Public debt management and monetary policy

Debt Management Facility (DMF) Stakeholders' Forum 2011
“Managing debt: lessons learnt and emerging issues”
Session 6: Domestic debt market development

Berne, Thursday 9 June 2011

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INTRODUCTION

The quality of public debt management and a strong, credible central bank are most important for economic development. Take just one, frequently asked question. Why did Britain surpass France, a country which had significantly larger economic resources in the 18th century?

In his famous book *The Cash Nexus* (Ferguson, 2001), Niall Ferguson credits the founding of the Bank of England and the fact that British government debt management was better than that of the French:

“... after the Glorious Revolution, Britain had representative government, which ... reduced the likelihood of default, since the bondholders who had invested in the National Debt were among the interests best represented in Parliament. The National Debt itself was largely funded (long-term) and transparently managed (especially after the advent of the consol). And the Bank of England – which again had no French analogue – also guaranteed the convertibility of the currency into gold (save in an extreme emergency), reducing if not eliminating the risk of default through inflation. It was these institutions which enabled Britain to sustain a much larger debt/GDP ratio than France because they ensured that the interest Britain paid on her debt was substantially less than France paid on hers. If one seeks a fiscal explanation for Britain’s ultimate triumph over France in their global contest, it lies here.”

The World Bank has long taken this lesson to heart in the seriousness and the professionalism it has brought to public debt management. In 1999, Graeme Wheeler invited me to attend the World Bank’s Second Sovereign Debt Management Forum. This focused on managing risk within a general asset and liability framework, which was expounded with great clarity by Phillip Anderson, then Treasurer at New Zealand’s Debt Management Office. Several papers presented at this conference also explored the links with macroeconomic policies. The resulting conference volume (World Bank, 2000), containing as it does many diverse perspectives with participants voicing different views, should be required reading for debt managers.

At about the same time, the BIS organised a meeting of central bank deputy governors to consider reforms in the area of debt management. BIS (2000) summarises this meeting. The BIS’s Committee on the Global Financial System (CGFS) has recently explored how the recent crisis has altered the links between sovereign debt management for monetary policy and financial stability: CGFS (2011) was published last month.

One important reform in the 1990s was to take from central banks the operational responsibility for managing government debt. Many supported such a move on the grounds of conflict of interest. The argument was that any mandate for keeping yields on government bonds down (or limiting volatility) could conflict with the monetary policy need to adjust interest rates in the light of changing economic conditions. Even if the central bank resists such a temptation, market perceptions of such a conflict might affect inflation expectations.
Another conflict of interest is that advanced knowledge of its interest rate decisions could induce a central bank to bring forward bond issuance ahead of raising interest rates.

The operational responsibility of managing government debt was in several countries given to independent Debt Management Offices, which were given certain objectives (usually to minimise expected costs subject to pre-defined risk tolerance limits). There was the widespread adoption of portfolio benchmarks. This realignment of policy frameworks often went together with the independence of central banks with clear inflation mandates. There is no doubt that these reforms helped to make government debt markets work better, and lower long-term borrowing costs for governments. But it is not difficult to imagine circumstances that would make this separation of policy mandates rather inefficient.

**IS THE SEPARATION FROM MONETARY POLICY ROBUST?**

**Tobin's equivalence**
The obvious logical difficulty in separating monetary policy and public debt management is well known. It is that both policies involve the sale of official debt – albeit in different forms – to the private sector. Firms and households react as the composition of their portfolios is altered – and such responses have macroeconomic effects.

Central banks in effect issue the shortest duration official debt in their operations to implement monetary policy. From the perspective of portfolio choice, government issuance of short-term debt is like monetary expansion. Tobin (1963) puts this point well:

“There is no neat way to distinguish monetary policy from debt management, [both] the Federal Reserve and the Treasury … are engaged in debt management in the broadest sense, and both have powers to influence the whole spectrum of debt. But monetary policy refers particularly to determination of the supply of demand debt, and debt management to determination of the amounts in the long and nonmarketable categories. In between, the quantity of short debt is determined as a residuum.”

He went on to argue for the use of debt management (ie shifting between short-dated and long-dated paper) as a countercyclical policy to influence private capital formation, and thus real output. His conclusion was that:

“The Federal Reserve cannot make rational decisions of monetary policy without knowing what kind of debt the Treasury intends to issue. The Treasury cannot rationally determine the maturity structure of the interest-bearing debt without knowing how much debt the Federal Reserve intends to monetise.”

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1 His suggestion was that full responsibility for Federal government debt management be assigned to the Federal Reserve, not the US Treasury. One aspect Tobin did not address might be noted: a central bank of a monetary area of several independent countries faces a special challenge because there is only one central
He based his analysis on portfolio choice under uncertainty (which he had used in his famous interpretation of Keynes’s liquidity preference theory). Official sector sale of assets alters private portfolios, forcing investors to rebalance. No one nowadays disputes his analysis. But portfolio rebalancing effects can take many, quite different, forms – depending on the specific circumstances of time and countries. And there is much controversy about the size of effects in practice.

The 2007-xx financial crisis
The recent financial crisis has reinforced these traditional questions about the separation between monetary policy and debt management policies. Major central banks have used their balance sheets to drive down the rate of interest of long-term government bonds. (The main exception to this policy has been the European Central Bank (ECB). The ECB does not of course have a single government in front of it, but instead many governments of different credit standings). How, then, should we think of the link between monetary policy and debt management policy in the light of these new policies?

The World Bank has done some excellent work in this area. Eriko Togo (2007) has laid out very carefully a general model for integrating public debt management into a macroeconomic policy framework. Her story is that lowering debt service charges by borrowing short increases the risk premium that the government would have to pay in adverse circumstances in the future.

My focus will be a little more specific. It will be on how particular circumstances of macroeconomic or financial system weaknesses could reduce asset substitutability in financial markets. As asset substitutability declines, conventional central bank interest rate policy tools (such as the overnight rate) become less effective and balance sheet policies more effective. The boundary between debt management and monetary policy therefore becomes more blurred, creating a greater need for policy coordination. This note considers this issue in a world of fiscal dominance. The arguments summarised here are spelt out more fully in Turner (2011), which contains the necessary qualifications to the assertions that follow.

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2 In drawing lessons of the crisis for macroeconomic policies, Reddy (2011) argues that “the separation of various functions in the public sector to avoid conflict of interest has, to some extent, resulted ineffectiveness of public policy, particularly in terms of coordination in management of money and finance.”
New fiscal dominance?

According to BIS estimates of global aggregates, government bonds outstanding amounted to over $40 trillion at June 2010, compared with $14.4 trillion in 2000. Public debt managers are facing a massive increase in the global stock of government debt. This is going to have lasting effects on the size and the composition of private sector balance sheets.

In addition, there is huge uncertainty about the size of future budget deficits and their financing. How quickly deficits should be reduced? Some would stress deflation risks and others inflation risks. What choices will governments make and how will these influence future rates of inflation? In any event, it is certain that government debt/GDP ratios in major countries will continue to rise. Even the optimistic G20 pronouncements do not envisage debt/GDP ratios in the advanced countries stabilising before 2016.

(i) Perspectives from economic theory

There is no agreed theory on the impact of large government debt on the long-term interest rate. One question is: how strong are Ricardian effects? In a world of full Ricardian Equivalence, households increase their savings by the present value of future taxes needed to repay government debt. Their desired bond holdings rise by the exact increase in government debt issuance. The long-term interest rate therefore remains constant.

Another question is whether fiscal dominance or monetary dominance will prevail. If there is fiscal dominance, near-term interest rates would be kept lower than under monetary dominance. But higher expected inflation would drive up nominal interest rates further out. If there is monetary dominance, on the other hand, it would be the reverse.

In any case, the issue is more complex than fiscal versus monetary dominance. Faithful adherence to an anti-inflation monetary rule may not by itself be sufficient to ensure price stability – because government policy frameworks may engender fiscal expectations that are inconsistent with stable prices.3

In short, there is great uncertainty about impact of high government debt on future inflation rates and on real interest rates … and thus on the long-term interest rate.

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3 Woodford (2000) demonstrated that: "... even when both fiscal and monetary policy are consistent with ... an equilibrium with stable prices (as one possible outcome) ... expectations [may] ... coordinate upon an equilibrium ... in which the price level is determined by expectations regarding the government budget ... [even given a] commitment by the central bank to a Taylor rule."
(ii) Destabilising market dynamics?

What precisely this will mean for the future interest rate volatility depends in part on market dynamics. Banks have taken leveraged positions in government bonds. The larger interest rate exposures become, and the more dependent they are on leverage, the greater the probability of destabilising dynamics. When expectations about yields change, households with variable rate mortgages, banks and other leveraged investors may all tend to “herd” in their efforts to cut interest rate exposures. Even a temporary bout of financial market volatility can undermine the value of an asset as collateral. This dimension of “collateral capacity” can be crucial for new EME financial assets during periods of market stress.

Imperfect asset substitutability across maturities

Uncertainty about future interest rates is important because it determines whether investors regard short-term and long-term paper as close substitutes. In a world of perfect certainty about future short-term rates, debt of different terms would be perfect substitutes for one another. When short-dated and long-dated paper are close substitutes, control of the overnight interest rate is sufficient for central banks to affect the near end of the yield curve.

But uncertainty about the path of future interest rates will make debt of different maturities imperfect substitutes. Because of this, changes in the mix of short-term and long-term bonds offered by the government will change relative prices, and so influence the shape of the yield curve. At the same time, monetary policy based on setting the policy rate becomes less effective as transmission to other interest rates is reduced. Hence central bank purchases or sales of bonds become more effective exactly when classic monetary policy – reliant on the overnight rate – works less well.

This perspective is much broader than the special case of the Zero Lower Bound – when the overnight rate can’t be reduced. Even when the policy rate is above zero, imperfect asset substitutability means that monetary policy can be made to work more surely and more rapidly by central bank action in longer-dated markets. It therefore applies to policies of monetary restriction as much as to policies of monetary ease. This may become relevant in the years ahead.

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4 Fostel and Geanakoplos (2008) demonstrate just how important is the impact of collateral practices on demand for non-core financial assets. The “collateral capacity” of an asset depends on its volatility. If this increases (or is expected to increase), the value of an asset as collateral falls much more than its market price because lenders demand larger haircuts of more volatile assets. Leveraged investors will therefore become more inclined to buy assets which they can pledge as collateral with minimum “haircuts” (ie the discount applied to the asset’s current market value) to their bankers – and may have to forego buying some assets regarded as underpriced (because their price has become too volatile).
It may also have been relevant a few years ago. Take the famous “conundrum” of Greenspan. The fall in bond yields in the early phase of Federal Reserve tightening in 2004–05 was seen as weakening the restrictive impact of higher policy rates. But the Fed could have countered this by direct sales of long-term bonds. How effective this would have been in driving yields higher depends on the degree of asset substitutability.

It could be argued that a policy of bond sales would have been ineffective given the prevailing sense of interest rate predictability at the time of the “conundrum”. At that time, banks were all-too-willing to take huge maturity exposures. But such an argument is not quite decisive – because this very sense of interest rate predictability was itself deliberately nurtured by the Federal Reserve policy of a “measured pace” in increasing the Federal funds rate. The Fed was anxious to avoid a repeat of the bond market collapse that took place around the early 1994 tightening. This predictability itself probably made banks and others increase their leverage – including in interest rate markets – and so kept long-term rates low.

Analysis of this is very difficult. There is no reason to expect the degree of substitutability between assets of different maturities to be constant over time. In addition to the uncertainty about future interest rates created by large government debt, the ability of financial intermediaries to take maturity exposures will also be an important determinant. Collateral requirements on leveraged investors in financial assets will also affect the relative attractions of different assets. All these determinants are likely to change over the cycle. In a crisis, therefore, asset substitutability will fall. This is not only because uncertainty about future interest rates rises. It is also because banks will impose more demanding collateral requirements and will be less able to undertake interest rate arbitrage operations. Such uncertainty and the impaired intermediation capacity of banks were important justifications for the exceptional balance sheet policies that central banks in the major countries followed in the recent crisis.

Central banks in EMEs, where financial markets are typically thinner, may need to be more interventionist. The domestic investor base is often quite small and often dominated by a few large, local banks. This means that local bonds are less reliable as collateral at times of market stress (Fostel and Geanakopolos, 2008).

The authorities in several EMEs did indeed directly support local bond markets when they were disrupted in autumn 2008 after the failure of Lehman Brothers. Take the case of Mexico – a country which had followed for many years of a policy of financing its debt in domestic
currency in local markets. The collapse of confidence in their bond markets led to the following policy measures:

- A shortening of the maturity of new debt issuance;
- Official purchases of long-term government bonds in the market;
- A central bank interest rate swap facility which allowed bond holders to reduce their exposure to the long-term interest rate.

The central bank could not just reduce the policy rate but had to take direct action to lower the long-term rate in government debt markets.⁵

Policymakers will not find it easy in real time to identify large but temporary shocks that distort investors’ portfolio choices. Nor will they be able to quantify the impact on underlying asset substitutability. What often becomes clear in retrospect (eg incipient rises in bond market volatility related to worries about fiscal deficits, difficulties in finding adequate collateral, leveraged positions in interest rate markets holding down long-term yields etc) will not be so obvious and measurable at the time.

**The long-term interest rate and financial stability**

Policy choices are made yet more difficult by another complication: the importance of the long-term rate for financial stability.

It could be dangerous to manipulate the long-term interest rate just for macroeconomic objectives. The potential side-effects on financial stability could be significant. It is the structure of interest rates that creates incentives for the maturity exposures that households and the financial industry choose to take.

The elements of maturity risks are very simple. Savers want their part of their assets to be liquid but real productive investment is longer-term and illiquid. This gap can be bridged by maturity transformation offered by banks, by other financial firms, by markets or by government. The problem is that economic theory does not provide clear guidance about the optimal degree of maturity transformation or about who is best placed to undertake it.

Keynes touched on this issue in his analysis of public debt management. His liquidity preference theory suggests that the private sector’s willingness to assume liquidity and

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⁵ In addition, other unorthodox policy measures were also adopted. Several EMEs (eg Indonesia, Malaysia and the Philippines eased mark-to-market rules on banks and other financial institutions holding bonds – especially after the IASB and the accounting rulemakers in the United States had relaxed mark-to-market rules for illiquid assets. The justification is that relaxing such rules can forestall distress selling which could destabilise the whole system.
maturity risks is not well-anchored in fundamentals. Instead it is dominated by cyclical and subjective factors. Hence his policy prescription was that government debt issuance should “accommodate the preferences of the public for different maturities”.

The recent analysis by Jean Tirole (2008) of maturity transformation by financial intermediaries with long-term liabilities (such as pension funds and insurance companies) carries this Keynesian tradition further. In the presence of macroeconomic shocks that affect everybody simultaneously, he argues, what is needed is an external risk-free store of long-term value such as government bonds. Echoing Keynes, he writes, “risk-free securities are held because they deliver cash when firms need it: they are liquid in the macroeconomic sense.” In effect, he argues for a prudential floor for the real long-term rate of interest. This controversial issue clearly requires more analysis. In any event, central banks cannot ignore the incentives for maturity exposures created by the structure of interest rates.

Macroeconomics of central bank operations in government debt markets
But the main emphasis of Keynes was on the macroeconomic theory. Open market operations in long-term government debt were central to his analysis in his Treatise on Money of how to combat slumps. His focus was on the asset side of the central bank’s balance sheet – not on the liability side. This is very similar to the Federal Reserve’s rationale for Quantitative Easing. Central bank purchases have the aim of improving the markets for paper held as assets on the balance sheets of commercial banks.

Keynes argued for what he called “open market operations to the point of saturation”:

“My remedy in the event of the obstinate persistence of a slump would consist, therefore, in the purchase of securities by the central bank until the long-term market rate of interest has been brought down to the limiting point.”

He felt that central banks had “always been too nervous hitherto” about such policies, perhaps because under the “influence of crude versions of the quantity theory [of money].” He repeated this analysis in The General Theory:

“The monetary authority often tends in practice to concentrate upon short-term debts and to leave the price of long-term debts to be influenced by belated and imperfect reactions from the price of short-term debts – though … there is no reason why they need do so.”

One constraint Keynes saw was that a central bank acting alone would simply induce capital outflows: he felt the newly established BIS could encourage internationally coordinated

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6 Keynes (1930), pp 331–2.
central bank efforts to reduce long-term interest rates. Per Jacobsson, Economic Adviser at the BIS at the time, also strongly supported policies aimed at reducing long-term rates.

Keynes went on to suggest that the “most important practical improvement which can be made in technique of monetary management” would be to replace “the single Bank rate for short-term bills” by “a complex offer by the central bank to buy and sell at stated prices gilt-edged bonds of all maturities”.

It was Tobin in the 1960s who developed the theoretical models of how central bank operations in long-term debt markets work. This focus was on portfolio rebalancing channels.

- One channel is rebalancing between domestic assets. Central bank purchase of bonds force lower bond holdings on the private sector. The effect on the yield curve is greater the lower the degree of substitutability between long-dated and short-dated paper.

- Another is the international portfolio rebalancing channel. Central bank purchases to lower long-term yields should shift portfolio demands from domestic to foreign assets. This should induce currency depreciation, which would reinforce the impact on aggregate demand coming from the domestic rebalancing channel.

Nobody disputes the logic of these portfolio rebalancing effects. The real controversy concerns magnitudes. How large would be the macroeconomic impact of more activist debt-management policies be in practice? It all depends on the degree of asset substitutability. But this will not be uniform either across countries or over time. The experience of one country will not necessarily be a good guide to what would happen in another country. In a small, open economy the international portfolio rebalancing may dominate the domestic channel. What works in one episode will not necessarily work in another.

Nevertheless, it is not difficult to imagine circumstances in which such policies can be highly effective. In times of crisis, for instance, a large (but temporary) decline in domestic asset substitutability (because of greater macroeconomic uncertainty, banks with weakened balance sheets less able to take interest rate risks etc) will make activist debt management policies more effective. When bonds are widely held by foreigners, exchange rate effects may be strong.

**History of central bank operations in government debt markets**

Keynes was of course writing in the 1930s. Budget deficits were small. (Debt was large, however – inherited from the First World War). By the mid-1930s, 86% of bonds had a maturity in excess of 15 years.
In the closing months of World War II, with the UK facing huge government debts, the Treasury set up a National Debt Enquiry (NDE). Keynes, Meade and Robbins were influential members in this Committee. Keynes argued against the “dogma” of financing debt at long maturities. Governments should not “fetter themselves … to a counter-liquidity preference” – that had been the great error of public debt management in the 1930s (Howson, 1975). Instead they should accommodate the preferences of the public for different maturities. He recommended that:

“Interest rates [at] different maturities should … pay attention primarily to (a) social considerations in a wide sense; (b) the effects of Government policy on the market for borrowing by the private sector and the problem of controlling the desired rate of investment; and (c) to the burden of interest charges on the Exchequer.”

The upshot of the NDE was that the policy of “cheap money”, which began in the 1930s depression, was reinforced in the post-war period.

It was the Permanent Secretary to the Treasury who drafted the memo, dated 15 May 1945, that summarised the Enquiry’s conclusions. He made a point of noting that it took as given Keynes’s view that the long-term rate of interest could be controlled by determined official action. The proposed “programme of initial procedure” as he put it – the idea was to adapt this policy in the light of experience – was: “the Treasury bill rate to be brought down to ½% and 5-year bonds to be issued at 1½% and 10-year bonds at 2% to be issued on tap, a new series to be started annually”.7

During the 1950s, the proportion of long-dated debt fell steadily. The policy objective became one of holding long-term interest rates down even as growth and investment strengthened. Shorter-term issuance increased.

This prompted the Radcliffe Report to describe the huge supply of short-dated bonds as “a constant source of embarrassment to the authorities”. The aim of maintaining stability in the bond market – not macroeconomic control – had become paramount for the central bank. HM Treasury, in its evidence to Radcliffe, was quite clear:

“No attempt is made to use official purchases and sales in the market for the specific purpose of raising or lowering the level of medium and long-term interest rates. The suggestion has been made that sales of longer-dated securities would be increased if they were offered at prices below the market. In theory, this might be possible for a time. In practice, such operations would create market uncertainty and so impair the

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7 The memo, which was “for the Chancellor’s eye only” (Treasury file T230/95), is reproduced in Appendix 3.1 of Tily (2010). The very first paragraph of this Treasury memo revealed the jurisdictional sensitivities vis-à-vis the Bank of England “who must manage the gilt-edged market”: “there must be the greatest possible community of view between [the Treasury and the Bank of England] … none of our suggestions … should be determined without careful prior consultation.”
Given government debt was 130% of GDP, this reluctance to risk triggering bond market instability was understandable. But most of the economists who gave evidence to Radcliffe disagreed with the Treasury. Kahn, Paish, Harry Johnson and others said that the influence of “money” on the long-term interest rate was an important channel in the impact on aggregate demand.

Now the Radcliffe Report is a pretty diffuse document. But it did conclude with only five main points. Among them a clear statement of the importance of the long-term interest rate as an objective of monetary policy.

“There is no doubt that … monetary policy … can … influence the structure of interest rates through the management of the National Debt which … is an instrument of singular potency. In our view debt management has become the fundamental domestic task of the central bank. It is not open to the monetary authorities to be neutral in their handling of this task. They must consciously exercise a positive policy about interest rates, long as well as short.”

The Report explicitly countered the Treasury view on the need to support by bond market. They argued that greater efforts “to foster greater understanding outside official circles … of the intentions of the authorities would reduce the risk of perverse reactions in the market [from bond sales]”.

There have been similar debates in the United States. There was apparently a form of Quantitative Easing in the 1930s, followed by similar efforts to keep long-term rates low during wartime. The United States relied to an increasing extent on shorter-term debt for much of the 1950s and 1960s. A legal ceiling of 4½% on the rate the Treasury could offer on long-term bonds constrained issuance. As inflation rose, maturities shortened. By January 1976, the average maturity of US government debt reached a low point of only 26 months. But once the 4½% ceiling had been relaxed, the US Treasury did begin a policy of gradually increasing the average maturity of debt. But by 1980, the average maturity of US government debt was still less than four years (compared with more than 12 years in the United Kingdom).

Graph 1 charts the average maturity of US government debt during the past 30 years – in terms of both the outstanding stock (green line) and issuance (red line). It is striking how large the swings in the average maturity of debt have been.

This prompts an obvious question: how have these swings been related to macroeconomic policies? To answer this question, I tried a naïve regression to see how the average maturity of bonds outstanding was related to the Federal funds rate (R) and the Federal deficit/GDP ratio (DEF%GDP). (For the regression, see Turner (2011) pp 30–31).
This simple regression provided clear evidence that a shortening of maturity is usually associated with a lower Federal funds rate (i.e., easier monetary policy). This may reflect the fact that debt managers deliberately take advantage of unusually low near-term market rates when monetary policy is accommodating. Fiscal policy also had an effect. The sign on the fiscal variable suggests that an increase in the deficit leads to a lengthening in maturities. Debt managers often say longer maturities are indeed needed to spread out higher debt across longer time periods.

In short, there has in the past been quite a strong empirical link between actual debt management choices and two simple measures of both fiscal policy and monetary policy. It provides prima facie evidence that debt management choices in the US at least have been endogenous with respect to macroeconomic policy. Hoogduin et al. (2010) also found that, in the euro area, a steepening in the yield curve leads national debt managers to shorten the duration of their issuance. The key point is that debt management choices have not in practice been independent of fiscal or monetary policy.

**The macroeconomic policy focus of government debt management**

Such endogeneity means we need to look more closely at the mandate of the government debt manager.

In theory, the mandate could be defined in several ways. At one extreme, the Treasury could, once a year, give its debt manager a maturity objective that is consistent with the government’s current macroeconomic objectives. At the other extreme, the mandate could be defined in a way that makes it exogenous to macroeconomic policy. The debt manager could be told to ensure that the average maturity of outstanding debt should always be around \( x \) years. They would be told to do this irrespective of the current market configuration of interest rates.

In practice, however, the debt manager is usually given a mandate to minimize debt servicing costs in some way. Its actions therefore become endogenous to monetary developments.

The macroeconomic consequences of the actions of the debt manager depend on the prevailing degree of asset substitutability. In normal market conditions, the macroeconomic consequences of limited changes to debt maturities would be quite small. But the consequences could be significant in difficult market conditions.

In principle, governments have great latitude to effect big changes in the maturity of their debt. A government that borrows short-term in its own currency does not need to worry about
its refinancing risks as a private borrower does. This is simply because of its power to tax and issue money. Markets treat government debt differently from private sector debt because government debt “is just a promise to deliver more of its own liabilities … [cash being] simply government liabilities that happen to be non-interest-earning.” No private firm can do this. Hence, as Keynes put it, a “counter-liquidity preference has more meaning for the private borrower than for the Exchequer.”

There are of course major disadvantages to excessive dependence on short-term debt. Budget deficits become more sensitive to changes in short-term rates. When household holdings of short-term government debt rise, the sensitivity of household income to short-term rates increases. This will tend to weaken the effectiveness of changes in policy rates as an instrument to stabilise aggregate demand.

But these considerations do not weaken the case for adjusting issuance maturities in response to exceptional cyclical developments. In fact a government with longer-dated debt at the onset of a crisis is better placed to conduct countercyclical maturity shortening than one which enters a recession with short duration debt. Exactly as budget surplus in good times increases the room for fiscal manoeuvre in bad times!

**Mandates, accountability and policy consistency**

From the late 1990s, the setting of monetary policy and the management of government debt were increasingly separated. Governments became more reluctant to give central banks the dual mandate of both setting monetary policy and managing government debt. There were good reasons for this. Trying to keep debt service costs down (or even limiting the volatility of such costs) can conflict with the monetary policy need to adjust interest rates. In many countries, this realignment of policy frameworks went together with the independence of central banks with clear inflation mandates. The underlying philosophy was that predictable policy frameworks should help to stabilise expectations.

The potential policy conflicts could be avoided by following two “separability principles”:

- Central banks should not operate in the markets for long-dated government debt, but should limit their operations to the bills market.

- Government debt managers should be guided by cost-minimisation mandates, and keep the issuance of short-dated debt to a minimum.

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8 This obviously does not apply to foreign currency debt – nor to countries in a common currency area.
In normal times, these principles conveniently simplified the lives of policymakers in central banks and in debt management offices. They allowed each institution to be held accountable for distinct mandates. And they provided some insulation from short-term political pressures.

But recent central bank activism in debt markets has inevitably undermined these two “separability” principles.

The problem is that QE operations decided by the central bank could easily be contradicted by Treasury financing decisions. Remember that the government’s balance sheet is much larger in normal times than that of the central bank. The central bank’s balance sheet is more elastic perhaps. But if its policies just induce the opposite reaction of the debt manager (the endogeneity point argued above), its theoretical elasticity will have less practical effect. Remember too the famous “Operation Twist” in the early 1960s. The Federal Reserve used open market operations (to the equivalent of $225 billion when scaled at today’s GDP) to flatten the yield curve by shortening the average maturity of Treasury debt. But the US Treasury in effect worked against this policy by lengthening the maturity of its issuance.

In recent years, the US Treasury has been lengthening the average maturity of its outstanding debt. This is difficult to square with QE, which aims to shorten the maturity of bonds held by the public. It is therefore essential to examine QE in conjunction with debt management policies. To do this, I simply updated the first table in Tobin’s 1963 paper – which summarised the structure of Federal government debt in the hands of the public. This provides an illuminating bird’s-eye view of the consolidated balance sheet of Treasury and the central bank. This is, of course, a highly stylised characterisation of the monetary impulse of changes in debt maturity … but it is at least a start. This is shown in Table 1.

With the adoption of QE after the crisis, reliance on short-term debt and Federal Reserve obligations was increased. Between the end of FY2007 and the end of FY2009, currency and Federal Reserve obligations more than doubled. Short-term marketable securities outstanding also doubled. So almost $2 trillion expansion in money and short-dated paper. This clearly represented a very significant easing of policy. What might be called “Monetary financing” in the first two years of the crisis went from 34% to 43%. This helped to counter a severe crisis-induced tightening in credit conditions.

But in the third year of the crisis, the maturity of Treasury debt issuance changed in a restrictive direction. Monetary financing actually declined from 43% at end-September 2009 and to 36% at end-September 2010. A marked underlying shift in Treasury issuance away from short-term paper and towards long-dated paper took place.

So what has happened since?
On 3 November 2010, the Federal Reserve announced a special programme to buy around $850 billion longer-term Treasury securities. This planned purchase must be measured against the composition of the expansion in Treasury bond issuance (and of bill issuance) over the period up to June 2011. At present, this is unknown.

However, the minutes of the 2 November 2010 meeting of the Treasury Borrowing Advisory Committee noted:

“Overall, the Committee was comfortable with continuing to extend the average maturity of the debt … The question arose regarding whether the Fed and the Treasury were working at cross purposes … It was pointed out by members of the Committee that the Fed and the Treasury are independent institutions, with two different mandates that might sometimes appear to be in conflict. Members agreed that Treasury should adhere to its mandate of assuring the lowest cost of borrowing over time, regardless of the Fed’s monetary policy. A couple members noted that the Fed was essentially a "large investor" in Treasuries and that the Fed’s behaviour was probably transitory. As a result, Treasury should not modify its regular and predictable issuance paradigm to accommodate a single large investor.”

The March 2011 minutes reaffirmed the policy of lengthening maturity.

Almost all recent press commentary on QE ignores this critical point about the need to take account of Treasury issuance policy. The Treasury had set a policy of lengthening maturity well before QE – a frequent response to large fiscal deficits. A change to the yield curve induced by central bank action may even lead the debt manager to alter its issuance policy to take advantage of what it might view as a temporary interest rate “distortion”. Or it may find it can move quickly to attain a maturity-extending objective thanks to favourable market conditions created by the central bank. Either way, it could respond endogenously to the repricing of debt caused by the central bank. This endogeneity is likely to be complex, time-variant and opaque.

Conclusion

The recent financial crisis has stimulated a re-thinking about the monetary policy dimension of public debt management. Three conclusions can be briefly stated:

(i) *The case for central bank transactions in long-term debt markets is stronger whenever there is increased investor uncertainty about the path of future short-term rates.* Large government debt increases uncertainty about future inflation. If uncertainty were only about inflation and nominal interest rates, then one answer would be to increase issuance of inflation-linked debt. But the fiscal situation is likely to entail increased uncertainty about real interest rates also. This will reduce the substitutability between short-dated and long-dated paper. In such circumstances,
central banks may more efficiently guide markets if they act across the maturity spectrum.

(ii) **Very little is known about the empirical magnitudes – either the size of such effects or their stability.** The recent evidence suggests that central bank purchases of government bonds have been effective. But there are grounds to treating such estimates sceptically. Most studies fail to take account of contemporaneous changes to debt management policies which are equivalent to central bank transactions in government debt. In addition, there are reasons for thinking that the size of portfolio rebalancing effects – depending as they do on the cyclically sensitive degree of asset substitutability and on the ability of banks to assume interest rate exposures – are likely to vary over time. They will be very hard to predict.

(iii) **We need a policy framework for all official actions that affect the maturity structure of government debt for macroeconomic objectives.** Without such a framework, even rational policies that economic theory suggests will work may just deepen uncertainty. Markets need to understand what governments or central banks are trying to do. They also need to understand the exit strategy. Historically there has been strong official resistance to central banks selling bonds when governments have heavy debts to refinance … particularly when long-term rates are already rising.

What I have tried to do in this note is show that these issues are very old. They are also crucial: Niall Ferguson’s fiscal explanation for British success in the 18th and 19th centuries was a credible central bank and efficient government debt management. The economics of government debt management (or central bank bond purchases) needs to be understood in its macroeconomic and financial context. The monetary policy/fiscal policy/debt management linkages were of second order importance when fiscal positions were stronger and fiscal policy frameworks credible. But they cannot be ignored when government debt/GDP ratios will be very high for years.
References


Graph 1

Maturity of US government bonds

1 One-year moving average; shown at the end.  
2 In months.  
3 In per cent.

Source: Datastream; US Treasury.
<table>
<thead>
<tr>
<th>End of fiscal year (Sept)</th>
<th>Marketable securities</th>
<th>Currency &amp; Federal Reserve obligations</th>
<th>Total</th>
<th>Money, Federal Reserve obligations and short-term debt</th>
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<tr>
<td></td>
<td>(&lt;or = 1 year)</td>
<td>(&gt; 1 year)</td>
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<td>= (a+c) % d</td>
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<tr>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
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<tr>
<td><strong>1st 2 years of crisis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2007</td>
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<td>3474</td>
<td>834</td>
<td>5263</td>
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<td>1986</td>
<td>5002</td>
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<td>8768</td>
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<tr>
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<tr>
<td><strong>3rd year of crisis</strong></td>
<td></td>
<td></td>
<td></td>
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<td>2010¹</td>
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<td>6692</td>
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<td>10419</td>
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<tr>
<td></td>
<td>−202</td>
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¹ Using Monthly Statement of the Public Debt of the United States; Federal Reserve Table H.4.1.

Sources: This is an update of that in Tobin (1963) using US Treasury Bulletin; Federal Reserve Flow-of-Funds.