the formal separation of monetary and debt management policy disguise the financial capacity of sovereign currency governments, such as HM Government, and undermine the achievement of functional macroeconomic objectives.

The Circuitist distinction between financing and funding, which is enhanced by the MMT discussion of vertical transactions in the monetary circuit, reveals the shortcomings of the conventional interpretation of the GBC which underpins sound finance.

The institutional details reveal that monetary payments into Treasury accounts, including the payment of taxes and the settlement of government securities sales, must involve the prior provision of central bank money. This means that (i) all drawings on Treasury deposit accounts with the central bank (i.e. spending) is already financed by money creation in the initial stage of the monetary circuit; and, (ii) taxes and government securities, which involve money destruction, cannot constrain Treasury spending.

Debt management policy aims to promote a liquid and efficient market for government securities which assists with the implementation of monetary policy and other liquidity management operations of the central bank. In other words, government securities (asset) are used to accommodate the issue and banking (liability) operations of the central bank.

This institutionally based understanding of monetary and fiscal operations allows the macroeconomic policy debate to be reframed. In this paper, we have focused on the monetary implications of implementing a policy framework which specifically promotes full employment, price stability, and equality and reduced financial fragility.

In particular, we argue that fiscal authorities should manage the level of employment, level and composition of investment, and the growth of income and pricing mechanisms more broadly. The Job Guarantee is an integral component of this fiscal strategy. While it is likely that this programme would be associated with increased net government sector spending and, given a full-funding issue policy, the increasing issue of government securities, we argue that *political* constraints associated with rising government debt can be avoided by adopting a zero-funding issue policy (i.e. OMF).

Monetary authorities, on the other hand, should abandon conventional (and unconventional) monetary policy, which is ineffective and distortionary, and instead focus solely on financial stability and supervision. The BoE has made progress in improving macro-prudential regulation following the crisis, but the existing financial architecture is still problematic. Drawing on Minsky's insights, we have suggested a number of policies which aim to reduce the fragility of the financial system, and reinforce the government's other economic and social policy objectives.

References

- Ajello, A., Laubach, T., Lopez-Salido, D. and Nakata, T. 2015. 'Financial stability and optimal interest-rate policy', Federal Reserve Board, February.
- Auerbach, A.J., Gale, W.G., Orszag, P.R. and Potter, S.R. 2003. 'Budget Blues: The Fiscal Outlook and Options for Reform.' in Aaron, H.J. Lindsey, J.M. and Nivola, P.S. (eds.), *Agenda for the Nation*. Washington, DC: Brookings Institution.
- Batini, N. and Nelson, E. 2002. 'The lag from monetary policy actions to inflation: Friedman revisited', Discussion Paper No. 6, External MPC Unit, Bank of England.
- Bell, S. 2001. The role of the state and the hierarchy of money, *Cambridge Journal of Economics*, vol. 25, no. 1, 149-63.
- Bernanke, B.S. 2015. 'Should monetary policy take into account risks to financial stability?' Brookings Institution, 7 April.
- Blyth, M. 2012. The Last Days of Pushing on a String, *Harvard Business Review*, 7 August, available at <https://hbr.org/2012/08/the-last-days-of-pushing-on-a/>
- BoE 1966. Exchequer and central government finance, *Bank of England Quarterly Bulletin*, vol. 6, no. 1, 29-36.
- BoE 1999. The transmission mechanism of monetary policy, Bank of England, available at: <http://www.bankofengland.co.uk/publications/Documents/other/monetary/montrans.pdf>
- BoE 2002. 'Operations in the sterling money markets', Bank of England, May. <http://www.bankofengland.co.uk/markets/Documents/money/stermm3.pdf>
- BoE 2012a. Markets and operations, *Bank of England Quarterly Bulletin*, vol. 52, no.2, 100-12.
- BoE 2012b. 'The framework for the Bank of England's operations in the sterling money markets', Bank of England, June.
- BoE 2014a. 'Progress on previous macroprudential policy decisions', Bank of England's Financial Stability Report, Section 4, December.
- BoE 2014b. 'Annual report 2014', Bank of England, June.
- BoE 2015. 'Explanatory notes - central bank's balance sheet', Bank of England, available at: http://www.bankofengland.co.uk/statistics/Pages/iadb/notesiadb/central_bank_bs.aspx
- BoE 2015. 'Stress testing the UK banking system: key elements of the 2015 stress test', Bank of England, March
- Bougrine, H. and Seccareccia, M. 2002. Money, taxes, public spending, and the state within a circuitist perspective, *International Journal of Political Economy*, vol. 32, no. 3, 58-79.
- Buiter, W.H. (2008) 'Lessons from the North Atlantic financial crisis', Paper presented at the conference *The Role of Money Markets* organised by Columbia Business School & the Federal Reserve Bank of New York. <http://newyorkfed.org/research/conference/2008/rmm/buiter.pdf>
- Buiter, W.H. 2009. 'Lessons from the global financial crisis for regulators and supervisors', Discussion Paper No. 635, London School of Economics.
- Constancio, V. 2011. 'Challenges to monetary policy in 2012', speech at the Twenty-Sixth International Conference on Interest Rates, Frankfurt am Main, December.
- Crotty, J. 2009. Structural causes of the global financial crisis: a critical assessment of the 'new financial architecture', *Cambridge Journal of Economics*, vol. 33, no. 4, 563-80
- Crotty, J. and Epstein, G. 2009. Avoiding another meltdown, *Challenge*, vol. 52, no. 1, 5-26.
- Frag, M., Harland, D. and Nixon, D. 2013. Bank capital and liquidity, *Bank of England Quarterly Bulletin*, vol. 53, no. 3, 201-15.

- Ferguson, N. and Kotlikoff, L.J. 2003. Going critical: American power and the consequences of fiscal overstretch, *National Interest*, Fall, 22-32.
- Forstater, M. 1998. Flexible full employment: structural implications of discretionary public sector employment, *Journal of Economic Issues*, vol. 32, no. 2, 557-63.
- Forstater, M. 2003. Public employment and environmental sustainability, *Journal of Post Keynesian Economics*, vol. 25, no. 3, 385-406.
- Forstater, M. 2006. Tax-driven money: additional evidence from the history of thought, economic history, and economic policy, in Setterfield, M. (ed.) *Complexity, Endogenous Money, and Exogenous Interest Rates*, Cheltenham, Edward Elgar.
- Friedman, M. 1972. Have Monetary Policies Failed?, *American Economic Review* (Papers and Proceedings), vol. 62, 11-18.
- Fullwiler, S.T. 2006. Interest Rates and Fiscal Sustainability, Wartburg College and the Center for Full Employment and Price Stability, Working Paper, 53.
- Goodhart, C. 1989. The conduct of monetary policy, *The Economic Journal*, vol. 99, no. 396, 293-346.
- Goodhart, C. 1998. The two concepts of money: implications for the analysis of optimal currency areas, *European Journal of Political Economy*, vol. 14, no. 3, 407-32.
- Goodhart, C. 2012. Monetary policy and public debt, *Banque de France Financial Stability Review*, No. 16, April.
- Graziani, A. 1987 [1994]. Keynes' finance motive, in Wood, J.C. (ed.) *John Maynard Keynes: Critical Assessments*, London, Routledge.
- Graziani, A. 1990. The theory of the monetary circuit, *Économies et Sociétés*, vol. 24, no. 6, 7-36.
- HM Treasury 2015. 'Debt and reserves management report 2015-16', HM Treasury, March.
- HoL 2009. 'Economic Affairs Committee - second report: Banking supervision and regulation', House of Lords Economic Affairs Committee Publications, May
- Ingham, G. 2004. *The Nature of Money*, Cambridge, Polity Press.
- Innes, A.M. 1914. The credit theory of money, *Banking Law Journal*, vol. 31, January, 151-68.
- Jackson, C. and Sim, M. 2013. Recent developments in the sterling overnight money market, *Bank of England Quarterly Bulletin*, vol. 53, no. 3, 223-32.
- Juniper, J., Sharpe, T.P. and Watts, M.J. 2014. 'The triple crisis: a modern monetary theory response', paper presented at the 16th Conference of the Association for Heterodox Economics, 2-4 July, University of Greenwich, London.
- Juniper, J., Sharpe, T.P. and Watts, M.J. 2014-15. Modern monetary theory: contributions and critics, *Journal of Post Keynesian Economics*, vol. 37, no. 2, 281-307.
- Knapp, G.F. 1924. *The State Theory of Money*, New York, Augustus M. Kelley.
- Kregel, J.A. 2014. 'Minsky and dynamic macroprudential regulation', Public Policy Brief No. 131, Levy Economics Institute.
- Leeper, E.M. and Nason, J.M. 2008. Government budget constraint, in Durlauf, S.N and Blume, L.E. (eds.) *The New Palgrave Dictionary of Economics Online*, Palgrave Macmillan.
- Lerner, A.P. 1943. Functional finance and the federal debt, *Social Research*, vol. 10, no. 1, 38-51.
- Lerner, A.P. 1947. Money as a creature of the state, *American Economic Review*, vol. 37, no. 2, 312-17.
- McLeay, M., Radia, A. and Thomas, R. 2014. Money creation in the modern economy, *Bank of England Quarterly Bulletin*, vol. 54, no. 1, 14-27.
- Minsky, H.P. 1986. *Stabilizing an Unstable Economy*, New York, McGraw Hill.

- Minsky, H.P. 1993. 'The economic problem at the end of the second millennium: creating capitalism, reforming capitalism and making capitalism work', Paper No. 101, Levy Economics Institute.
- Minsky, H.P. and Campbell, C. 1987. How to get off the back of a tiger, or, do initial conditions constrain deposit insurance reform? in *Merging Commercial and Investment Banking—Risks, Benefits, Challenges: Proceedings, A Conference on Bank Structure and Competition*, Chicago, Federal Reserve Bank of Chicago, 252-66.
- Mitchell, W.F. 1998. The buffer stock employment model and the NAIRU: the path to full employment, *Journal of Economic Issues*, vol. 32, no. 2, 547-55.
- Mitchell, W.F. 2009a. 'Deficit spending 101 – Part 3', Billy Blog, 2 March.
- Mitchell, W.F. 2009b. 'Operational design arising from modern monetary theory', Billy Blog, 20 September.
- Mitchell, W.F. 2009c. 'Asset bubbles and the conduct of banks', Billy Blog, 2 October.
- Mitchell, W.F. 2013. 'What is a job guarantee?' Billy Blog, 5 May.
- Mitchell, W.F. 2015. 'Monetary policy is largely ineffective', Billy Blog, 8 April.
- Mitchell, W.F., Watts, M.J. and Juniper, J. 2014. 'Overt monetary financing: theoretical foundations and policy debates', mimeo, University of Newcastle, December.
- Mosler, W. 1997-98. Full employment and price stability, *Journal of Post Keynesian Economics*, vol. 20, no. 2, 167-82.
- National Audit Office 2014. 'Consolidated fund account 2013-14', National Audit Office, July.
- ONS 2015. 'Statistical bulletin: public sector finances, December 2014', Office for National Statistics, January.
- Osborne, G. 2015. 'Remit and recommendations for the financial policy committee', Chancellor of the Exchequer, March.
- Parguez, A. and Seccareccia, M. 2000. The credit theory of money: the monetary circuit approach, in Smithin, J. (ed.) *What is Money?* London, Routledge, 101-23.
- Sharpe, T.P. and Watts, M.J. 2012. Policy advice in crisis: how inter-governmental organisations have responded to the GFC, *Journal of Australian Political Economy*, vol. 69, winter, 103-33.
- Sharpe, T.P. and Watts, M.J. 2013. Unconventional monetary policy in the UK: a modern money critique, *Economic Issues*, vol. 18, no. 2, 41-64.
- Tcherneva, P.R. 2006. Chartalism and the tax-driven approach, in Arestis, P. and Sawyer, M. (eds.) *A Handbook of Alternative Monetary Economics*, Cheltenham, Edward Elgar, 69-86.
- Tinbergen, J. 1952. *On the Theory of Economic Policy*, Amsterdam, North-Holland Pub. Co.
- Tucker, P., Hall, S. and Pattani, A. 2013. Macroprudential policy at the Bank of England, *Bank of England Quarterly Bulletin*, vol. 53, no. 3, 192-200
- Turner, A. 2009. 'The Turner review: A regulatory response to the global banking crisis', Financial Services Authority, March.
- Turner, A. 2013. 'Debt, money and mephistopheles: how do we get out of this mess?' mimeo, Cass Business School, February.
- Tymoigne, E. 2008. 'Minsky and economic policy: "Keynesianism" all over again?' Working Paper No. 547, Levy Economics Institute.
- Tymoigne, E. 2014. Modern monetary theory, and interrelations between the Treasury and central bank: the case of the United States, *Journal of Economic Issues*, vol. 48, no. 3, 641-62.
- Tymoigne, E. and Wray, L.R. 2013. 'Modern monetary theory 101: a reply to critics', Working Paper No. 778, Levy Economics Institute.

- Tymoigne, E. and Wray, L.R. 2015. Modern money theory: a reply to Palley, *Review of Political Economy*, vol. 27, no. 1, 24-44.
- Watts, M.J. (2012) 'Debt Management in the UK and Australia: Breaking the Nexus between Fiscal and Monetary Policy?', Association of Heterodox Economists, Paris, France, July.
- Watts, M.J. and Sharpe, T.P. 2013. Immutable laws of debt dynamics, *Journal of Post Keynesian Economics*, vol. 36, no. 1, 59-84.
- Wray, L.R. 1998a. *Understanding Modern Money: The Key to Full Employment and Price Stability*, Cheltenham, Edward Elgar.
- Wray, L.R. 1998b. Zero unemployment and stable prices, *Journal of Economic Issues*, vol. 32, no. 2, 539-45.
- Wray, L.R. 2009a. 'Return to big government: policy advice for President Obama', Public Policy Brief No. 99, Levy Economics Institute.
- Wray, L.R. 2009b. The rise and fall of money manager capitalism: a Minskian approach, *Cambridge Journal of Economics*, vol. 33, no. 4, 807-28
- Wray, L.R. 2011. 'Lessons we should have learned from the Global Financial Crisis but didn't', Working Paper No. 681, Levy Economics Institute.