Twenty-First Century Central Banking and an Independent Scotland's Currency Choice

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Contents

Executive Summary 04

Introduction 05

Formal versus Informal Currency Union 06

The Traditional Role of the Central Bank 07

Recent Developments 08

- Monetary Policy 09
- Financial Stability 11

Implications for Scotland's Currency Choice 15

Further Political Importance of Central Banks 22

- Inequality 22
- Housing 22
- Climate Change 23

Conclusion 24

Acknowledgements 25

References 26

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Executive Summary

- Changes in central banking since the global financial crisis, and especially during the pandemic and in the aftermath of the recent 'mini-budget', have materially changed the nature of the currency choice for an independent Scotland.
- A new currency is now a far better alternative to an informal currency union with the remaining UK (rUK).
- The debate on currency options has focused thus far largely on a central bank's role as 'lender of last resort' to commercial banks. But the role of central banks as 'buyer of last resort' for government bonds is arguably more important. By acting as the buyer of last resort, central banks, including the Bank of England, have been the key actors in enabling their governments to finance coronavirus-related expenditure and preventing the breakdown of government bond markets.
- A new currency in an independent Scotland would allow money creation to ensure the full range of monetary policy. It would also enable the Scottish central bank to act as 'buyer of last resort' to maintain the government bond market and Scotland's ability to borrow.
- Despite this support, an independent Scotland would still need to maintain responsible economic policies. A new currency is not a fiscal free lunch.
- Additional developments in central banking indicate that a Scottish central bank could also be involved in some of the most important political issues an independent Scotland will face, including with regards to inequality, housing and climate change. This further supports the case for a new currency, giving a central bank the full range of powers.

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Introduction

It has long been recognised that an independent Scotland would face an important choice regarding its currency arrangements. The arguments around this choice have to date focused largely on issues of trade balance adjustment and lender of last resort to the banking system (e.g., MacDonald 2014, 2022). These remain as valid today as at the time of the last referendum in 2014. The importance of the currency choice for the government's ability to borrow similarly still applies (Armstrong and Ebell, 2014). Two things have however changed since 2014 and indeed since the recommendations in May 2018 of the Sustainable Growth Commission (SGC), set up by the First Minister and the Scottish National Party and chaired by Andrew Wilson.

The first change came with the SGC: the currency choice most likely to be proposed for an independent Scotland. In 2014, the Yes campaign proposed continued use of the UK currency as part of a formal currency union. A formal currency union would have involved an agreement between Scotland and rUK, setting out the terms of shared use of the currency. The Westminster government said they would not countenance such an agreement, creating uncertainty for potential Yes voters. Survey evidence suggested this uncertainty contributed to the No vote (Liñeira and Henderson, 2021). As a result, debate since then has focused on the choice between an informal currency union – continued use of the UK£ without any agreement about the terms of use – or a new Scottish currency. The SNP leadership has to date accepted the recommendation of the SGC for informal currency union.

The second change, and the main focus of this paper, is recent developments in central banking, particularly the response to the coronavirus pandemic and the recent 'mini-budget'. These developments have not in any way invalidated previous arguments around currency choice but have changed the terms of the debate as to the economic and political importance of the choice. These increase not only the disadvantages of informal relative to formal currency union, but also the advantages of a new Scottish currency relative to informal currency union.

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The differences discussed here fall into two broad categories: first, those related to the borrowing capacity of an independent Scotland, and therefore the fiscal policy the country would be able to pursue; second, those concerning the additional areas of policy that are potentially becoming within central banks' remit, connected to monetary policy and/or financial stability. A list of such areas cannot ever be exhaustive, for the obvious reason that it may be added to in the future, but the focus here is on the most important currently: inequality, housing and climate change.

A number of points are worth emphasising before proceeding. First, few precedents exist from which to draw straightforward conclusions about informal currency union. This is the choice of only a small group of countries. The largest economies in an informal currency union are Montenegro (using the euro), Ecuador and Panama (the US$) but all three have significant differences to Scotland. Second, the aim of this paper is not directly to take sides in the debate, conducted largely within the SNP, between the SGC-supported leadership's advocacy of informal currency union and the Modern Monetary Theory-inspired supporters of a new Scottish currency. This paper agrees that informal currency union is 'without doubt the worst possible currency option for an independent Scotland' (MacDonald 2014, 4; also MacDonald 2022), but also views a new Scottish currency as offering no fiscal free lunch. Independence would require a reduced fiscal deficit, in the event either of a new Scottish currency (MacDonald 2014), or independence with informal currency union (SGC 2018, 7). Third, this report is impartial on the issue of independence itself, which is a matter for

wider political debate. Instead, it offers expertise and insight into the currency options that would face an independent Scotland, should that be the path that Scotland takes.

Formal versus Informal Currency Union

If an independent Scotland were to retain sterling (UK£), it would be entering into a currency union with rUK. This could be a formal or informal union. An example of a formal currency union is the euro. All member countries of the euro have agreed to use a single currency under the terms of a formal agreement. Most importantly, this agreement includes the establishment of the European Central Bank (ECB), responsible for central bank policy and activity across the euro area. All countries are represented on the ECB's Governing Council, as an independent Scotland would be if it was to join the euro at some future date.

In 2014, the Yes campaign's policy was for a formal currency union with rUK, with the details to be agreed prior to independence. No agreement was ever reached, but, as with the euro, this would have presumably involved some form of Scottish representation in the governance of the Bank of England and the Bank of England having responsibility for central bank policy and activity in Scotland as well as rUK. There were concerns raised at the time about such an arrangement, focused, as now, mainly on trade adjustment (e.g., MacDonald 2014), but arguably the problem with this campaign policy in 2014 was at least as much political as economic. The Westminster government was able to create uncertainty in the minds of many Scottish referendum voters by saying that Westminster would not agree to a formal currency union. We cannot know if the rUK government would have subsequently agreed to a formal currency union, and there are certainly arguments as to why it might have been in rUK's interests. But the tactic of refusing a formal currency union was widely seen as effective politically at the time, potentially by increasing the perceived risk of independence (on the influence of risk perceptions on the 2014 vote, see Liñeira and Henderson 2021). It seems fair to conclude that this experience has been a significant influence on subsequent SNP policy, with a formal currency union no longer seen as a viable option for a future Yes campaign.

The Sustainable Growth Commission (SGC), set up in September 2016 by the First Minister and the SNP, proposed an informal currency union for an indeterminate period following independence. The emphasis was on continuity: 'What happens with respect to currency the day before an independence vote would happen the day after and continue to happen until such time as the elected Scottish government seeks to do something different' (SGC 2018, 47). On one level this is certainly correct. An informal currency union would involve an independent Scotland continuing to use the UK£ as currently, for day-to-day transactions, for our bank deposits, mortgages, pensions etc. However, it is far from a complete picture.

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The lack of any agreement with the Westminster government as to the Bank of England's responsibilities towards Scotland would represent a very significant difference from the formal currency union proposed in the 2014 independence white paper. In particular, the role of the central bank, and the implications of a lack of formal agreement with the Bank of England, raise an obvious question: what would Scotland be missing?

What would be missing goes well beyond the absence of Scottish representation on the Bank of England Monetary Policy Committee, something Scotland obviously lacks now. Some of what would be missing,

most importantly lender-of-last-resort support for Scotland's banking system, have been highlighted previously (e.g., MacDonald 2014), and remain a concern. However, the recent changes discussed below increase the importance of the gaps that would be left by an informal currency union, further undermining the SGC's claim of continuity. More importantly, with formal currency union with rUK widely seen as no longer politically viable, the changes also materially increase the attractions of a new currency relative to the retention of the UK£ without any formal agreement.

The Traditional Role of the Central Bank

Central banks have two broad areas of responsibility in most developed economies. First, they set interest rates with a view to achieving an inflation target set by their governments. Second, they are responsible for maintaining financial stability. As part of the latter role, the central bank acts as lender of last resort to commercial banks facing difficulties borrowing as a result of depositors or other lenders withdrawing. In a formal currency union such as the euro, interest rates are set to achieve an inflation target across the entire currency area and the central bank is responsible for financial stability across the currency area. In an informal currency union, neither is the case.

Were Scotland to have its own currency, a Scottish central bank would perform both functions. The distinction between informal currency union and a new currency might not in practice be quite as stark as they first appear. In an informal currency union with rUK, the Bank of England would set interest rates with the aim of meeting a target of the inflation rate across rUK; the Scottish inflation rate would not figure in their considerations. To the extent that Scotland's economy is close in nature to rUK,[1] this may not matter initially. In such a situation, at least in the short term, rUK interest rates would be appropriate for Scotland, although increasingly the expectation would be for the two economies to diverge, mainly due to policy choices and EU membership. If UK interest rates are already suboptimal for Scotland and likely more appropriate for the economically-dominant south east of England, there would be little immediate relative negative impact. If Scotland had its own currency, however, interest rates would be set solely for the needs of Scotland alone, although the decisions around those interest rates would still have to take account of international, particularly rUK, influences.

In a formal currency union, the Bank of England's financial stability responsibilities would include the liquidity needs of commercial banks in the entire area, which would not be the case in an informal union. In either case, Scotland would have its own central bank, but with very different capacity to fulfil this function. In an informal currency union, a Scottish central bank could not meet these liquidity needs to any meaningful extent. This is because the ability to meet liquidity needs ultimately depends on the ability of a central bank to create (often termed 'print') the domestic currency. The Bank of England can create limitless amounts of UK£, as any central bank can in its own currency, but not other currencies. It must remain wary of the inflationary impact of doing so. Also, the money created is in the form of bank reserves, on which an interest rate is paid, so is not costless, especially as interest rates rise.[2] A Scottish central bank could do the same if Scotland had its own currency, but in a currency union it could not create UK£. We will return to this point below.

The largest banks operating in Scotland are, or on independence quickly will be, domiciled in the rUK, and will have access to liquidity from the Bank of England (King 2016). It is common for commercial banks to access one central bank for the currency they need to fund activities elsewhere. In the 2008-09 financial crisis, for example, the US Federal Reserve lent more to RBS in US dollars than the Bank of England lent in

1 For economists, the extent, which is debated, that the current UK is an Optimal Currency Area (OCA).

2 There is currently a debate, encouraged by a report by the New Economics Foundation (van Lerven and Caddick 2022), regarding limiting the interest rate on reserves (also Holtham 2021). This may yet prove irresistible for the UK government as it seeks ways to fund its tax-cutting agenda, but would require a change in how the Bank of England manages monetary policy.

UK£ (Hardie and Maxfield 2016, 604), and RBS used these dollars to finance its dollar-based business globally. It seems unlikely that the Bank of England would not do something similar for rUK banks operating also in Scotland. This may not be available to small Scottish-domiciled banks, but this is likely to represent only a small part of the Scottish banking system.

In the case of Scotland having its own currency, it is likely that a large proportion of the banking business would remain in UK£ because of individual and company preferences (Kay 2021). As noted, banks headquartered in rUK could borrow from the Bank of England. Furthermore, if the Scottish central bank needed sterling to meet the liquidity needs of entirely domestic Scottish banks as lenders and depositors withdrew sterling funding, then this could be accommodated by a swap-line arrangement with the Bank of England. A swap line allows a central bank to create its own currency and exchange that currency for a second currency with the central bank that creates the second currency. The second currency would then be lent to any of the first country's banks with liquidity needs in that second currency. Swap lines between central banks around the world are now common. The Bank of England has only so far been a beneficiary of such arrangements, using them to access US dollars and euros to meet its banks' needs, but it is unlikely to be hostile to offering the Scottish central bank such a swap line. There has been some political controversy in the United States around the perception that these swap lines bail out foreign banks, but this has not stopped their continued use, most recently during the COVID pandemic.[3] There is some small chance that such a swap line could come with conditions perceived as problematic by the Scottish government and/or central bank, but this seems unlikely given the broad range of international precedents.[4]

Recent Developments

The section immediately above sets out a traditional view of the role of central banks and the trade-offs that would face an independent Scotland in choosing a currency. There will be little new for readers who have followed the currency debate since 2014. The swap lines from 2009 represent a partial innovation that has become a permanent feature of the global monetary system, but do not materially change what has been a consistent picture of an independent Scotland's choices.

But much has changed in central banking since 2014. Even before the COVID-19 crisis, central banking was entering a period of change. We can argue about the extent to which this is part of a cycle of change across the history of central banking (e.g., Goodhart 2010), but it is certainly a change from the period between Gordon Brown granting the Bank of England independence to pursue an inflation target in 1997 and the financial crisis of 2008-09. The argument presented here, however, is focused mainly on central bank activities in the context and aftermath of the COVID-19 pandemic (i.e., from March 2020), including September and October 2022, and how these have changed the nature of the choice between informal currency union and a new Scottish currency since the SGC made its recommendation for the former option in 2018.

As noted above, the role of any central bank can be divided between monetary policy and financial stability.[5] The two are closely connected, as monetary policy requires functioning banking and securities – especially government bond – markets. However, this section will consider the two issue areas largely separately, highlighting change in both.

3 The Federal Reserve has permanent swap lines in place with the European Central Bank, Bank of England, Swiss National Bank, Bank of Canada and Bank of Japan. Others have been closed and then reinstated as needs arise.

4 The main possible controversy might be whether the Scottish central bank would have to offer collateral to the Bank of England. The ECB has required this of Eastern European counterparties. With Scottish reserves likely to be relatively low for some time after independence, this could be a meaningful constraint.

5 Many central banks also have responsibility for regulation, particularly of commercial banks. This could be seen as either a part of the financial stability role or as separate from it. However, regulation is not the focus here.

Monetary Policy

An independent central bank such as the Bank of England is responsible for monetary policy. A government is responsible for fiscal policy, which is policy related to spending and raising revenue (mainly through taxation). A government has a fiscal deficit if its spending exceeds its revenue, and it must then borrow. Such borrowing is a normal part of the day-to-day activities of most governments. The separation of monetary and fiscal policy can never be absolute. Conventional monetary policy, or the setting of short-term interest rates, has always had an influence on the cost the government pays to borrow. When short-term interest rates are low, the expectation is that government borrowing costs are low. When short-term interest rates are high, this will generally increase the interest rate on government bonds. Fiscal policy will also have an impact on a central bank's monetary policy decisions, largely through its impact on economic activity. The buying and selling of short-term government bonds have, in addition, long been a normal part of central bank monetary policy.

The separation nevertheless remains fundamental to present-day central banking. There is a fear of 'monetary financing', when a central bank directly finances the government's fiscal deficit, or 'fiscal dominance', when monetary policy is subordinated to the government's fiscal needs (Vlieghe 2020, 14). The most common form of monetary financing in a modern economy would be when the central bank creates money to buy government debt permanently.[6] Monetary financing is anathema to central bankers, because of its expected inflationary consequences. It is, for example, banned under the treaty establishing the European Central Bank, resulting in arguments around the precise legal definition of monetary financing. The word 'permanently' is important here, because of the introduction of Quantitative Easing (QE) after the 2008-09 financial crisis. QE was a policy introduced by central banks when interest rates were already at or very near 0% and inflation remained below their target rate. It involved central banks seeking to further increase economic activity, and thereby inflation, by creating money in the form of commercial bank reserves, and using that money to buy mostly government bonds, with the aim of reducing long-term interest rates across the economy. QE was 'unconventional monetary policy', but it was still clearly monetary policy. Even in the eurozone, where a major concern was the high cost of borrowing in so-called periphery countries such as Italy, Spain, Greece, Portugal and Ireland, reducing these costs could be – and still is – justified by the need to prevent 'monetary fragmentation' – different levels of interest rates – across the eurozone.

The fact that this post-GFC QE was monetary policy did not, however, prevent a sizeable impact on fiscal policy. The reduction in the UK government's borrowing costs that resulted from the ability of the Bank of England to create money is estimated to have been around 1 percent, with savings on borrowing costs in 2019-20 alone of £12 billion (Holtham 2021, 72). This represents a sizeable reduction in the UK government's need to raise taxes or reduce spending. Even by 2010, it was clear that QE 'has had massive fiscal consequences' (Goodhart 2010, 22). The 2010 UK coalition government-imposed austerity, citing fears over future borrowing costs, but it is hard to see evidence to vindicate their concerns.

This QE predates the SGC currency recommendations, raising the question as to what has changed with the COVID pandemic. Part of the change is the importance of the Bank of England's actions to financial stability, which will be dealt with below. Here we will focus on the increased blurring of the line between fiscal and monetary policy. This is mainly the result of the increased scale of Bank of England purchases of government bonds, both absolutely and relative to the (during COVID and the energy crisis extraordinary) borrowing needs of the government.

6 For problems with even this definition, see Vlieghe 2020.

The Bank of England mainly buys UK government bonds, known as Gilts (other central banks have bought a broader range of assets), through its 'Asset Purchase Facility'. A simple way to measure the scale of the Bank of England's activities is therefore simply to chart the scale of those Gilt holdings. This is shown in Figure 1:



Source: ONS

The current scale of purchases is unprecedented, dwarfing the Global Financial Crisis (GFC) response. In 2018, and until the COVID outbreak, it appeared that the 'unconventional monetary policy' in response to the GFC was coming to an end. The Bank was no longer buying more government bonds – the active part of QE had ceased – and it was 'Waiting for the Exit' (Hauser 2019). '[B]ig balance sheets are here to stay', but the expectation was of shrinkage, potentially to half its then size, and thereby reduced ownership of government bonds (*ibid.*, 3). Central banks, it was predicted, would retain an expanded role, especially in terms of the financial stability needs of markets, but the extent of their activity would not threaten a clear division between monetary and fiscal policy. In such a situation, it does not seem totally unreasonable for the Sustainable Growth Commission to see QE as less important to their deliberations. It is mentioned only four times in its report, including the explanation for the inability of Scotland to undertake QE in an informal currency union as due to 'Scotland's small size relative to the existing sterling paper market' (SGC 2018, C3, 14). This is presumably meant to reflect the fact that buying only Scottish government bonds denominated in sterling would have an impact on the difference in yields between those Scottish bonds and rUK Gilts, but not the yields of Gilts themselves, thus limiting the impact of the QE.[7] However, the explanation ignores the much more important fact that the Scottish central bank could not create the sterling needed to undertake QE in the first place.

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In the unprecedented further intervention of the COVID-19 crisis, the instant reaction was to reach for precedents and make unconventional policy conventional. This represents a fundamental change. No longer is this unconventional monetary policy; it is simply monetary policy. In addition, the line between monetary and fiscal policy blurred significantly. The Bank of England became the Buyer of Last Resort to the government bond market. New UK government borrowing was at its highest since World War 2 and the Bank of England bought effectively all of it. The Bank of England matched government issuance with buying in the secondary market rather than directly lending to

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7 A similar potential concern did not prevent the Federal Reserve from first buying Mortgage-Backed Securities when it undertook its first QE, only later adding US government bonds (Treasuries).

the government, thereby arguably avoiding a charge of monetary financing, but the aid to government borrowing is clear.

The Bank of England stuck to what would be the expected script. The governor stated in November 2020: 'We do not…set a level of quantitative easing and asset purchases in any way related to what the government is going to borrow', and he defined monetary financing as 'a permanent expansion of the central bank balance sheet with the *aim* of funding the government' (Financial Times 5 April 2020; italics added). It is deemed important to inflation expectations, which themselves have an impact on inflation outcomes, that the Bank of England's actions are not seen as monetary financing. This is despite recent IMF research that suggests countries with a well-established reputation for responsible economic policies can engage in some monetary financing without a negative impact on inflation expectations (Agur et al. 2022).

Regardless of the outcome of this rather narrow debate, a survey of Gilt investors was clear that the Bank of England's actions were essential to the UK government's ability to borrow. Investors believed that without the Bank of England's buying 'the gilt market could not have taken down the record £485bn supplied by the Debt Management Office [the organisation responsible for Gilt issuance] to the market this year' (Financial Times, 5 January 2021; also Holtham 2021). The data support this view. From March 2020 until November 2021, the Bank of England's Asset Purchase Facility purchased over £400 billion of Gilts, almost exactly matching the UK government's Net Cash Requirement, a measure of its borrowing requirement, month by month (Van Lerven and Caddick 2022, 5). 'The broad shoulders of the UK Treasury' have been mentioned often with regards to the coronavirus response, principally by those seeking to defend the Union, but the evidence suggests that the Treasury does not have broad shoulders, but rather has a friend whose shoulders are of unlimited width. The conclusion must be that without the Bank of England's ability to create money to buy UK government debt, there could not have been the scale of COVID response that we saw.

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Financial Stability

As noted above, a central bank has two roles, concerning its inflation target and financial stability. The change in QE in March 2020 was that the initial increases in Bank of England government debt purchases at this time were motivated by threats to financial stability, not directly monetary policy and the inflation target. On 18 March 2020, real (inflation-adjusted) yields rose by the most in a single day since the Bank of England had been granted independence in May 1997. Liquidity fell dramatically, and bid-offer spreads – the difference between the prices at which dealers would buy and sell bonds – widened beyond levels seen even during the Global Financial Crisis. In common with government bond markets globally, the market for UK government bonds was becoming dysfunctional, threatening UK financial markets more broadly as well as the government's ability to borrow to address the pandemic. The day after, the Bank of England announced Quantitative Easing of £200 billion. The stated aim was 'to improve market functioning', although the economic consequences of a collapse in markets meant this also remained justifiable in the context of meeting the Bank of England's inflation target (Vlieghe 2020, 8). This financial stability motivation meant that it is arguable as to whether the Bank of England's actions are best termed QE at this stage. In the United States, the government bond market faced similar pressures, and the Federal Reserve's response was similar. However, Fed Chair Powell made a clear distinction. He said that although the label of whether the actions were or were not QE was 'of less interest to me', the aim was to support market functioning, not a timetable for further rounds of QE purchases. The purchases were also across maturities, to improve

market functioning widely, not targeted at longer maturity bonds, as under QE, where the cost of longer-term borrowing is the target (Federal Reserve Board 2020; also Bernanke 2022, 259).

The important change in March 2020 was in the nature of the challenge the Bank of England and other central banks faced when compared to the Global Financial Crisis. In 2008-09, the government bonds of the leading economies had been in high demand as safe havens amidst the market uncertainty. There was a 'flight to safety' and these government bonds represented safety. Even later during the eurozone crisis, selling of periphery government bonds was matched by buying of the safe core country, especially German, government bonds. Central banks had responsibility for both monetary policy and financial stability, but, while many financial markets faced severe difficulties, the ability of the most creditworthy governments to borrow was not a major concern. This changed in March 2020. There was again a flight to safety, but this was not flight into government bonds, even US Treasuries, but rather a 'dash for cash'. Investors sold government bonds to raise cash, prompting widespread government bond market weakness, similar to that noted above for Gilts. The policy tool used - buying government bonds financed by the creation of reserves - was the same. But the dominant motivation, government bond market disfunction, had changed. Former Fed Chair Bernanke (2022, 257) is clear about the central bank's function in government bond markets: it is 'buyer of last resort'. The central bank's ability to create the money for this buying was therefore crucial to government borrowing capacity and therefore pandemic response.

Instead of prioritising reducing the size of its balance sheet, as in 2019, the Bank of England became focused on a framework for its role of providing 'public liquidity insurance' to financial markets, in the confident expectation that the buyer of last resort would again prove necessary (Hauser 2021, 11). This potentially involved new policy tools, but importantly for an independent Scotland it involved deciding which assets the central bank should be prepared to buy:

"The most obvious candidate is [UK] government bonds, which lay at the epicentre of the dash for cash. For other, riskier, assets to qualify, a case would need to be made both that they are sufficiently core to [UK] monetary and financial stability, and that central banks can price and risk manage them effectively" (Hauser 2021, 12).

In an informal currency union, Scotland's ability to borrow in a crisis, and therefore for the government to respond fully to that crisis, could depend on the Bank of England deciding that the Scottish government's ability to borrow was sufficiently core to the monetary and financial stability of the rUK to justify intervention. It is as easy to construct scenarios in which that would not be the case as it is to construct scenarios when it would.

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The Bank of England actions were a temporary response to an unprecedented health and economic emergency. Additional buying of Gilts could stop as monetary policy dictates, and the Bank of England retained the option to sell some or all of the Gilts it holds over time, or not buy more Gilts as those they hold are repaid. This partly underpins the argument that this is not monetary financing; it is not permanent. Since QE was introduced in 2009, however, the Bank of England's holdings have only ever fallen temporarily by immaterial amounts (see figure 1 above). Current holdings would take many years to reduce to zero without serious market disruption.

The reversal of QE is Quantitative Tightening ('QT'), involving, first, not reinvesting the proceeds when Gilts held are repaid, and, second, actively selling Gilts held in the secondary market. If not reinvesting is all that is done, it will be over 60 years from the initial purchases in 2009 before the Asset Purchase Facility no longer

holds any Gilts.[8] Active sales of Gilts need to be undertaken cautiously, partly because of the threat of market disruption, but also because sizeable sales would represent a significant tightening of monetary conditions. One market participant concludes both that such active selling is 'fraught with risks, many of which will only be known ex-post' and that sales of just £25 billion in any year (compared to holdings peaking at more than 30 times that large) would be comparable to raising interest rates by 0.125 – 0.25 percent (Smith and Bouvet 2022). In July 2022, the Bank of England started to set out an intention to reduce its balance sheet, with the plan being to sell £80 billion in the first year from 3 October 2022, driven by a 40-year high inflation rate. If these sales were maintained consistently until all the Gilts have been sold or redeemed, this still means continued support for government borrowing for about 10 more years and a total of nearly 30 years. Governor Bailey's definition of monetary financing therefore becomes apposite; on any common-sense view of the timeframes involved and government policy-making, the expansion of the Bank of England's balance sheet to buy Gilts is effectively 'permanent' support for the government's borrowing capacity.

This would be the case even without a further development in the importance of the central bank to UK government financing. On 28th September 2022, less than a week before sales of Gilts were scheduled to start, the Bank of England once again stepped in to buy Gilts, motivated by concerns about financial stability following very rapid increases in yields. In many ways, the actions broadly mirror those of March 2020. However, the context makes this a material change in the Bank's role. In March 2020, as noted above, the Bank of England could credibly claim that its actions, even if motivated by concerns with financial stability, were consistent with its monetary policy. The COVID-driven closure of the economy was clearly deflationary, at least in its early months, and occurred at a time that low not high inflation was the concern. Increasing the creation of money to finance Gilt purchases therefore did not appear to contradict monetary policy aims. In September 2022, this was no longer the case. The Bank was subsequently forced to introduce a new repurchase facility to give pension funds indirect access to liquidity[9] and to expand its purchases to the index-linked market.

On 28th September 2022, less than a week before sales of Gilts were scheduled to start, the Bank of England once again stepped in to buy Gilts, motivated by concerns about financial stability following very rapid increases in yields. In many ways, the actions broadly mirror those of March 2020. However, the context makes this a material change in the Bank's role.

The trigger for the severe price falls in Gilts (plus other Sterling bonds and the currency) was the 'mini-budget' of new Chancellor Kwasi Kwarteng. Political concerns covered a range of areas, but markets focused on two issues. First, the plans involved markedly increased sales of new Gilts, as a result of the government rejecting additional windfall taxes to meet some of the costs of caps on gas and electricity prices and of tax cuts seemingly – at least until further details now brought forward under market pressure to the end of October – likely to be funded largely by further borrowing. Although the government subsequently dropped plans to abolish the top rate of income tax (a reversal worth only £2-3 billion) and talked up spending cuts, scepticism remains. The lack of a forecast from the Office for Budget Responsibility to accompany the budget compounded those concerns, although this forecast is also now promised by 31st October. Second, although the energy caps would reduce inflation in the near term, overall the impact of the government's prioritising of a (likely implausible) growth target was seen as inflationary at a time that inflation is well above the Bank of England's target. With the Bank of England tightening monetary policy to address inflation, expansionary fiscal policy would be working 'at cross purposes' (a phrase the International Monetary Fund used in its criticism) to that tightening. Overlying the market reaction was a very strong US dollar against all major

8 An alternative way to frame this is that the important impact is the 'stock', the total of central bank holdings, which persist over time, rather than the 'flow' of new purchases, which obviously cease more quickly (for discussion, see Bernanke 2020, 953).

9 The sovereign debt issued in various currencies of 20 countries is eligible as collateral under this 'Temporary Expanded Collateral Repo Facility'. It appears highly likely that debt issued by an independent Scotland would be added to this list, but with a higher 'haircut' than Gilts at maturities over 5 years. This means pension funds could borrow less using Scottish government bonds as collateral than using Gilts.

currencies and global weakness in bond markets, but there was clearly a UK-specific problem. The rapid moves in yields pressured pension funds through greater demands for collateral, and it was the threat to pension funds that prompted the intervention. The daily rise in Gilt yields was the greatest since at least 1979 (Financial Times, 27th September 2022). For one market participant, 'It was not quite a Lehman moment. But it got close' (Financial Times, 28th September 2022).

As noted, one part of the Bank of England's monetary tightening plans prior to the mini-budget involved Quantitative Tightening, the selling of Gilts the Bank of England had previously bought under its programme of Quantitative Easing, which had been scheduled from 3rd October. In the view of the Bank's Chief Economist Huw Pill, despite higher Gilt yields making borrowing more expensive, 'it is hard to avoid the conclusion that the fiscal easing announced last week will prompt a significant and necessary monetary policy response' – an even greater tightening of monetary policy (Pill 2022). Yet Pill spoke after the opposite had occurred. The sales of Gilts involved in QT had been delayed until 31st October, and instead the Bank announced that it would buy longer maturity Gilts 'on whatever scale is necessary', later refined to up to £5 billion of purchases a day until 14th October (Financial Times, 28th September 2022). This is a loosening of monetary policy, decided upon not by the Monetary Policy Committee, but by the Financial Policy Committee. The MPC was merely 'informed of these temporary and targeted financial stability operations'.

With the Bank of England purchases scheduled to end on 14th October and QT to start on 31st October, it remains to be seen how temporary this loosening of monetary policy will be. At time of writing (11th October), the Gilt market and pension funds remain under considerable pressure and may require further support on financial stability grounds and longer interruption of monetary policy priorities. Were that to occur, it would only reinforce the points made here.

Most economists would probably still agree with the Bank of England that all these activities are not monetary financing (see McMahon and Macchiarelli 2020), but the line is becoming increasingly blurred. The Bank of England maintains its independence with regard to monetary policy and financial stability actions. The purchases of Gilts were from other financial market participants such as pension funds and banks rather than direct from the government, and the interventions are not permanent. Nevertheless, the UK is at best close to a situation of fiscal dominance (or, as some have argued, financial dominance [Brunnermeier 2016]), when the financial market's negative reaction to the government's fiscal policy forces the central bank to loosen its monetary policy stance, even temporarily. Even if the actions were monetary financing, they were not necessarily unwise, given the threats to financial stability, but there is a significant concern for UK policy credibility.

Despite the scale of its activities since the Global Financial Crisis, the Bank of England has not yet employed all the tools seen elsewhere. It has been relatively conservative as to the range of securities purchased, only buying small volumes of corporate bonds. In contrast, for example, the European Central Bank (ECB) has been very active in corporate bonds, the US Federal Reserve has supported a wide range of bond markets, probably most importantly mortgage securitizations (see below), and the Bank of Japan has even purchased equities.[10] In addition, the Bank of England has not undertaken 'yield curve control', setting a yield target for government bonds and buying sufficient bonds to maintain that target. The Bank of Japan has been the most high-profile exponent of this policy, but the Reserve Bank of Australia did the same for 3-year government bonds from March 2020 until November 2021 (Reserve Bank of Australia, undated). These broader options are available in the future. With monetary policy in financialized economies increasingly dependent on financial market conditions generally rather than short-term interest rates alone, broader interventions may become required as a normal part of monetary policy. For example, the greater prevalence of fixed rate mortgages in the UK, priced with reference to Gilt market yields, has been highlighted by the recent market turmoil.

10 Something the Hong Kong Monetary Authority, Hong Kong's central bank, also did in 1998 as part of its defence of the HK$ peg to the US$.

Policy initiatives could well go further. In his review of the innovations employed by the Federal Reserve and other central banks from 2008-09 to the pandemic, Bernanke (2022, 329) concludes that policies followed so far, despite their major impact, 'may not be enough, particularly in a deep economic downturn. Monetary policymakers therefore continue their search for new tools and strategies'.

Implications for Scotland's Currency Choice

The Bank of England has been the key actor in enabling the UK government to finance its coronavirus-related expenditure, as central banks have globally, and in preventing the breakdown of government bond markets in March 2020 and September to October 2022. Whether motivated primarily by monetary policy or financial stability considerations, central banks have been the buyer of last resort. The debate on currency options has focused thus far largely on a central bank's role as lender of last resort to commercial banks (although see Armstrong and Ebell 2014). However, the role of buyer of last resort for government bonds is, I argue, more important. This has only become apparent recently.

The relevance for Scotland is not whether these were the right actions for the Bank of England to take, or whether this is fiscal dominance or monetary financing. The central point is that the 28th September demonstrates that previous episodes of central bank buying of government bonds, and their centrality to the ability of governments to finance themselves, were not a temporary result of the deflationary pressures after the financial crisis. The financial stability responsibilities of central banks means that they will remain important to government borrowing capacity in highly developed financial systems, just as they will be central to the overall stability of those systems. The Bank of England recognised this in the aftermath of March 2020, and September 2022 proved them right. Central banks can only fulfil those responsibilities to the fullest extent if they can create the currency they need to do so. The question bond investors will ask with regards to financial stability is a simple one: would I prefer to buy the bonds of a country whose central bank can step in to prevent market breakdown, or a country whose central bank cannot? For the broader range of investors concerned primarily with growth in an economy, the question will be slightly different: would I prefer to invest in a country where monetary policy includes the ability to stimulate the economy beyond a 0 percent policy rate, or one where it does not?

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In a formal currency union as proposed in the 2014 referendum, a reasonable expectation would be that any agreement would have involved something along the lines of the Bank of England buying Scottish government debt pro rata to its purchases of rUK debt. An informal currency union, as proposed by the SNP's SGC, would have no such arrangement, and the Scottish central bank would have no capacity to replace the Bank of England, because it could not create UK£.

This is not to say that Scotland would be unable to borrow at all to finance a response to a threat such as coronavirus, or that it would not benefit at all from Bank of England activities lowering Gilt yields. The dramatic response by the Bank of England and other central banks globally lifted almost all financial markets after initial problems in March 2020, even in markets that have not directly benefitted from central bank purchases. Government bond yields globally fell after the Bank's intervention in September 2020. However, saying that an independent Scotland borrowing in UK£ would see some benefit from Bank of England purchases of Gilts is not the same as saying that Scotland's bonds would see the same benefit

as UK government bonds. A broad range of studies show that the greatest benefit – the largest reduction in yields – unsurprisingly accrues to the bonds actually purchased by the central bank. Indeed, if this was not the case, central bank purchases in other bond markets, most importantly corporate bonds and mortgage securitizations, would not be necessary. These 'local supply effects' have been shown to operate even within the Gilt market itself, and to be responsible for 40-60 percent of the fall in yields (McLaren, Bannerjee and Latto 2014). US QE announcements not already expected by the markets are estimated to have lowered yields on UK, Canadian and German government bonds by a third to a half of the fall in US Treasury yields (Wright 2011, 15). Wright (2011) also found that US high quality corporate bonds (which were not then being bought by the Federal Reserve) fell in yield by just over half as much as US Treasury yields (see also Krishnamurthy and Vissing-Jorgenson 2011). Rebucci, Hartley and Jiménez (2022), looking at QE in 2020 rather than previously and the actions of 21 central banks, concluded that 'country-specific QE can have stabilizing effects in financial markets and a supportive impact on real economic activity, over and above the spillovers from the QE actions of major central banks and the large role played by global common factors in the transmission'. In other words, both global financial conditions and domestic central bank actions matter.[11]

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Most existing studies focus on QE in response to the 2008-09 financial crisis. In that period, it seems reasonable to assume, as a very rough estimate, that Scottish bonds, if not themselves purchased in an informal union, might see around half the fall in yields of the Gilts the Bank of England purchased. A reduction of around 1 percent on Gilt yields, as studies suggest, would mean that the difference between formal and informal currency union would have amounted to increased Scottish government borrowing costs in the latter case of around 0.5%. This represents a fiscal cost – money spent on interest payments rather than alternative uses – but also tighter monetary conditions across the Scottish economy, relative both to the rUK and to Scotland in a formal currency union. Bernanke (2020) shows that 'unconventional' monetary policies, especially QE, can represent a substantial further easing of monetary policy – equivalent to a cut of 3 percent in short-term interest rates, when interest rates are at 0 percent. He shows further that such policies are relevant for extended periods.

As indicated above, the market reaction to the COVID pandemic and the mini-budget suggests that the cost of not having central bank support for the government bond market would have been far higher than it had been during the 2008-09 financial crisis. There was significant risk of government bond market breakdown in March 2020, and a widespread view amongst Gilt investors that the UK government would not have been able to raise the volumes of finance it did without the Bank of England. A market breakdown was also a real possibility in September 2022; the Bank of England stated that it was acting 'to restore orderly market conditions' (Bank of England 2022). The likely economic impact of dysfunctional government bond markets is very difficult to quantify, partly because authorities deem it so high that they will do whatever is necessary to prevent it happening. This is at least highly suggestive of an even greater importance for central bank government bond buying in 2020 and 2022 than previously.

It is not, however, an argument that an independent Scotland would have been unable to borrow at all, except for during very short periods of market dislocation. Montenegro, in an informal currency union, with a credit rating far lower than an independent Scotland would have and a challenging debt situation, was able

11 This can be seen as a response to Sir John Kay's dismissal of the importance of QE for a small open economy such as an independent Scotland, itself a response to a question from Kate Forbes, Scotland's Cabinet Secretary for Finance and the Economy (Kay 2021).

to borrow €750 million – large for a population of only 620,000 people – in international markets in December 2020 (Reuters 10 December 2020). We cannot know how much an independent Scotland in an informal currency union could borrow in such circumstances.

Trying to match potential borrowing capacity to actual expenditure is also difficult and likely to be politically controversial. Estimates for UK Government coronavirus-related expenditure per head range from £5113 (the International Monetary Fund estimate) to £5521 (from the National Audit Office) per head (Brien and Keep 2021, 4). Multiplying this by Scotland's population would give expenditure of approximately UK£28-30 billion, equivalent to about 17-19 percent of Scotland's 2020 GDP. As an alternative approach, UK government borrowing in the 2020-21 financial year was £327.6 billion, or 15.3 percent of GDP.[12] The cost of the energy price caps will not be known until actual wholesale prices are known, but initial estimates are £150 billion for the UK, with an equivalent for Scotland in the region of £19 billion. Borrowing on such a scale in a currency or currencies Scotland does not control would at best be extremely challenging, and at worst impossible. As the survey discussed above indicates, the UK government would, in investors' opinion, have struggled during COVID without the very substantial Bank of England support, and the market reaction to the Kwarteng budget clearly highlights the importance of central bank support. These episodes suggest considerable caution about Scotland's prospects of borrowing similar amounts relative to the size of its economy in an informal currency union. Even uncertainty as to the ability to borrow could have a significant impact on any government committing to more than the most short-term spending.

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The lack of comparator countries precludes a definitive conclusion. Countries we would see as comparable to Scotland have not borrowed these volumes within an informal currency union because they do not have to. They all either issue their own currencies, as for example Denmark, Norway, Sweden and New Zealand, meaning that the central bank has purchased government securities or at least investors know that it could, or they are part of a formal currency union, and have the support of the ECB. Scotland would be in uncharted territory in the event of a repeat of something like the COVID pandemic or even the energy price caps were it to continue to use the UK£ in an informal currency union.

It is also important to recognise that both the Global Financial Crisis and the COVID pandemic were shocks that had an impact, and therefore drew a monetary response, across the developed economies. All of the most significant central banks in Western economies, plus the Bank of Japan, undertook unconventional monetary policy, with at least a partial reduction of interest rates across developed economies, whether or not they had themselves undertaken QE. Preparations for a potential independent Scotland should not only be based on the risk of broad-based shocks, however, but also on how to respond to shocks with an impact only on Scotland or a small group of countries. The problems since the mini-budget are in the context of weak global market conditions, but are very much a single-country issue. A number of countries have individually experienced tsunamis and weather-related shocks linked to

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12 Source: ONS

climate change. One possible shock could be from cyberattack (Bernanke 2022, 368), which may well have an asymmetrical impact across countries. Some of the warnings in this regard will doubtless prove overly alarmist, but that is not an acceptable defence of a currency choice that precludes the fullest response to a repeat of events that have already happened as well as events that reasonably might.

In the most serious circumstances, it might be argued that help would be available internationally, from rUK, the EU and/or the International Monetary Fund. An IMF bailout, or IMF involvement in a broader support package, would certainly be a possibility. An independent Scotland would be a member. The UK did join the bailout of Ireland in 2010, contributing £3.23 billion. It could well see helping Scotland as at least as much in its interests, given the depth of their economic integration. But the loan to Ireland was small compared to Scotland's possible needs in a coronavirus-type situation. The EU would likely be a significant source of support if Scotland was a member but appears to have declined to help Montenegro, a country in the midst of negotiations to join the European Union, with its fiscal difficulties recently. The main point about such bailouts, however, is that they are usually late, grudging and conditional; they almost always occur after a country has faced severe difficulties, follow messy negotiations and impose unwelcome conditions. Even if Scotland could be confident such an option exists, policy focusing on avoiding it would be far preferable.

So far, this discussion has focused on crisis response. However, we should also expect that the lack of the central bank buyer of last resort would have a negative impact on Scotland's borrowing on an ongoing, if variable, basis. Standard & Poor's explanation of its rating of Montenegro makes this clear, as well as how its thinking in this regard has shifted. In 2008, Montenegro's credit rating was supported by 'the use of the euro as legal tender'. By 2011, the situation was more nuanced: 'Although the euro limits monetary policy flexibility, it has facilitated large inflows of FDI and tourism and has lowered transaction costs with trading partners. It also eliminates foreign exchange risk, although not external refinancing risk, for residents borrowing in euros'. All these positives from an informal currency union still hold for Montenegro, as they would for an independent Scotland in an informal sterling union. But by 2012 Standard & Poor's conclusion was that the rating is constrained by the 'lack of monetary flexibility' resulting from informal currency union. In contrast, the rating of the Czech Republic, with its own currency, is supported by its 'high degree of monetary flexibility' (Standard & Poor's 2021). There is no reason to expect that Scotland's rating would not be similarly constrained under the current SNP proposals.[13] It is likely that this would only be a slightly lower rating, although this might change over time. Such ratings are important because they have an ongoing impact on a country's borrowing costs.

Investor or rating agency confidence in central bank support for the government bond market can be based on buying having occurred in the past, or simply by the knowledge that it could occur if needed. During the COVID pandemic, for example, reports from bond analysts regarding the government debt of both Denmark and the Czech Republic included speculation that QE could occur (e.g., Nordea 2020; ING 2020). The Bank of England's actions in September 2022 greatly reinforce this point, because it is support on financial stability grounds that clearly runs counter to the central bank's monetary policy aims, if only temporarily. This encourages investment and, equally importantly, discourages speculative attack. Any investor considering a short position in the bonds of a government able to create its own currency must factor in the central bank reversing market weakness. In periods of strong bond markets these are not likely to be a significant influence on borrowing costs, as spreads between bonds of different creditworthiness will tighten in such periods. However, at times of even minor market stress, the increased cost of borrowing is likely to be evident.

13 Moody's rates Aberdeen City Council a3 in its Baseline Credit Assessment – a standalone rating that ignores the possibility of outside support – but a1 overall, based on 'a high likelihood of extraordinary support from the UK government in the event that the entity faces acute liquidity stress'. '[A] change in the relationship between Scotland and the UK' is listed amongst factors that could lead to a downgrade, but currency issues are not discussed (Moody's 2021).

An obvious response to this argument is that, at least in more normal market conditions, Scotland borrowing in its own currency would face higher interest rates than if it borrowed UK£ within an informal currency union. In such a case, we do have the ability to make comparisons with other countries and draw some conclusions. The SGC (2018, 42) expected an independent Scotland borrowing in UK£ to pay around 100 basis points, or 1 percent, more than the UK. This is consistent, as they note, with rating agency estimates from 2014. Figure 2 therefore shows the yield of the 10 year government bonds of selected countries that have their own currency, relative to 10 year Gilt yields plus 1 percent.[14]

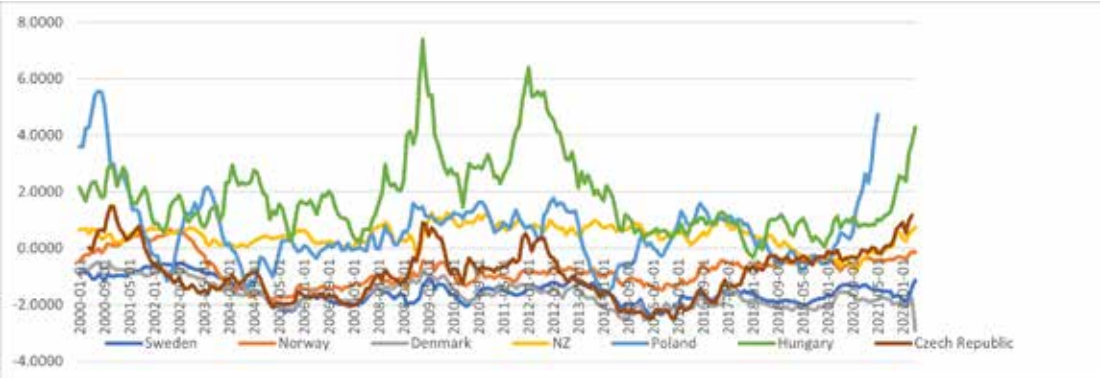


Figure 2: 10 year Government Bonds Yields Relative to Gilts + 1 percent, Selected Countries (%)

Source: St Louis Fed FRED Series[15]

Four of these countries - Sweden, Norway, Denmark and New Zealand - have the highest ratings (AAA/Aaa) on their local currency debt, compared to the UK's AA/Aa3. Ratings are far from the key determinant of borrowing costs, especially in a government's own currency, but these high ratings at a minimum indicate that these are countries with well-established reputations for economic and political stability. The three Nordic countries enjoy borrowing costs generally comfortably below Gilts + 1 percent (indeed commonly less than the UK's borrowing costs). New Zealand is generally slightly higher but comparable to the likely borrowing costs of Scotland outside crisis periods and once a strong reputation has been established. Poland (A/A2) and Hungary (BBB/Baa2) have less well-established reputations and mostly higher borrowing costs. The Czech Republic is probably the closest country to Scotland's situation, including in having been a relatively new country with no history on which to establish a reputation. The Czech Republic is now rated the same as the UK in local currency, and its borrowing costs, as figure 2 shows, have been below Gilts + 1 percent more than above. The performance of its currency against the euro similarly suggests investor confidence was established relatively quickly.

> ...there is nothing in the experience of similar countries with their own currency to suggest that Scotland borrowing in its own currency would face extreme costs and severe difficulties establishing its reputation for economic probity.

Conclusions must clearly be very cautious, with a possible new currency at some indeterminant point in time, and Scotland's policies and the global situation unknowable. However, there is nothing in the experience of similar countries with their own currency to suggest that Scotland borrowing in its own currency would face extreme costs and severe difficulties establishing its reputation for economic probity. The experience of Poland and Hungary do, however, suggest that there will be fiscal costs of not fully establishing that reputation. Neither country can be seen as

14 Negative values are yields below Gilts + 1 percent.

15 The monthly data unfortunately do not include the recent Gilt market turmoil. However, as of 11 October (i.e., during the Bank of England intervention), the yields of the government bonds shown relative to Gilts + 1% were: Sweden -3.19%, Norway – 1.78%, Denmark -2.68%, New Zealand -0.96%, Poland +2.14%, Hungary 4.73%, Czech Republic -0.01% (Source: Author's calculations from tradingeconomics.com). These figures do not change the conclusions above.

examples of serious economic policy irresponsibility, although both maintain slightly higher inflation targets than the other countries,[16] but they do face higher ongoing nominal borrowing costs.

Consideration of the situation in the euro area, a formal currency union, further highlights the influence of recent changes for the currency debate in Scotland. The trade-related issues, and in particular the difficulties of reducing a trade deficit without the option of currency devaluation (Macdonald 2014, 2022), still apply in the eurozone, as they would in Scotland in a formal or informal currency union with rUK. The eurozone periphery faced, and continues to face, the combined problems of the difficulties of adjustment to a loss of competitiveness without the option of devaluation and government borrowing in a currency those governments could not 'print', because the creation of euros was controlled by the European Central Bank. The eurozone was, and is, a formal currency union. But during the Sovereign Debt Crisis, its fiscal and monetary policy inadequacies were such that the experiences of the periphery countries struggling to repay their government debt would perhaps have been equivalent to those that Scotland might face in even an informal currency union with rUK. This was far from a comfortable situation, but it could be argued that by choosing an option akin to that chosen by euro members with current account deficits and lower creditworthiness, Scotland in an informal currency union would not have been far from these European countries.[17]

This comparison was always subject to some challenge, however, and a claim that Scotland in an informal currency union would be in a similar situation to a eurozone member is certainly no longer valid. Crisis lending, such as the European Stability Mechanism and some joint borrowing to address post-pandemic recovery, is partial progress in addressing the fiscal weakness of European Monetary Union. However, the most important change is the actions of the ECB. It dates from then-President Draghi's famous 'whatever it takes' comments of July 2012, but it is essentially embedded in the changing nature of monetary policy discussed above, albeit with eurozone specificities. As elsewhere in developed economies, unconventional monetary policy has meant Quantitative Easing. And QE's purchase of government bonds means reduced government borrowing costs. QE has been at least as influential across the eurozone as elsewhere, with the ECB essentially matching the Bank of England in purchasing government bonds in volumes that mirror or even at times exceed governments' pandemic financing needs (e.g., Wall Street Journal, 11 September 2020). In some cases, the constraint on ECB buying has been the availability of bonds to buy. At one point, even Greek bond yields were negative as a result (Financial Times, 14 June 2021). Countries were effectively being paid by investors to borrow. As with other central banks, QE is now formally part of the policy options, confirmed by a strategy review in July 2021.

In the eurozone, a further concern is the consistency of monetary policy, or interest rates, across the zone, which means a concern with the spread between the yields of government bonds from different countries. If Italian government bonds, for example, yield too much more than German government bonds, then monetary policy is not the same in the two countries. The ECB has therefore announced the Transition Protection Instrument, which will involve buying government bonds when they judge a country's government bonds are 'experiencing a deterioration in financing conditions not warranted by country-specific fundamentals' (Financial Times, 21 July 2022). While specific to the challenges of the eurozone, this represents a further step in central bank activism beyond supporting dysfunctional government bond markets for financial stability reasons, or alternatively an expansion of the definition of dysfunctional markets. Regardless of the interpretation, and with the proviso that a full analysis must await the activation of the programme, the outcome is further support, beyond QE, for government borrowing capacity on the eurozone periphery.

16 Denmark, Norway, Sweden, New Zealand and the Czech Republic all maintain targets of, or centred on, 2%, as does the UK, compared to 2.5% for Poland and 3% for Hungary.

17 Unlike the eurozone members, Scotland would have no representation on the committee setting its interest rates, but the nature of the ECB mandate, aggregate inflation across the eurozone, gives most smaller economies limited influence on monetary policy.

As a result, a claim that Scotland in an informal currency union would effectively be in a similar position to smaller eurozone economies can no longer hold water. In terms of the inability to adjust to its current account deficit by currency devaluation – the trade-based assessment – the situation would still be the same as Ireland, Greece, Portugal etc. (MacDonald 2022). But once we include fiscal and monetary policy – the finance-based assessment – informal currency union is now markedly worse than the position of countries in the eurozone periphery.

With its own currency with no attempt to peg to the UK£ or any other currency, Scotland would be in the same position in Europe as a number of generally successful economies, including Sweden, Poland, Iceland and the Czech Republic (although note that prior crises in countries such as Iceland and Sweden argue strongly for the need for responsible policy); see also MacDonald 2022 on government debt and reserve levels), and many others worldwide. As already noted, in Europe informal currency union has been chosen only by Montenegro.

We do not yet know the relative role of the extraordinary money creation of the pandemic period in the inflation we are currently experiencing (although see Reis 2022), nor how long this inflationary spike might last. As we are witnessing, high inflation does not preclude central bank actions, but will still likely constrain them. Current events are a reminder that central bank support cannot be a replacement for sound economic policies. In any country with its own currency, the process outlined above, where central bank purchases keep government bond interest rates low, can nevertheless operate. If other investors lose confidence in the bonds, the central bank can simply buy more. The impact of these activities would however also be visible in the currency's exchange rate against other currencies as well as higher inflation. If investors and other market participants, within or beyond Scotland, believe that the money creation will undermine the value of the currency, they will exchange it for other currencies, or in extremis simply not accept it in transactions. The currency's ability to act as a store of value and a unit of exchange will be undermined, with inflationary consequences, including through the increased cost of any imports. This seems very unlikely to happen to the extent of some of the hyperinflationary episodes often cited, such as in Zimbabwe, Venezuela or further back in Weimar Germany in the 1920s, but it would not have to occur to anything like this extent to be economically damaging, as September 2022 reminds us, especially in the situation of a new currency with a readily available and familiar alternative, UK£.

To counteract these risks, an independent Scotland with its own currency would have to follow economic policies deemed appropriate by market participants. These participants would crucially include domestic depositors and investors, if we accept that the option of capital controls – stopping Scottish depositors and investors exchanging their S£ for other currencies – must be ruled out. Only once a strong reputation is established would the country enjoy the ability to respond to crisis in a way similar to the existing UK. There can be no certainty as to how long this would take, and it would in part depend on events outside Scotland's control. Global financial markets do not have a fixed view of appropriate policies, with overall market conditions having a strong influence. The experience of the Czech Republic nevertheless gives some indication of possible timescale. The Czech Republic's koruna came into being in 1993 after the constituent nations of Czechoslovakia negotiated their 'velvet divorce'. At the time, the Czech economy enjoyed few of the positives Scotland does now, but the koruna has been generally trending

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...an independent Scotland with its own currency would have to follow economic policies deemed appropriate by market participants.

upwards against the euro since early 1999.[18] This suggests that confidence could be established relatively quickly. In the immediate aftermath of independence, Scotland's most important bilateral currency relationship will be with the UK£, which will itself be faced with the uncertainty of the rUK's new circumstances. This will help, especially with the many domestic depositors for whom S£ or UK£ would likely be the only practical alternatives.

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Further Political Importance of Central Banks

The discussion above shows how central banks have become in recent years central to a country's borrowing, particularly during crisis. This final section highlights developments that have the potential to make central banks even more politically important. These involve areas of policy that would be at the forefront of the concerns of an independent Scotland: inequality, house prices and climate change. There remains a debate amongst central bankers themselves as to the extent that they should be involved in such issues (e.g., Tucker 2018). The debate itself is not the main concern here, but rather that it has implications for Scotland's currency options.

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With its own currency, Scotland decides its view as to whether, and if so how, these issues should be part of central bank concerns. In a formal currency union Scotland is represented in the debate, with its weight determined by the nature of representation of that view, but likely in a formal union such as the euro or Sterling to be relatively low. In an informal currency union, Scotland would have no involvement in the debate. It might be argued that no involvement would be unchanged from Scotland's current situation, but this probably underestimates the extent to which the Bank of England is sensitive to soundings across the UK, not simply the views of the Westminster government.

Inequality

There has been a debate almost since QE was introduced as to its distributional consequences. QE pushes asset prices higher, as is in part its intention, and this price appreciation favours the holders of these assets, disproportionately the wealthy. Wealth inequality is thereby increased. Against this, by supporting economic activity, the income of the poorest, who are most vulnerable to recession, is supported, with positive implications for income inequality (e.g., Bunn, Push and Yeates 2018). Inequality is of direct importance to monetary policy, because the poor have a higher propensity to spend any additional income, boosting economic activity, relative to the rich, who are more likely to save. It is also of high importance to many governments, including in Scotland. Whether and how central banks include inequality in their decision making is therefore politically important.

Housing

The New Zealand government in February 2021 required its central bank to consider house prices in its decisions (Powell and Wessel 2021). The move was prompted by widespread public concern at rapidly rising house prices, a concern the UK, but particularly parts of England, shares. The debate around the move is

18 Slovakia joined the euro in 2009, having met the criteria that include 2 years of currency stability within the Exchange Rate Mechanism.

linked to a broader debate regarding whether central banks should act to address asset price inflation more generally, including seeking to address bubbles in for example the equity market. The Bank of England already considers house prices in the context of banking regulation. The RBNZ may do similar, but going further, with a policy focused on England or at least rUK, could have important consequences in Scotland.

Even before the New Zealand initiative, central bank actions have often represented intervention in the housing market. By buying Residential Mortgage-Backed Securities, as the Federal Reserve has done, or supporting securitization markets more broadly, an ECB policy, a central bank improves the cost and availability of mortgages, and thereby acts to improve house prices.

Climate Change

The ECB President, Christine Lagarde, has been particularly vocal on the need for central banks to consider climate change in their policy. There are clear narrow arguments for doing so, most obviously the risks to financial stability from the damage caused by rising temperatures. Central banks have powerful tools in this regard. Regulation can include climate-related risks more aggressively, for example. In addition, many central banks also buy bonds issued by companies as well as governments, supporting their prices, particularly in crisis situations. Excluding fossil fuel companies from such programmes could well have a greater impact than boycotts by some equity investors.

No action would also be an influential decision. If central banks buy an equal share of the corporate bonds in the market, heavy CO2 emitters benefit most, as they issue higher volumes of bonds. The Bank of England has also been aware of these concerns and responded in November 2021 with an approach to 'greening the Corporate Bond Purchasing Scheme'. This aims to reduce over time the 'weighted average carbon intensity' of the portfolio of bonds purchased, with purchases favouring the best climate performers (Bank of England 2021). The net zero target, however, is 2050, in line with the UK target, not Scotland's more ambitious 2045 target. The Bank of England buys the bonds of companies making 'a material contribution to economic activity in the UK', which would currently include Scottish corporate bond issuers. After independence with an informal currency union, this would presumably involve a material contribution to economic activity in the rUK, but this almost certainly still includes the largest Scottish companies.[19] The change from the current situation would therefore likely be very minor, but this would nevertheless be a missed opportunity for the Scottish government's greater urgency on climate change to prevail even after independence.

Whether or not a central bank should focus on these three issues is a complex question, but the reason to mention the issues here is to highlight the way that a Scottish central bank is potentially not only central to fiscal policy, but could be involved in some of the most important political issues an independent Scotland will face. Whether Scotland makes the decision on these issues, or they are taken elsewhere, is closely bound up with its currency choice. We can assume that an independent Scotland would have an independent central bank, regardless of the functions the currency choice allows it. This would be a requirement for market participants to have confidence in policy, especially if Scotland has its own currency. Independence is never absolute, however. Central bank decisions are inherently political, rather than simply technical, because they have distributional consequences. The decision on what powers the central bank should have, and therefore the currency choice, is therefore as much political as economic.

19 Assuming, of course, that they remain 'Scottish', consideration of which would include how the nationality of a company would be defined.

Conclusion

In 2014, MacDonald concluded (2014, 4), largely from a trade adjustment perspective, that informal currency union is 'without doubt the worst possible currency option for an independent Scotland' (MacDonald 2014, 4). He added, '[t]he only currency option that maximizes the benefits and minimizes the risks of independence is that of a separate currency' (*ibid.*). The view one holds regarding independence does not change the validity of these conclusions. However, recent developments in central banking, even since the SGC's 2018 recommendation of informal currency union, mean that MacDonald unavoidably understates his case.

This paper argues that even an updated version (MacDonald 2022) does not take sufficient account of recent developments in central banking. Since the 2008-09 financial crisis, and even more dramatically since the outbreak of the COVID pandemic and the recent 'mini-budget', we have moved into a world of what a former Fed Chair calls '21st Century Monetary Policy' (Bernanke 2022). In this world, at best, a country without its own currency lacks the full range of monetary policy and financial stability options. These options involve government borrowing capacity being ultimately underpinned, if necessary, by a buyer of last resort, a central bank able to create money to buy government debt. With the option of a formal currency union with rUK now removed, and the euro a more distant possibility, a new currency is the only viable option that gives Scotland the necessary fiscal capacity to fully protect its citizens.

Since the 2008-09 financial crisis, and even more dramatically since the outbreak of the COVID pandemic and the recent 'mini-budget', we have moved into a world of what a former Fed Chair calls '21st Century Monetary Policy' (Bernanke 2022). In this world, at best, a country without its own currency lacks the full range of monetary policy and financial stability options.

The recent dramatic rise in inflation does not undermine the necessity of a country having the full range of monetary policy and financial stability options to respond to events, as September 2022 shows. Ultimately the extent of any central bank's independence is subject to the mandate it is given by the elected government. For the Bank of England, that is the Westminster government, making decisions Scotland cannot influence in an informal currency union.

With the option of a formal currency union with rUK now removed, and the euro a more distant possibility, a new currency is the only viable option that gives Scotland the necessary fiscal capacity to fully protect its citizens.

In his recent speech to the SNP conference, Ian Blackford MP, the party's Westminster leader, focused on the recent mini-budget, arguing that 'Your homes, your pensions, your incomes are not safe under Westminster control'. Informal currency union would not protect Scots from the consequences of Kwasi Kwarteng's impact on the Gilt market, mortgages, pensions, or the currency. Furthermore, Scotland is unlikely to be in a situation in such circumstances where, as the Sustainable Growth Commission maintained, 'What happens with respect to currency the day before an independence vote would happen the day after' (SGC 2018, 47). The precise situation is uncertain, and largely dependent on decisions at Westminster and the Bank of England, but the most likely outcome is less protection from shocks such as an irresponsible UK budget. In contrast, with its own currency, such protection is possible. It is essential that the central bank has full operational independence to achieve its mandate, but it will have the capacity to create money to ensure Scotland's monetary and financial stability.

A new currency would not be a fiscal free lunch and would require Scotland to establish a reputation for responsible economic policies. It would also involve a lengthy transition period during which use of UK£ is likely to remain high. Decisions during, and contributing to, that transition would likely involve potentially significant distributional consequences, and difficult trade-offs between individual preferences and prudential priorities. For example, individuals may wish to maintain UK£ pensions despite concerns regarding effectively turning those pensioners into foreign currency speculators. Foreign currency mortgages

raise similar concerns (ask, for example, the Icelanders or Hungarians), albeit involving the opposite risk position vis-à-vis the value of the S£. Scotland's share of the UK's residual government debt also looms large in the currency debate. To start to get to grips with such issues, however, requires a recognition that a new currency is an independent Scotland's best option.

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