Currency options for an independent Scotland

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About this report

Choosing a currency regime would be one of the most important economic decisions that would face a newly independent Scotland. This paper examines the main currency options that would be open to an independent Scotland and the implications of these for economic stability, fiscal policy, trade costs and macroeconomic institutions.

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Summary

The Scottish National Party (SNP) is pushing for another referendum on Scottish independence, arguing that Brexit – which a majority of voters in Scotland voted against – has changed circumstances enough to justify one. An important question if Scotland were to become independent is what currency the new country would use. This choice would matter, not only for how people go about their daily lives but also for how the Scottish economy would function and how much freedom the new government would have in its use of monetary policy, tax and public spending.

Currency became a major point of contention in the 2014 Scottish independence referendum. At that time, the SNP advocated forming a new currency union with the UK. But the UK government ruled that out. Then, in 2018, the SNP-commissioned Sustainable Growth Commission proposed that Scotland would initially use sterling informally before later introducing its own currency, when conditions were right.[1]

There are five main options that Scotland could choose from:

- creating a formal sterling currency union with the remaining UK (rUK)
- joining the eurozone
- continuing to use sterling without any formal agreement with rUK
- introducing a new Scottish currency that is allowed to float freely against other currencies
- introducing a new Scottish currency whose value is pegged to another currency (or set of currencies).

Each one of these options would emulate a currency arrangement that already exists somewhere in the world. Among other small, advanced economies, currency regimes akin to all five options exist, apart from the third one.

The UK government has previously ruled out the first option and the second option would be possible only in the medium term – once Scotland had jumped through the necessary hoops. Immediately after independence, Scotland would be unlikely to be able to accrue enough foreign exchange reserves at a reasonable price to defend a pegged currency. As a result, the third and fourth options seem the most likely choices in the early days of independence and we conclude in this report that using sterling

informally may be the most attractive option at the very start, although if the implicit parity in this arrangement between the Scottish pound and the rUK pound were perceived to overvalue the Scottish currency, the Scottish government could come under pressure to abandon sterling.

None of the options would be without some challenges. And whatever choice was made, it would involve some change from the status quo. The main trade-offs between the options would relate to:

- **Trade costs.** Retaining sterling (either formally or informally) would avoid both the upfront costs of switching to a new currency and introducing new expense or uncertainty in doing business with rUK. Joining the euro, on the other hand, would entail some cost and increase the difficulty of doing business with rUK. But it would reduce the barriers to doing business with the other 19 eurozone members. Over time, if Scotland's economy were to reorient towards the EU, the advantage of this could grow – indeed, Scotland joining the euro would likely accelerate such a change.

- **Ability to respond to economic shocks.** By tying the Scottish currency to another one (either through a currency union or pegging the value), four of the five options would prevent Scotland from using monetary policy to respond to economic shocks. The only option under which the Scottish monetary authority would have full flexibility over its use of monetary policy would be a new, free-floating currency. Under the other options, the Scottish government would need to make greater use of fiscal policy to respond to economic shocks – particularly those that hit Scotland differently from its neighbours.

- **Exchange-rate volatility.** But the value of a new, free-floating currency would probably be more volatile than the value of established, global reserve currencies such as sterling or the euro. Such currency volatility could impart a negative shock to the Scottish economy and the uncertainty it would create would increase the costs of doing business with Scotland. Pegging the currency would reduce this volatility but the peg would be sustainable only if currency market participants believed the peg was appropriate and that the Scottish monetary authority had enough foreign exchange reserves to defend the peg – and the inclination to use them to do so.

- **Constraints on fiscal policy.** Whichever currency option was chosen, before too long an independent Scotland would be likely to have to run tighter fiscal policy than the position it would be likely to inherit on day one. In a formal currency union, Scotland would need to adhere to the fiscal rules that apply to all member states – such as the eurozone rule that countries cannot have a deficit of more than 3% of gross domestic product (GDP). Without the freedom to use monetary policy, the Scottish government would have to make more active use of fiscal policy to cushion economic shocks. This would increase the need to run tighter fiscal policy in good times to increase the scope to run deficits in bad times. To help reduce the volatility of a new currency, the government of a newly independent Scotland would need to

show a commitment to running sustainable fiscal policy. Such a commitment would also help minimise government borrowing costs.

- **Impact on financial services.** The choice of currency would have some implications for financial stability in Scotland. The government's ability to offer a backstop to deposit insurance schemes for retail banks and to offer 'lender of last resort' facilities to financial firms would be more restricted if the Scottish monetary authority did not have the ability to print money – that is, if Scotland informally used sterling or pegged its currency.

The first two options would also require the government of a newly independent Scotland to get agreement from either rUK (to form a sterling currency union) or EU member states (to join the euro), respectively, as Scotland would not be able to choose either of these options unilaterally.

Both the currency union options would also require ongoing discussion between the Scottish government and the other member(s) of the currency union to ensure its continued smooth functioning. As the history of the eurozone shows, tensions inevitably arise within a currency union from shared monetary and financial stability policies and the implications of these for constraints on fiscal policy.

To join the eurozone, there are formal procedures that prospective members must go through, including showing for two years that they can maintain the value of their currency against the euro. Therefore, joining the eurozone would, at best, be a medium-term option for an independent Scotland. If the UK government continues to rule out the possibility of a sterling currency union, this would also not be possible in the near term – and perhaps not ever – leaving a newly independent Scotland with a choice between continuing to use sterling informally or launching a new currency (either free-floating or pegged).

Using sterling informally would have some downsides, including removing Scotland's ability to use monetary policy to address Scotland-specific shocks and limiting the scope for the Scottish government to bail out retail banks and the wider financial sector in the event of another financial crisis such as that seen in 2008. It would also increase the need for a Scottish central bank to hold substantial foreign reserves if Scotland were to have its own payment-clearing facility. If people expected the arrangement to be short-lived – and ultimately expected that sterling would be replaced by a new Scottish currency of lower value than sterling – they may hold off making investments or move their assets out of Scotland in anticipation. But in the short term at least, using sterling informally may be preferable to launching a new currency.

In the early days of an independent Scotland, the value of a new currency could be very volatile, as the market for the currency would be illiquid and the Scottish authorities would have no established record of prudent fiscal and monetary policy. Immediately after an independence vote, Scotland would be likely to have a large fiscal deficit and so it would take time for any new Scottish government to form a reputation

for sound management of the public finances. It would also take time for markets to gain confidence that a new Scottish central bank was committed to maintaining low and stable inflation. Pegging the currency to another could help to mitigate concerns about currency devaluation – but that would be credible only if substantial foreign exchange reserves backed the currency to defend the peg. Scotland would be unlikely to be able to accumulate such reserves quickly at a reasonable price, given the level of fiscal deficit that would be likely to exist in the early days of independence and the fact that Scotland would have no track record of repaying its debts and so would be likely to face higher interest rates on its borrowing than the UK currently does.

Once an independent Scotland had established its reputation for prudent fiscal policy and a commitment to low and stable inflation – and had time to build foreign exchange reserves – the attractions of issuing a new currency would probably increase. Under those conditions, the currency would be likely to be less volatile and the Scottish monetary authority would be better able to intervene in currency markets to manage any volatility if needed. Having its own currency would also be a prerequisite to one day joining the euro, if that was something Scotland wanted to pursue.

1. Introduction

The question of currency was the subject of heated debate at the time of the 2014 Scottish independence referendum. The UK government's categorical refusal to countenance the idea of a formal sterling currency union[1] – which was the stated preference of the 'Yes' campaign in 2014 – became a major thorn in the pro-independence campaign's side.

People are so familiar with the notes and coins in their pockets that changing them could be a huge upheaval and perhaps an all-too-apparent symbol of the severing of three centuries of political union.[*] But a country's currency choice has far wider implications than just the cash people use in their day-to-day lives. It affects:

- the country's ability to run an independent monetary policy to smooth the ups and downs of economic cycles
- the cost of borrowing for the government
- the risks that businesses face in buying and selling abroad
- the attractiveness of the country as a destination for foreign investment.

All these factors and more would need to be weighed up in deciding what the right choice for an independent Scotland would be.

Were Scotland to leave the UK, it would need to establish its own macroeconomic framework and institutions. One important aspect of this would be the currency regime, with associated implications for monetary and financial policy and the institutions needed to support these. In this report, we examine the various options that would be available and the arguments in favour of and against each of them.[**] Our aim here is to explain – in a non-technical way – how the options differ from one another and the circumstances or preferences that might steer Scotland towards one over another. Some have greater attractions than others, although the merits of different options would probably change over time as Scotland established its reputation as a new, independent country and possibly charted a new course for economic and trade policy.

* Despite the increasing use of digital payment methods, cash continues to be the most common medium for transactions and there has been strong opposition to any suggestions that cash should be abolished; see Giles C, 'In cash we trust: abolish it and you invite tyranny', *Financial Times*, 23 September 2015, retrieved 6 September 2021, www.ft.com/content/ffdb3034-610e-11e5-9846-de406ccb37f2

** The choice that an independent Scotland made would have an impact on rUK as well as Scotland, but in this report we focus on the impact on Scotland since this is presumably what would primarily be considered when an independent Scottish government made a decision about the currency regime.

If Scotland were to become independent, the status quo currency arrangement would not be an option. Some changes would have to happen, although the practical implications of those may not be very large, depending on the option chosen and how Scotland's economy developed after independence.

We start in Chapter 2 by laying out the basic economics of currency regimes, the differences between Scotland's five main currency options, why they matter in principle and how important they might be for Scotland in practice. In Chapter 3, we then summarise the options and the features, advantages and disadvantages of each, before offering our conclusions in Chapter 4. Although many aspects are inherently uncertain, the analysis we present here is based on a range of historic precedents, macroeconomic theory, a review of the relevant literature and interviews with experts in the field, which should help inform any decision about the choice of currency for an independent Scotland.

Both economic and non-economic factors would need to be considered when choosing the currency. Joining any form of formal currency union would require the Scottish government to agree monetary policy objectives with rUK (in the case of a sterling currency union) or with other eurozone members (in the case of joining the eurozone). These constraints on self-determination would need to be balanced against the other benefits of these options.

Where relevant, we consider both issues that would arise if a newly independent Scotland adopted a currency regime as a permanent solution and ones that would arise if the regime was chosen only as a temporary near-term option (before later transitioning to a different long-term solution). The SNP's Sustainable Growth Commission,[*] for example, recommended in 2018 that Scotland should retain the pound in the near term but ultimately aim to introduce a new Scottish currency when conditions were right.[2]

* The first minister and SNP leader, Nicola Sturgeon, set up the Sustainable Growth Commission to assess projections for Scotland's economy and public finances under independence and the options for Scotland's macroeconomic policy framework.

2. The basics of currency regimes

A country's currency is a vital part of its economy, allowing people easily to exchange goods and services between each other and across periods of time. But the choice of currency regime really becomes important when citizens, investors and business in one country interact with those in others.

Using the same currency as another country (as, for example, the eurozone countries do) makes it very easy to do business with the other country. You do not need to worry about the practical hassles of converting money, and there is no risk that the value of what you hold will suddenly be worth much less in terms of what you can buy from the other country.

In contrast, having your own currency, if its value fluctuates freely, poses those problems but it also allows you to use monetary policy to stabilise your economy – typically by cutting the interest rate to boost economic activity during a downturn – and to allow the exchange rate to vary as an easy way to address economic differences between your country and others. For example, if one of your trading partners suddenly discovers a new, cheap source of a raw material that allows them to produce goods and services more cheaply, you can shore up demand for your exports by allowing your currency to devalue to reduce their price. Without that mechanism, the only way to cut the costs of your exports would be to reduce the price paid for inputs to the production process, which often means cutting wages. Although both devaluation and wage cuts leave people in your country worse off, devaluation is likely to be easier to achieve and will spread the impact more widely than a wage cut would.

There are, of course, options for currency regimes between a formal currency union and a free-floating exchange rate but the simple examples just described illustrate some of the reasons why the choice of currency would be important for an independent Scotland.

2.1 Types of currency regime

In this report we consider five possible currency regimes for an independent Scotland. This is not an exhaustive list, but it covers what seem to be the plausible options that an independent Scotland would consider:

- having a formal currency union
    - with sterling
    - with the euro
- informally continuing to use sterling

- introducing a new Scottish currency
  - pegged to another currency (for example, sterling or the euro)
  - with a free-floating exchange rate.

If a currency is free-floating, foreign exchange markets determine its value. If a currency is pegged, the country fixes the value of its currency to another one – either to a specific value or within a specified range – with the country's monetary authority intervening in foreign exchange markets if necessary to ensure the currency remains at the specific value/within the range.

One obvious omission from the above list of options is the informal use of a currency other than sterling. Scotland could, in principle, informally use the euro, the US dollar or another currency. But as will become clear from the discussion below, under most conceivable circumstances the downsides of doing that – including the upfront cost of switching to a new currency – would almost certainly be large enough as to outweigh any potential benefits relative to the other options we consider and so we do not consider that option in any detail.

Not all options are equally feasible

An independent Scotland could adopt some of the options analysed here unilaterally, but not all. Before the 2014 Scottish independence referendum, the then Scottish first minister, Alex Salmond, insisted that "it's our pound too and we're keeping it",[1,2] but the reality is that a formal sterling currency union – or any other formal currency union – would need to be negotiated with the other partners. We consider here the options of forming a new sterling currency union with rUK and of joining the euro.

Joining a formal currency union would, at the very least, take a long time

At the time of the 2014 referendum, the UK government said that it would not be willing to form a new currency union with Scotland.[3] If this continues to be the UK government's position, this option would be off the table.

Rejoining the EU is at the core of the SNP's argument for holding a new independence referendum.[*] EU accession does not automatically imply membership of the eurozone, but a commitment to eventually join the monetary union is a prerequisite for entrance to the bloc. Therefore, the argument for holding a new referendum indirectly implies an intention to adopt the euro at some point in the future. But joining the euro would be a complex process, as outlined in a recent Institute for Government report.[4]

There is a set process for countries wanting to join the eurozone that Scotland would need to follow. As any country attempting to join it, Scotland would need to meet a set of economic convergence criteria. If the EU stuck to the letter of these rules, one of these criteria requires that Scotland would need to show that it could stabilise its own currency against the euro for at least two years before acceding to the eurozone. This

[*] Scotland could face opposition to any attempt to become an EU member after independence, from countries such as Belgium and Spain, which have strong secession movements of their own and might push back against a new state joining the bloc if it had originated from an independence movement.

would mean establishing a new currency, setting up a central bank and running a fixed exchange-rate system, with stable inflation, for at least two years before Scotland could adopt the euro. Scotland would also need to meet the eurozone's criteria for sustainable public finances. As we discuss in *The Fiscal Position of Scotland, Wales and Northern Ireland*,[5] Scotland's public finances, as they currently stand, would not meet these. Adopting the euro would therefore be impossible in the short term.

Even though both currency union options seem unlikely to be feasible at the point of independence, we describe their features to inform whether a formal currency union would be worth pursuing as a longer-term goal.

In contrast to the barriers to forming or joining a formal currency union, an independent Scotland could unilaterally decide to use another currency informally (such as sterling) or to introduce a new currency (whether floating or fixed in some way). But as we describe further below, some time and cost implications would be involved in introducing an entirely new currency to Scotland.

There are currently examples of all these currency models somewhere in the world

There are examples of each of the five kinds of currency regimes somewhere in the world – and countries operate a mixture of these approaches in relation to different countries. For example, the 19 eurozone countries form a currency union, using the euro, which floats freely against other currencies.

A few countries currently informally use the dollar (for example, Ecuador, El Salvador and Panama) or the euro (for example, Kosovo and Montenegro), without having a currency of their own. These countries are often referred to as 'dollarised' or 'euroised', respectively, and so some authors have referred to the option of Scotland informally using the pound as 'sterlingisation'.[6]

All the UK's crown dependencies and some of its overseas territories peg their currencies one-to-one to sterling, although they have their own currencies and issue their own bank notes. Similarly, other countries maintain a fixed parity between their currency and another (for example, the Hong Kong dollar to the US dollar).

Many countries manage their exchange rate against one or several other currencies (for example, the value of the Croatian kuna is stabilised within a range against the euro). Most of the world's largest economies allow their currency to float freely; this includes Canada, Japan, the UK and the US.

Other small, advanced economies operate a range of currency regimes – but none are dollarised

The advanced economies that are closest in size to Scotland run a variety of currency regimes, as Table 1 shows. The table includes all those countries of the Organisation for Economic Co-operation and Development (OECD) that are similar in size – in terms of their GDP – to Scotland, plus other countries that the Sustainable

Growth Commission considered in its 2018 report to be useful comparators for an independent Scotland (namely, the Netherlands, Singapore and Sweden). Countries are listed in the table from the smallest to the largest; an independent Scotland would rank between New Zealand and Finland.

Table 1 **Currency arrangements and foreign exchange reserves of small, advanced economies**

Country	Currency arrangement	Foreign exchange reserves (billion USD)	Foreign exchange reserves as a % of GDP (2020)
New Zealand	Floating	14.0	6.2%
Finland	Floating	14.5	5.1%
Hungary	Floating	41.7	12.9%
Greece	Currency union – eurozone	12.7	4.2%
Denmark	Pegged – exchange rate with euro maintained within a range	73.5	20.9%
Israel	Floating	173.8	45.0%
Portugal	Currency union – eurozone	30.0	8.4%
Norway	Floating	75.4	22.1%
Ireland	Currency union – eurozone	7.5	2.6%
Hong Kong	Pegged – exchange rate with US dollar maintained at a specific value	519.7	111.5%
Sweden	Floating	58.6	10.3%
Singapore	Pegged – value of Singapore dollar managed relative to a basket of other currencies	362.3	63.4%
The Netherlands	Currency union – eurozone	109.3	10.6%

Source: Institute for Government analysis of: International Monetary Fund, 'Official reserve assets and other foreign currency assets' (indicator), 2021, retrieved 2 September 2021, https://data.imf.org/?sk=2DFB3380-3603-4D2C-90BE-A04D8BBCE237&sId=1452013100577; OECD, 'Gross domestic product (GDP)' (indicator), 2021; Monetary Authority Singapore, 'Official foreign reserves', 2021; Central Statistics Office (Ireland), 'Information notice – modified gross national income at current and constant market prices', July 2019, retrieved 20 August 2021, www.cso.ie/en/releasesandpublications/in/nie/in-mgnicp

Greece, Ireland, the Netherlands and Portugal all belong to the eurozone. Denmark's currency is pegged to the euro. The Singaporean dollar is managed against a basket of the currencies that Singapore's main trading partners use. Hong Kong has a currency board that maintains a fixed parity between the Hong Kong dollar and the US dollar. The rest – Finland, Hungary, Israel, New Zealand, Norway and Sweden – all allow their currencies to float freely.

It is notable, however, that none of these countries are dollarised or euroised. The closest to such an arrangement is Hong Kong's currency board. As already noted, the Hong Kong dollar is fixed to the US dollar and the Hong Kong currency board holds enough foreign exchange reserves to fully back all domestically issued notes and coins. But a fixed exchange rate of this sort is distinct from dollarisation because Hong Kong still has its own currency, which is traded on foreign exchange markets.

There are five sets of issues that would need to be weighed up in deciding what the right currency choice for an independent Scotland would be. These relate to politics, economics, financial stability, the costs of adapting to each of the regimes and the costs of operating under each of them. Countries have two main macroeconomic tools that they can use to manage their economies: monetary policy (including the exchange rate and interest rates) and fiscal policy (that is, government spending, taxation and borrowing). What freedom Scotland would have to use these tools would depend on the currency regime. In section 2.2 we discuss how currency devaluations and revaluations can help countries to adjust to economic shocks and, conversely, how exchange-rate movements can sometimes be the source of economic shocks. We then discuss the relationship between currency choice and monetary policy in section 2.3 and between currency choice and fiscal policy in section 2.4. Most of the currency regimes would limit the Scottish government's ability to use monetary policy to smooth the ups and downs of the economic cycle in Scotland. Adjustments would instead have to be made in the real economy, for example by adjusting prices and wages; how these adjustments would occur and how easily is discussed in section 2.5. We discuss the relationship between currency choice and financial stability in section 2.6. We then describe what the costs of each of the regimes would be for individuals and businesses operating within them day to day in section 2.7, and what the one-off costs of introducing a new regime would be in section 2.8.

2.2 Devaluation, economic shocks and currency volatility

The ability to depreciate or appreciate the value of a currency in response to changes in the domestic or global economy is often considered an important economic lever. A free-floating currency is the only option that would offer Scotland full flexibility to do this. An independent Scotland would, therefore, need to assess how valuable this flexibility would be likely to be.

If the value of a country's currency depreciates, that will tend to make its exports less expensive, thus boosting demand from abroad for its goods and services – as well as shifting domestic demand away from more expensive imports and towards domestically produced products. Basic economic theory would, therefore, suggest

that if an independent Scotland fixed its exchange rate (whether through joining a currency union or simply pegging a new Scottish currency) it would come with a cost – that is, losing this stabilisation mechanism. But in practice, things are not quite so straightforward.

Currency devaluations may not stimulate the economy

First, there are situations in which a currency devaluation might not have this stimulative effect. This is because there are channels through which a currency depreciation could actually dampen demand or harm the supply side of the economy, counteracting any boost to demand for exports or domestic demand for home-produced goods. These other channels are particularly strong for countries with supply chains that are tightly integrated with the rest of the world, as would be the case for an independent Scotland.

If businesses rely on imported inputs to the production process, a devaluation will increase their costs relative to the price they can command for their outputs. Also, if domestic consumers are unable to switch away from buying imported goods and services (for example, because no Scottish producers make equivalent products), a devaluation would effectively make them poorer, reducing the amount they could spend on domestic goods and services. Both these effects would depress economic activity. For these reasons, a currency devaluation may not be as valuable a tool for stimulating Scotland's economy as it appears at first sight.

A floating exchange rate can be a source – rather than a dampener – of shocks

Second, while a floating exchange rate could help dampen any economic shocks that Scotland experienced (by appreciating or depreciating in response to demand and supply shocks), exchange-rate volatility could at other times be a source of shocks. This is because economic factors are not the only determinants of exchange rates. Factors unrelated to the performance of Scotland's economy could drive the value of the Scottish currency up or down; if that were to happen, foreign exchange markets could be the source – rather than a dampener – of shocks.[7]

Switzerland, for example, experienced sharp upward pressure on its exchange rate in 2011 when large amounts of capital flowed into the country's banks in search of a haven from the financial instability in the eurozone. This caused the Swiss National Bank to intervene in currency markets to cap the appreciation of the franc to try to avoid Swiss products becoming uncompetitive but, ultimately, it was forced to abandon this cap.

Such volatility could be a particular concern for a new currency that a newly established small country issued. The market for the currency could be quite illiquid and in terms of Scotland the Scottish government and central bank would have little track record in adhering to fiscal discipline and price stability. Both these factors would be likely to contribute to volatility in the value of the Scottish currency. The currency could also fluctuate because of Scotland's relatively large exposure to oil and financial services – although all of our interviewees agreed that the volatility risk from oil has decreased with the fall in oil prices and it is unclear whether the financial sector would

remain such a large part of the economy after independence, as all major banks stated in 2014 that they would move south of the border in the event of independence.[8]

Exchange-rate fluctuations of this sort could destabilise the Scottish economy and would increase transaction costs for Scottish businesses and foreigners doing business with Scotland, as we describe in more detail below. It would also increase the uncertainty that investors considering investing money in Scotland faced.

To a large extent, however, the stability of a country's exchange rate will depend on its underlying macroeconomic policies. The example of Sweden shows that a small European country can enjoy monetary stability and low currency volatility without being a member of the eurozone or otherwise fixing its exchange rate. But as Barry Eichengreen, professor of economics and political science at the University of California, Berkeley, has said, "this assumes a high level of fiscal discipline... that Sweden, but not yet Scotland, has effectively shown".[9] The University of Glasgow professor, Ronald MacDonald, made a similar point, noting that "unstable flexible exchange rates are caused by unstable underlying macroeconomic policies and the Norwegian experience shows how a resource dependent small open economy can handle exchange rate flexibility".[10]

Overall, exchange-rate movements might not offer quite the sort of simple macroeconomic stabilisation mechanism for Scotland that basic economic theory predicts. But they would be likely to provide some value to an independent Scotland in stabilising the economy, particularly in the longer term once the market for a new Scottish currency had developed and Scotland had established a reputation for prudent macroeconomic policy making and so was less susceptible to destabilising movements in the exchange rate.

2.3 Monetary policy and the currency regime

Monetary policy and the currency regime are intrinsically linked. Monetary policy is, in general, used to stabilise the economy – that is, to smooth out the ups and downs of the economic cycle. But the choice of currency regime would affect what scope an independent Scotland's central bank would have to use monetary policy in this way and, indeed, whether an independent Scotland would need a central bank at all (as we discuss further in section 2.8).

One set of monetary policy applies throughout a currency union

Each currency area has a central bank. The central bank controls monetary policy, either acting on the government's instructions, as the Bank of England (BoE) did from 1946 to 1997, or operating independently of government, as the BoE has done since then. Until the end of the 20th century it was common – including in the UK – for the government to set monetary policy. But there was a conflict between the desire for long-term low and stable inflation on the one hand and, on the other, the political attraction of stimulating the economy to boost growth and reduce unemployment in the short term, which ultimately resulted in higher inflation without any permanent benefit for growth or unemployment.[11] This 'time inconsistency' was addressed by

making central banks independent – with the government setting the mandate (in the UK's case, inflation of 2%) but independent central bankers deciding how best to achieve it. The past two decades have shown the benefit of this independence for price stability and financial stability and most advanced economies now have independent central banks.[12]

If the currency is not being pegged to another one, monetary policy can be used to stabilise economic fluctuations – that is, to dampen booms and cushion recessions. Different central banks have slightly different mandates but, for countries with free-floating exchange rates, typically they are tasked with stabilising inflation and sometimes also unemployment.

Monetary policy has knock-on effects for the exchange rate. Expansionary monetary policy increases the supply of your currency. All else equal, the 'price' of your currency will need to fall to persuade people to hold more of it and so your currency will depreciate against its peers. Contractionary monetary policy will do the reverse.

Within a single currency area, there is one monetary policy. Policy will be set to try to achieve the best outcome overall for the formal currency area. But it may not be optimal for any one part of it. In a large currency union such as the eurozone, economies vary significantly in their economic and institutional structures, productivity levels and trading patterns. Therefore, setting policies that are right on average can nonetheless mean that monetary policy does not address shocks felt only by one area.

The attractiveness to Scotland of joining the eurozone or a formal sterling currency union would, therefore, depend on whether Scotland experienced similar kinds of economic shocks to the rest of the eurozone or rUK, respectively, or whether Scotland was likely to frequently experience shocks that did not affect the other countries – or which affected those other countries differently. These are often referred to as 'asymmetric shocks'.

The implications of Scotland's position as a hydrocarbon exporter and how this should affect Scotland's currency choice was the topic of extensive debate before the 2014 Scottish independence referendum. Before that referendum, the Treasury, Professor Ronald MacDonald and others highlighted Scotland's greater reliance on oil and gas production as a potential source of asymmetric shocks.[13] As Figure 1 shows, mining and quarrying (which, for Scotland, largely involve oil and gas production) make up a much larger share of Scotland's economy (8.6% of GDP),[*] than for rUK (0.3%) and the eurozone (0.2%). The oil and gas sector is subject to large and frequent shocks to supply and demand and those shocks affect hydrocarbon exporters differently from hydrocarbon importers. The most effective monetary policy response to such a shock would therefore be different for Scotland than for rUK or the eurozone. As Professor MacDonald noted before the 2014 referendum:

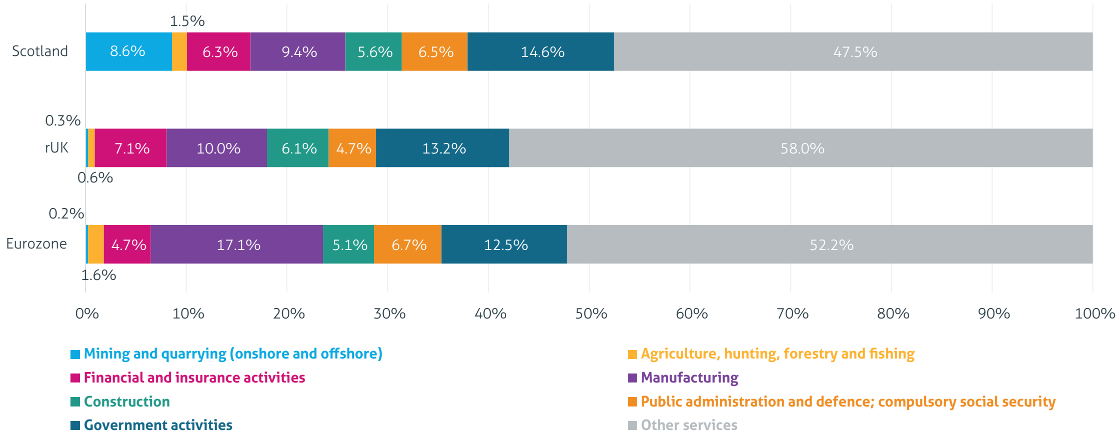
* These figures assume that Scotland is allocated a geographic share of North Sea production, as defined by the Scottish Adjacent Boundaries Order 1999.

> "In the case of a supply side shock [for example, a fall in global oil supply] the oil exporting country [Scotland] would probably want to have a tight monetary policy [higher interest rates] to control inflation, while the oil importing country [rUK] would want a more expansionary monetary policy [lower interest rates] to maintain demand for its other goods and services."[14]

Without the ability to tailor monetary policy to its own needs, Scotland would be more reliant on fiscal policy to cushion such shocks.

However, all our interviewees agreed that falls in oil and gas prices and North Sea output since the 2014 referendum have reduced the salience of this issue. In 2013, North Sea output accounted for 10.8% of Scotland's GDP but this had fallen to just 6.7% by 2018, the latest available data.[*]

Figure 1 **Composition of the economy (most recently available data)**



Source: Institute for Government analysis of: Office for National Statistics, 'Regional gross domestic product (GDP)' reference tables (Tables 5 and 8), 2019; Office for National Statistics, 'Regional gross value added (balanced) by industry: all NUTS level regions' (Table 1c), 2019; Scottish government, 'GDP Quarterly National Accounts, Scotland' supplementary table (Table 10), 2020; OECD, 'STAN industrial analysis', 2020. Eurozone data refers to 2016; Scotland and rUK data refers to 2018.

Countries that are informal members of a currency union will experience the same interest rate – but their interests will not be considered when it is being set

Although the monetary policy of a sterling currency union or the eurozone may not perfectly suit Scotland were it to be a member, its interests would at least be considered when policy was being set. In contrast, if Scotland were only to *informally* use a currency (sterling or the euro), its interests would not be considered when the interest rate was chosen – but it would nonetheless be affected by that choice. This is exactly the situation facing Montenegro at the moment: it informally uses the euro and so is subject to the European Central Bank's (ECB's) interest-rate choices, but the ECB does not take into account Montenegro's economic circumstances when it makes policy decisions.

* Institute for Government analysis of: Office for National Statistics, 'Regional gross domestic product (GDP)' reference tables (Tables 5 and 8), 2019; Scottish government, 'GDP Quarterly National Accounts, Scotland', supplementary table (Table 10), 2020.

How much difference this would make to Scotland's economic outcomes would, in practice, depend on two things. First, the result for Scotland would be very similar to being in a formal currency union if its economic circumstances (for example, growth rate, inflation, productivity and unemployment) were similar to those of the formal members (rUK or the eurozone members). In that case, the policy choice that the central bank makes might be the same even if Scotland were not a formal member. Second, if the Scottish economy was very small relative to the rest of the currency bloc, then formally factoring in its needs may make little difference to the decisions the central bank makes.

Scotland's economy is small relative to those of both rUK and the eurozone. It currently makes up just 8% of UK output and if Scotland were to join the eurozone it would comprise just 2% of eurozone output. Therefore, Scotland's unique economic needs would probably be given relatively little weight when interest-rate decisions were being made if Scotland were a formal member of either a sterling currency union or the eurozone after independence. As a result, there may be limited difference in practice in the interest rate that Scotland would be subject to were it to be a formal, as opposed to informal, member of a sterling currency union or the eurozone.

By joining a currency union, formally or informally, Scotland would inherit the commitment to low and stable inflation

Because one monetary policy applies across a currency union, one key advantage to Scotland of joining one (whether formally or informally) would be inheriting a track record of commitment to low and stable inflation. If Scotland created its own currency, its new central bank would be fully responsible for controlling inflation. This would be an untested institution, in a new country. There would therefore be uncertainty over its commitment and ability to consistently keep to a low inflation target. In a currency union with rUK, Scotland would benefit from the BoE's reputation, and the same would apply to joining the eurozone and the ECB. This could mitigate concerns of economic instability after independence, reassuring markets and business partners. Informally joining a currency union would have a similar effect to formally joining one, as either way, Scotland would be tied to rUK's or the eurozone's monetary policy.

This could be particularly beneficial to Scotland in the early years of independence, giving it time to establish a new central bank, develop its capacity and build credibility in the Scottish government's commitment to low and stable inflation and sound fiscal policy before potentially beginning to issue its own currency. This fits with the SNP's declared plan, detailed in the Sustainable Growth Commission's 2018 report, to adopt sterling unilaterally until certain criteria are met, at which stage a new currency would be created.[15]

Scotland could not make use of quantitative easing in an informal currency union

Central banks' main tool has traditionally been interest rates but, over the past decade, unconventional monetary policy tools, in particular quantitative easing, have played a greater role. Quantitative easing is the practice of central banks printing money to buy bonds – mostly their government's own bonds but also other long-term assets – to

increase the supply of money in the economy, which effectively decreases interest rates. Expansionary monetary policy (that is, cutting interest rates or increasing the supply of money through quantitative easing) is used to stimulate economic activity, encouraging people to spend rather than save, and pushing up demand and prices. Contractionary monetary policy (raising interest rates or reversing quantitative easing) is used to dampen the economy, encouraging people to save rather than spend, thus reducing demand and dampening price growth.

If Scotland had its own free-floating currency, a new Scottish central bank could elect to undertake quantitative easing or not, while if Scotland were part of a formal currency union, the union's central bank would do quantitative easing on its behalf. If Scotland instead had its own currency that was pegged, it would be possible to operate quantitative easing but only to the extent that it did not threaten the peg. The governor of Denmark's central bank, for example, rejected the idea of quantitative easing during the Covid crisis, saying that "fixed exchange-rate policy and QE [quantitative easing] do not fit well together".[16] If Scotland were to informally use sterling, it would not be able to operate quantitative easing and would not be included in the BoE's quantitative easing programme. In these two last scenarios, Scotland would essentially lose the ability to use quantitative easing to provide expansionary monetary policy and sustain liquidity in bond markets.

During the pandemic, governments have relied heavily on quantitative easing to maintain economic stability. Losing this policy lever could push Scotland's borrowing costs higher, limiting its ability to borrow cheaply, as we discuss in *How Would an Independent Scotland Borrow?*[17]

Monetary policy is not available for managing demand if the currency is pegged

If Scotland were to peg its currency to another currency – or basket of currencies – it would control its own monetary policy, but this would have to be used to maintain the peg.

The exchange rate between Scotland's currency and any other currency would depend on the demand for the Scottish currency compared with the foreign currency. The Scottish central bank would determine the supply of Scottish currency. Demand would depend on the appetite for it among domestic and foreign actors. Therefore, if Scotland wanted to peg its currency, unless it were to impose capital controls, the Scottish central bank would have to focus its actions on sustaining the desired exchange rate; it could not try to use monetary policy to stabilise the domestic economy if doing so was inconsistent with the currency peg.

To give a simple example, if the central bank tried to expand the money supply by cutting interest rates or expanding quantitative easing – to cushion a recession, say – this would put downward pressure on the value of the currency (all else equal). To maintain the peg, the central bank would then need to use its foreign currency reserves to increase its purchases of domestic currency. This would reduce the domestic money supply, offsetting the original monetary expansion.

The experience of members of the European Monetary System in 1992 provides a practical example of the problems that can be caused by fixing exchange rates between countries facing very different economic circumstances. After the reunification of Germany, inflation there rose sharply. To dampen this, in July 1992, the Bundesbank raised German interest rates to 8.75%. To prevent capital flight to Germany and defend their agreed exchange rate, other European Monetary System members were forced to raise interest rates as well.[18] This was exactly the opposite of what was needed to support the domestic economies of those countries, which were already faltering. This led to an attempt to revalue the European Monetary System currencies in September 1992, which was quickly followed by the UK and Italy leaving the system altogether on Black Wednesday (16 September 1992) after their central banks suffered large losses of foreign exchange reserves in trying to defend their overvalued exchange rates against speculative attacks by financial market players. A similar scenario could emerge if Scotland pegged its currency to the euro or sterling while facing different economic circumstances to the eurozone or rUK. We discuss how aligned Scotland is to each of these other economies, and thus the likelihood of problems occurring, next.

The practical implications depend on how closely aligned economies and shocks are

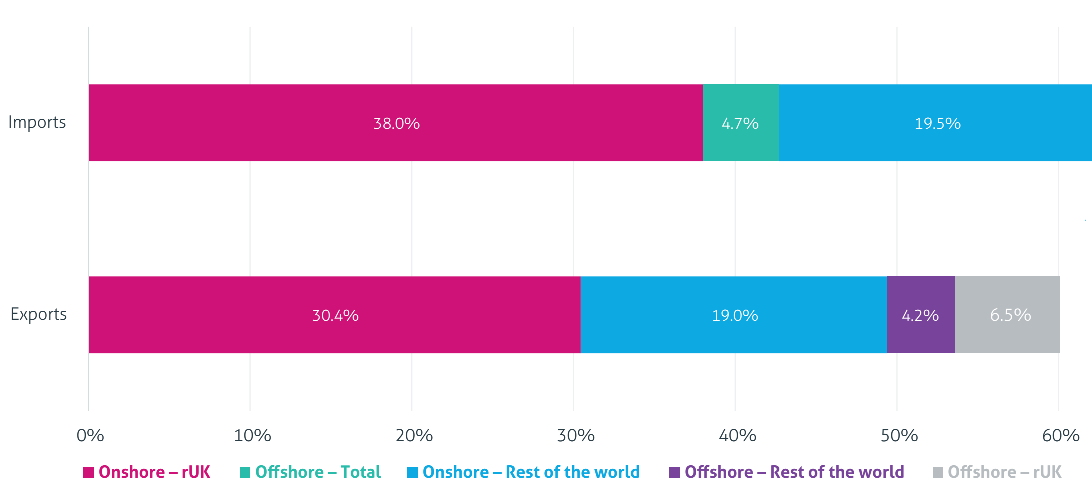
While, in theory, different currency options have major differences in terms of how much freedom over its monetary policy Scotland would have, this could have limited practical impact. The reason for wanting monetary policy flexibility is to help cushion the ups and downs of the economic cycle. How much Scotland would need to do this would depend on the size of macroeconomic shocks that it might experience and how those propagate through the economy. If Scotland were to experience very similar shocks to the other country or countries that it shares monetary policy with, then there would be little cost to not having an independent monetary policy, since the monetary policy decisions made for the currency area would likely be well suited to Scotland's needs. But greater problems would arise if Scotland experienced different shocks – in terms of both what shocks Scotland and other countries faced and how those propagated through each economy. The latter depends on the structure of the economy (for example, which sectors are largest) and the institutions and policies that are in place (for example, how readily wages and prices adjust). For simplicity, in the rest of this report, we refer simply to differences in shocks, but how shocks propagate through the economy is also important. Shocks could arise either on the demand side (for example, a sudden loss of confidence in the private sector, as happened during the 2008 financial crisis) or on the supply side (as happened during the Covid pandemic, when governments shut down large parts of the economy).

Monetary policy that is suitable for rUK is currently also well suited to Scotland – but this is less true of eurozone monetary policy

Scotland's economy is currently well synchronised with that of rUK. They share similar patterns of growth and unemployment, and trade is highly integrated. While Scotland is also similar to the eurozone average in some respects, it is currently closer to rUK. This is hardly surprising, given that people, goods and services move entirely freely within the UK, and that Scotland and rUK share common economic policies and institutions.

Trade is far more integrated between Scotland and rUK than it is between Scotland and the eurozone. In 2017, Scotland sent goods and services to rUK worth 36.9% of its GDP (as Figure 2 shows); the equivalent to the rest of the world was 23.1%, with only some of that going to the eurozone. Another data source* shows that Scotland's onshore exports to the EU amounted to just 9.3% of its GDP in 2017. No data is available to allow us to calculate the value of imports of goods and services to Scotland from the EU specifically, but Scottish onshore imports from rUK in 2017 were 38.4% of GDP, compared to just 19.5% for all other countries.

Figure 2 **Scotland's trade flows as a percentage of GDP (2017)**



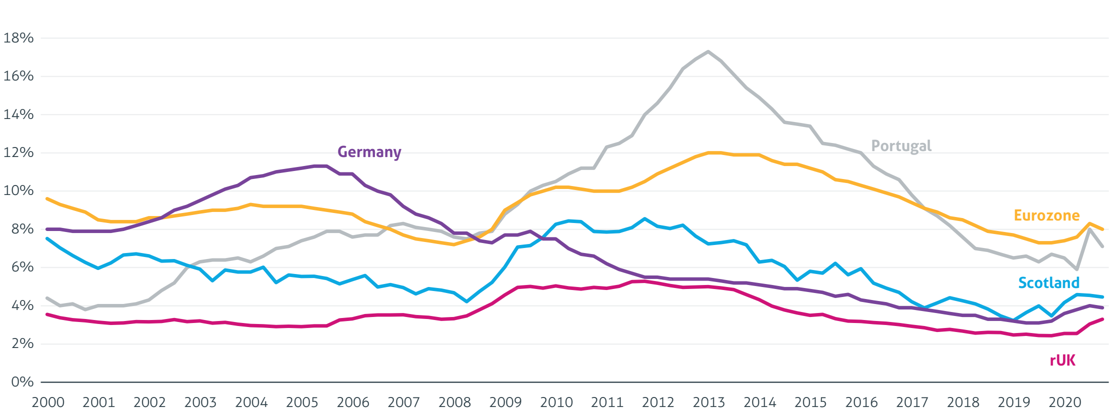
Source: Institute for Government analysis of: Scottish National Accounts Programme, 'Development of supply & use satellite accounts for extra-regio economic activities' (Tables 3 and 5), 2019; Office for National Statistics, 'Regional gross domestic product (GDP)' reference tables (Tables 5 and 8).

Scotland's patterns of unemployment have also been more aligned with rUK than with the eurozone, as shown in Figure 3. Over the course of this century, there has been an 84% correlation between the unemployment rates of Scotland and rUK, compared with a 68% correlation between Scotland and the eurozone. Unemployment is particularly weakly correlated between Scotland and the eurozone's largest members – for example, there is just a 20% correlation with Germany. This is relevant because economic patterns in the bigger European countries tend to weigh more heavily on monetary policy-setting, as they represent a large portion of the bloc's overall output. This lack of correlation could mean that eurozone monetary policy would sometimes not be well tailored to Scotland's needs. But this does not necessarily suggest that joining the eurozone would be detrimental for Scotland overall. The economies of the current eurozone members vary; indeed, unemployment patterns have since 2000 been more similar between Scotland and the eurozone average than between Portugal and the eurozone average. Scotland may not, therefore, be any less well placed to receive eurozone monetary policy than other existing members.

* Institute for Government analysis of Export Statistics Scotland.

Part of the reason why the labour markets of Scotland and rUK are more co-ordinated is because people can and do move freely between the two to find work. In contrast, language differences and greater distances mean migration flows between Scotland and the eurozone are smaller and this is likely to have intensified with changes in the rules for the movement of people since Brexit. For example, Scotland's national records estimate that 47,500 people moved to Scotland from rUK between mid-2018 and mid-2019 (approximately 1% of the Scottish population), and 37,400 in the other direction. Fewer people moved between Scotland and other parts of the world, with 39,900 people having moved to Scotland from abroad, and 19,700 people having moved from Scotland overseas.*

Figure 3 **Unemployment rates (percentage of the economically active population)**

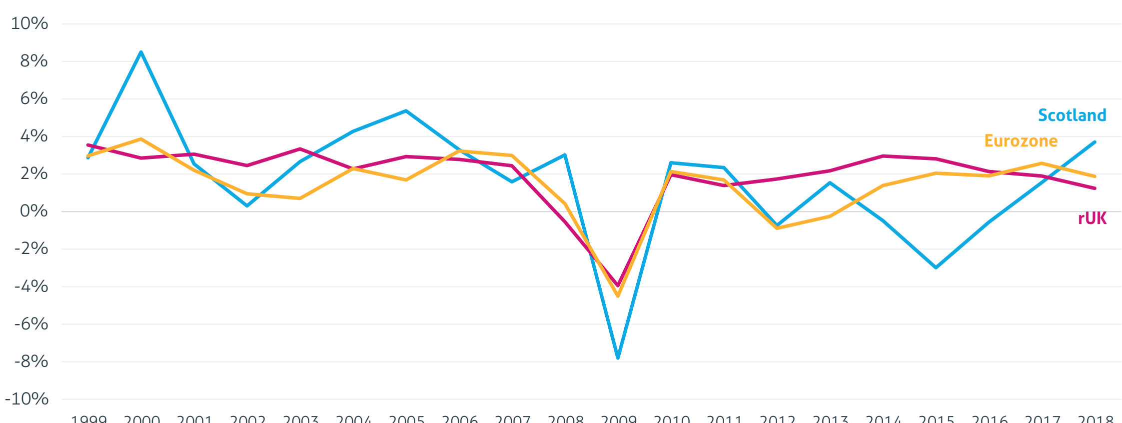


Source: Institute for Government Analysis of: Office for National Statistics, 'Regional labour market statistics: HI00 headline indicators for UK regions and countries', 2021; Eurostat, 'Unemployment by sex and age – quarterly data', 2021.

Looking at total economic output, Scotland appears to have been subject to similar macroeconomic shocks to both rUK and the eurozone since 1999. Figure 4 shows annual movements in GDP, which is a measure of economic shocks. The correlation of movements in GDP was slightly higher with the eurozone, at 73%, than rUK, at 68%. But the more similar economic structures in Scotland and rUK and shared fiscal policy led shocks to propagate in a similar way. People, goods, services and money move freely across the UK – meaning that any localised shock to one part of the UK tends to spread out to other parts as people move to find jobs, and people who hold assets in one place but live in another also experience the impact of the shock. Given the strong trade relationship, if rUK's economy contracts, Scotland's market for exports is reduced. Similarly, if Scotland suffers a shock, this affects rUK by decreasing the market for their goods and services. This is less true at the moment between Scotland and the eurozone.

* Institute for Government analysis of National Records of Scotland, 'Migration statistics (migration flows)', 2021.

Figure 4 **Year-on-year change in GDP (%)**



Source: Institute for Government analysis of: Office for National Statistics, 'Regional gross domestic product (GDP)' reference tables (Tables 5 and 8), 2019; Scottish Government, 'GDP Quarterly National Accounts, Scotland', supplementary table (Table 10), 2020; World Bank, 'World development indicators', 2021.

The one major difference between the Scottish economy and that of rUK and the eurozone at the moment is the size of the oil and gas sector, as Figure 1 showed. Because Scotland relies on oil and gas more heavily, it could be exposed to sector-specific shocks and those would affect the country differently, necessitating a different monetary policy response from that of rUK or the eurozone.

For example, Figure 4 shows that in 2012 and 2015, Scottish GDP contracted, while that of rUK continued to grow steadily. This is because there were sharp falls in fossil fuel prices and production in those years – the value of North Sea output fell by 14% in 2012 and 42% in 2015. While Scotland is part of the UK, the impact of these shocks is dissipated across rUK through close economic integration and common tax and spending policies, including a shared welfare system. But after independence, fiscal policy would no longer be shared and the economies of Scotland and rUK may become less closely integrated. Such shocks would then be more concentrated in Scotland and less well accommodated by the monetary policy that the BoE sets than has been the case while Scotland and rUK have been in a full political and economic union. An agreement on the free movement of people and capital between Scotland and rUK could aid economic stabilisation in the face of asymmetric shocks (and is a feature of the EU and thus the eurozone) but would not be a prerequisite for a currency union.

In the initial period after independence, Scotland's economy would be likely to remain well synchronised and tightly integrated with rUK. This reflects centuries of economic and political union and a common language. The biggest immediate change would be the ending of fiscal transfers between Scotland and rUK. This continuing synchronisation and integration would mean that monetary policy set by the BoE would likely serve Scotland well, whether it was a formal or informal member of the sterling currency union. Overall, this would reduce the need for the Scottish government to use fiscal policy actively to stabilise the economy. But, over time, this may change – particularly if, as the SNP has indicated, an independent Scotland pursued economic policies that were deliberately different from the choices the UK government made.

The SNP has suggested, for instance, offering more extensive free childcare and focusing on wellbeing metrics of success over output metrics.[19] The existence of a border between Scotland and rUK would also contribute to the two countries becoming less economically and financially integrated.[20]

Conversely, the ECB's monetary policy would likely be less well suited to Scotland immediately after independence. This is because the economies of the eurozone and Scotland are less closely aligned and integrated. Still, eurozone economies vary significantly between themselves so Scotland would probably not be uniquely poorly suited to the ECB's monetary policy. Over time, particularly if Scotland joined the EU, as the SNP aspires to do, Scotland's economy could evolve to become more integrated and co-ordinated with the rest of the eurozone. Indeed, such convergence could be accelerated by Scotland joining the euro, not least because that would reduce the transaction costs of trade between Scotland and the other eurozone members, but it would be a gradual process.[*]

2.4 Fiscal policy and the currency regime

The traditional view within economics is that monetary policy should be the primary macroeconomic tool for stabilising short-term cyclical economic fluctuations, while fiscal policy is better suited to supporting long-term growth and redistributing resources across the population. However, with interest rates in most developed countries having been close to zero for more than a decade, there has been a growing consensus that monetary policy is now somewhat constrained and so fiscal policy has a larger role to play in economic stabilisation.[21]

Fiscal policy must do more to stabilise the economy in a currency union or if the currency is pegged

If an independent Scotland did not have full control over its own monetary policy – because it entered a formal or informal currency union or pegged its exchange rate – then it would have to make even more active use of fiscal policy to smooth economic shocks.

The longest-standing currency unions – such as the US and the UK – are also fiscal unions, meaning that some tax revenues are pooled and redistributed across the union to help smooth out permanent or temporary differences in economic circumstances. This helps to ensure that monetary policy set for the union is appropriate for each individual part because fiscal policy can be used to even out differences between areas' circumstances or the shocks they experience. But there is little pooling of fiscal resources within the eurozone, and it seems unlikely that there would be any such fiscal union between Scotland and rUK after Scottish independence. Individual

* For evidence on the effects of the euro on the synchronisation of economic cycles since its creation, see Campos N, Fidrmuc J and Korhonen I, 'Glass half full or half empty: reviewing the dispute about the effects of the euro on the synchronisation of business cycles', VoxEU, 26 September 2017, retrieved 6 September 2021, https://voxeu.org/article/effects-euro-synchronisation-business-cycles and Saiki A and Kim S, 'How the euro synchronized EZ cycles', VoxEU, 2 February 2014, retrieved 9 September 2021, https://voxeu.org/article/ez-business-cycle-syncing. For a simulation of the effect of Scottish independence and rejoining the EU on trade flows between Scotland, rUK and EU, see Huang H, Sampson T and Schneider P, *Disunited Kingdom? Brexit, trade and Scottish independence*, Centre for Economic Performance, (no date) https://cep.lse.ac.uk/pubs/download/brexit17.pdf

eurozone member states instead need to make greater use of their own fiscal policy to cushion country-specific shocks. The same would apply to Scotland after independence if it were to join any kind of currency union.

It is generally advisable for governments to run tighter fiscal policy during good times to allow scope to cushion the economy during recessions. The imperative to do this is even greater for countries that cannot use monetary policy to cushion the ups and downs of the economic cycle. A small open economy – like Scotland would be – may also need to loosen fiscal policy more substantially during downturns than a large country does to create the desired stimulative effect on the economy because some of the impact of this will leak abroad. This happens because any extra government spending or any extra money put into people's pockets through tax cuts will, in part, be spent on imports and so the extra demand created by loose fiscal policy would benefit not only Scotland but also its trading partners. This is more of a problem for countries that import a large amount relative to their GDP.[22] Scotland has imports and exports worth 62.5% and 60% of its GDP respectively* – including trade with rUK – compared with 32% and 31% respectively for the UK as a whole.**

Fiscal rules are needed to limit the spillover of risks between members of a formal currency union

If Scotland were to join a currency union, it would need to adhere to fiscal rules of some sort. Members of currency unions must do this to prevent decisions made by one country having adverse consequences for another member. Members of the eurozone, for example, must keep their debt below 60% of GDP, and deficits lower than 3%.***

The first problem that can arise in a currency union, which necessitates fiscal rules, comes from the fact that fiscal policy can affect the inflation rate, which is typically what central banks are tasked with stabilising. If one country runs excessively loose fiscal policy, that could push up inflation, which in turn would prompt the central bank to tighten monetary policy – an act that affects all members of the currency union. In a new sterling currency union, Scotland would face a higher risk of inflationary pressures from rUK spilling over than vice versa, since any economic stimulus that the rUK government provided would have a greater impact on economic activity and inflation across the currency union area than if the Scottish government acted.

A second problem is that members of a currency union could run up unsustainable levels of government debt and ultimately back other members into an unpalatable choice between bailing them out or allowing the currency union to crumble. Higher public spending and lower taxes can help improve a country's competitiveness, by cutting the costs of production in the country. Financial markets ordinarily impose fiscal discipline on governments – that is, governments usually face high borrowing costs if they run excessive and unsustainable fiscal deficits, which should constrain their behaviour. But in a currency union this effect is often partially mitigated.[23] The main reason for this is that, even if a currency union is underpinned by a 'no bail-

* Institute for Government analysis of Quarterly National Accounts, Scotland (QNAS) and Export Statistics Scotland.
** Institute for Government analysis of Office for National Statistics' Balance of Payments data.
*** These rules have, however, been suspended because of the Covid crisis, until at least the end of 2021.

out' condition, investors do not necessarily believe it. In other words, if one member runs up an unsustainable debt burden, investors think that other members will bail it out rather than face the potential break-up of the union. This was indeed what happened within the eurozone after the global financial crisis of 2008. As a result, a government could be tempted to raise public spending or cut taxes to boost their own competitiveness, to the detriment of other currency union members, while relying on the fact that other member states will bail them out if they cannot repay their debts, rather than see the currency union collapse.

After the introduction of the euro, Greece, Ireland and Portugal all benefited from a sharp fall in borrowing costs, as their interest rates dropped from well above those of Germany to more similar levels. In part, this is likely to have reflected reductions in exchange-rate risk and the fiscal discipline imposed by the eurozone's fiscal rules. But changes in the economies' fundamentals cannot fully explain the fall in interest rates, suggesting that the implicit assumption that the currency union would bail countries out played a role. Nonetheless, differences in borrowing costs between eurozone countries remain, at least partly reflecting persisting differences in these countries' economic fundamentals, such as growth rates and levels of government borrowing and debt.[24]

In the case of a new sterling currency union, the risk of a member state relying on a bail-out from the other member would be asymmetric between rUK and Scotland. With rUK's economy being roughly 12 times the size of Scotland's, it is highly unlikely that Scotland would ever be able to bail rUK out – but not vice versa. This means there would be a greater incentive for Scotland than rUK to breach any fiscal rules within a sterling currency union. This would make a sterling currency union relatively more attractive to Scotland and less attractive to rUK. To create a new sterling currency union, the governments of Scotland and rUK would need to agree on fiscal rules to account for the differing inflationary pressures and guard against this moral hazard.

Currency choice affects government borrowing costs

As we describe in more detail in another Institute for Government report, the currency choice that an independent Scotland made would affect the cost of future government borrowing.[25] That could place further indirect constraints on Scottish fiscal policy because higher borrowing costs would ultimately require higher taxes or lower spending on other items.

As a small, new state without an established track record of macroeconomic management or borrowing on international markets, Scotland would probably face higher borrowing costs than the UK. The premium would likely be higher still if the Scottish government issued debt in a new Scottish currency because the market for such debt would be shallower and less liquid than the markets for sterling- or euro-denominated government bonds* and investors may price in a risk that the Scottish currency would fall in value relative to other major currencies. The latter risk could be

* The Scottish government could choose to issue debt denominated in sterling or euros even if it adopted its own currency. But investors would likely charge a premium on such lending – because of the increased risk of default. It would also mean that Scotland's public finances would be exposed to the risk of currency devaluation.

reduced if Scotland pegged its currency to another, as this would reduce currency risk, but only if this peg was judged to be credible. A pegged exchange rate that the markets considered untenable would elicit the highest currency-related borrowing premium out of all the currency options.

To increase the pool of investors that might be interested in holding its debt, Scotland could choose to denominate its debt in a different currency (such as sterling, the euro or the US dollar), effectively taking on the currency risk for itself. But bond markets would penalise this practice with a premium, to account for the perceived risk that a devaluation of Scotland's currency could leave it unable to service its foreign-currency denominated debt.

Joining a formal currency union would elicit the lowest borrowing premiums. The barriers to leaving a currency union – while not insurmountable – are large enough that the continuation is likely to be credible.[26] Markets could, therefore, be more confident that a country with no track record will pay its debt if it has exchange-rate stability, commitment to fiscal goals and inflation targets, and the implicit guarantee that other members would prefer to bail it out than see the currency union break up.

If Scotland chose to informally adopt sterling, all else equal, borrowing costs would be comparable to those in a sterling currency union, provided this arrangement was seen as a stable solution. This arrangement would be harder to abandon than a peg and would not be exposed to speculative attacks from currency markets, as a peg could be, and so it is more likely to be tenable. This would shield Scotland from devaluation risk premia. For example, ratings agencies do not apply a premium on countries such as Montenegro and Panama, which informally use the euro and dollar respectively, for borrowing in those currencies in the way that they would for a country that has its own currency but tries to borrow in a foreign one. Two conditions would need to hold for markets to perceive an informal currency union as untenable. First, there would need to be reason to think that the exchange rate implicit in the informal currency union (that is, one Scottish pound is worth the same as £1 in rUK) is markedly overvalued. Second (and closely related), there would need to be an expectation that the Scottish government would abandon the use of sterling and introduce its own currency instead – this is, indeed, the express long-term intention of the Sustainable Growth Commission. Under those circumstances, Scotland would be likely to face a higher borrowing premium.

Because monetary policy can also affect the interest rate on government bonds, the ability to control monetary policy is another channel connecting currency options and borrowing costs. Bond yields for all major advanced countries have fallen since the start of the coronavirus pandemic, even though debt issuance has risen sharply. This was supported by substantial asset purchases – as part of their quantitative easing programmes – by the BoE, the ECB, the US Federal Reserve and others. These bond purchases helped government bond markets to remain liquid and increased demand for government debt even as the supply shot up, helping to decrease bond yields not only in these countries but also in others that did not operate quantitative easing. Central banks can thus play a role in sustaining liquidity in government bond markets

at a time of extreme crisis. As we have discussed, currency options constrain whether quantitative easing can be operated or not.

Fiscal surpluses may be needed to help accumulate currency reserves

There are various reasons why countries hold foreign exchange reserves. Such reserves can help ensure a country can meet its debt or other spending obligations that are denominated in foreign currencies. Also, particularly in the case of developing countries that face the risk of natural disasters, foreign exchange reserves can help ensure that countries can pay for vital imports even if hit by a major shock.* But we focus here specifically on the reserves that are needed to support a currency regime.

Foreign exchange reserves would be needed if Scotland wanted to have its own currency and manage the exchange rate in some way – as opposed to allowing it to float freely. The central bank would need to use its foreign exchange reserves to buy Scottish currency if the value of the Scottish currency started to depreciate – and, conversely, use Scottish currency to buy foreign currencies if the Scottish currency started to appreciate too much.

Without adequate foreign exchange reserves, the Scottish monetary authority (whether a central bank or some other institution, such as a currency board) would not be able to defend the chosen exchange rate. If currency speculators felt the Scottish currency was overvalued – and that the central bank was unable to defend it – they could start selling large volumes of the currency, requiring the Scottish monetary authority to use its foreign exchange reserves in what could ultimately be a futile bid to defend the peg. This is exactly what happened to sterling on Black Wednesday (16 September 1992), causing the BoE to sell $28 billion of foreign exchange reserves before the UK ultimately crashed out of the European exchange-rate mechanism (ERM), resulting in an estimated net cost to the exchequer of £3.3bn (in 1994 prices).[27]

If Scotland chose the informal adoption of sterling as its permanent currency arrangement, it would not need foreign exchange reserves for exchange-rate management purposes. But if it chose this only as a temporary arrangement – as the Sustainable Growth Commission has suggested in its 2018 report – it would need to accumulate these reserves for the subsequent currency transition. Scotland would also need sterling reserves if it informally adopted sterling and wanted to have the capacity to clear payments through its central bank, rather than relying on payment-clearing facilities offered by the BoE or elsewhere.** Payment clearing is typically carried out by a central bank because the central bank is usually highly creditworthy, reliable and independent, reducing the risk of financial failure. In countries that have their own currency, this risk is reduced even further because the central bank is the ultimate source of liquidity with regard to their currency because it can simply issue more.[28]

* Foreign exchange reserves are also one source of funds to support the banking sector. We discuss the relationship between currency choice and financial stability in section 2.6.

** This seems to be the model that the Sustainable Growth Commission envisaged in its 2018 report; see Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf

But if sterling was informally adopted, the new Scottish central bank would not be able to print sterling in this way and so would instead need to hold enough sterling reserves to allow the settlement of private sector transactions.

Membership of a currency union would decrease the need for Scotland to hold its own foreign exchange reserves to manage the currency, although the currency union as a whole would still need to hold enough reserves in its central bank to manage the exchange rate with other countries. When the eurozone was launched, all initial members were mandated to transfer foreign exchange reserves to the ECB. A total of €39.5bn was transferred to the ECB. Each country's share was proportionate to its GDP and population, meaning for example that Ireland's contribution was €400 million.[29] New countries joining the eurozone made further contributions upon accession. The national central banks have retained other foreign exchange reserves for purposes other than monetary policy adjustment.

There is no easy answer to the question of how large Scotland's foreign exchange reserves would need to be to support each different type of currency regime. Some countries hold more and others less, in part reflecting differences in currency regimes but also the other motives for holding foreign exchange reserves. Table 1 shows that even a country such as the Netherlands, which is a member of a currency union and has no role to play in supporting its currency, still has foreign exchange reserves of 10.6% of GDP. But it is broadly true that small, advanced countries with fixed or managed exchange rates (Denmark, Hong Kong and Singapore) tend to have larger foreign exchange reserves than those that are members of a currency union (Greece, Ireland, the Netherlands and Portugal) or that have a floating exchange rate (Finland, Hungary, New Zealand and Sweden). Hong Kong holds particularly large amounts of foreign reserves because every Hong Kong dollar in circulation is backed by foreign reserves; this is a particularly strong and credible form of currency peg but requires very tight fiscal policy to establish and sustain reserves at this level. If Scotland wanted to operate this kind of arrangement, it would necessitate accumulating large fiscal surpluses in times of economic prosperity, which can be politically unpopular. Hong Kong has 111.5% of its GDP in foreign reserves and follows strict economic policy discipline.

In 2017, Peter Ryan estimated that Scotland would need around $40bn of foreign exchange reserves.[30] This figure was based on the average percentage of GDP held in reserve by the non-eurozone EU member states, excluding the UK. A similar figure would be reached if the same calculation was done now. Meanwhile in 2014, MacDonald suggested that Scotland would need at least £40bn of reserves, based on the amounts held by similar-sized Nordic countries.[31] Scotland could potentially inherit a share of the UK's foreign reserves, negotiated in the context of the wider division of debts and assets between the two. Were Scotland to receive a population share of the UK's existing foreign exchange reserves, this would amount to around $17bn.

There would be four main ways that a new Scottish government could amass the further reserves that would be needed to manage its exchange rate, if it wanted to do this after independence – either as part of a long-term policy of pegging the

currency or to help reduce volatility in the value of a new Scottish currency in the early days of its existence. First, at the point that any new Scottish currency is issued, Scottish residents may choose to deposit their existing pounds with the central bank in return for the new currency. Second, the government could run fiscal surpluses and use these to accumulate foreign reserves, although that would require substantial tax rises or spending cuts, since Scotland currently runs a large fiscal deficit.[32] Third, in the absence of fiscal surpluses, the government could issue debt and use that to buy foreign currencies (or directly issue foreign-denominated debt). But investors' willingness to loan to the newly independent Scottish government would constrain the government's ability to do this, and the cost of doing so. The sums that might be required would be very large relative to the size of Scotland's economy, for example £20bn would equate to around 12% of Scotland's GDP. Issuing debt on this scale – and particularly doing so quickly at a reasonable price – would probably be very difficult given that Scotland would have no track record of repaying its debts and would be likely to face higher interest rates on its borrowing than the UK currently does, as we discuss in more detail in another Institute for Government report.[33] Finally, the Scottish central bank could simply print money and use that to buy foreign currencies. But flooding the market with new Scottish currency would likely have the effect of devaluing the currency.

It is, therefore, likely to be difficult for an independent Scotland to accrue large foreign exchange reserves quickly after independence. This is because a newly independent Scotland would be likely to have a sizeable fiscal deficit and there would be market-imposed constraints on its ability to issue large quantities of new government debt without driving its borrowing costs up. A pegged exchange rate would, therefore, probably be hard to credibly establish in the near term after independence.

If Scotland were to informally adopt sterling and wanted to have a payment-clearing facility in a new Scottish central bank, it would also need to build up and maintain sterling reserves. Again, this could be expensive in the early days of independence.

Whichever currency option Scotland chose, it would be likely to require tighter fiscal policy

As we set out in a recent report – *The Fiscal Position of Scotland, Wales and Northern Ireland* – in 2018/19, spending for the benefit of Scotland* exceeded tax revenues raised from Scotland by £2,543 per person (or more than 7% of Scottish GDP), compared with 1.8% of GDP for the UK as a whole.[34] But for all the reasons outlined above, whatever currency choice was made after independence, before too long an independent Scotland would be likely to have to run tighter fiscal policy than the position that it would be likely to inherit on day one.

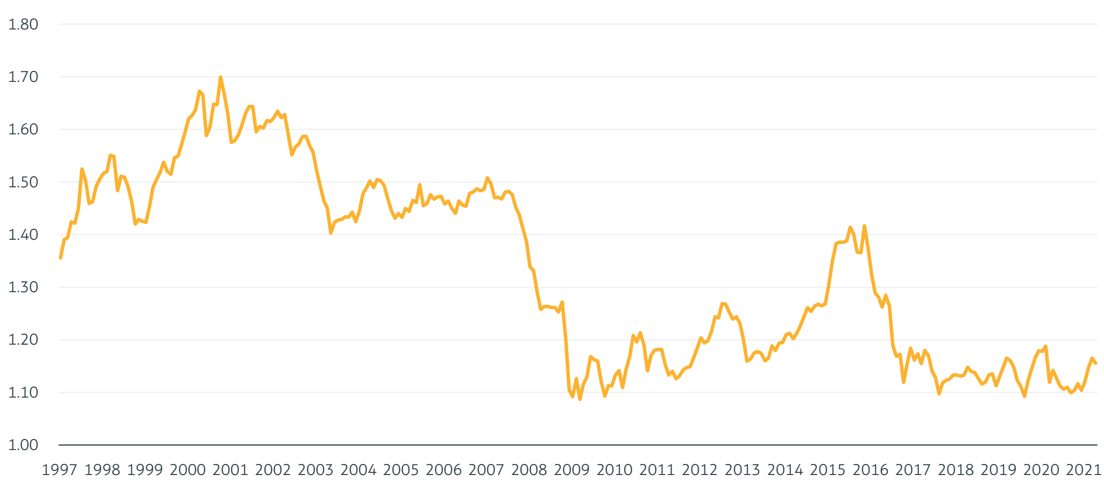
* This includes government spending directly on public services in Scotland and pension and social security payments to people living in Scotland, as well as a per-capita share of UK-wide spending, such as debt interest and defence.

2.5 Alternative ways to adjust to economic shocks and imbalances

A floating currency would be the only currency option under which Scotland could freely use monetary policy or exchange-rate adjustments to respond to Scotland-specific supply or demand shocks. Under any other arrangement, fiscal policy would have to be used more actively to cushion temporary shocks and any permanent adjustments that were needed would instead have to happen in the real economy.

As Figure 5 shows, the value of sterling has fluctuated against the euro since its introduction. There have been periods of temporary change but also longer periods when the average exchange rate has settled at different levels. For example, during the early 2000s, £1 was worth around €1.60 but for the past four years it has been worth only around €1.15 – suggesting that the UK economy has been relatively weaker during the latter period. These kinds of adjustment would not be possible in a currency union or with a fixed exchange rate. Adjustment would instead have to happen in the real economy, through the movement of people, and change in prices and wages.

Figure 5 **Euro/sterling exchange rate**



Source: Institute for Government analysis of Office for National Statistics, 'Average sterling exchange rate: euro', 2021.

Scotland's real economy would have to adjust if the exchange rate could not

How easy these adjustments would be would depend on two factors. First, how easily people and capital moved between Scotland and the other country or countries. This movement would help to even out any economic differences – for example, ensuring people move away from high unemployment, low productivity areas towards lower unemployment, higher productivity ones and ensuring that capital moves to where investment opportunities are greatest. If labour and capital markets function freely in this way, it should help to smooth out any country-specific shocks or economic imbalances between nations.

The US has worked effectively as a currency union, for example, not only because there are federal fiscal transfers but also because people and capital have tended to move extensively between states in response to economic changes.[35,*] As mentioned previously, there are currently also relatively substantial flows of people between Scotland and rUK. Comprehensive data on the movement of money between Scotland, rUK and the eurozone is not available. But an independent Scotland would start from a position of being fully financially integrated with rUK, while capital flows between Scotland and the eurozone would be more limited – albeit still fairly free flowing. Free movement of capital is one of the four freedoms that underpins the EU's single market. But differences in institutional structures, legal systems and languages continue to mean that capital is reallocated more freely within countries than between them.

Second, how easy the adjustments would be would depend on how easily nominal wages and other prices adjust in Scotland. This will be particularly important if people and capital do not move freely. How readily wages and prices adjust will depend on institutional structures, such as wage-setting processes. Such adjustments are often slow and may not be complete before the next shock hits. They can also be politically contentious, as has been clear in Greece. After the 2008 global financial crisis, Greece's currency was effectively overvalued but because Greece was a member of the eurozone (and so its currency could not devalue) painful wage and price cuts were required to try to restore Greek competitiveness. This led to pressure on the Greek government to abandon the euro, from many who believed that the benefits of eurozone membership simply were not worth the pain.

Given the greater difficulty of adjusting to imbalances once an exchange rate has been fixed between two countries, it would be very important – if Scotland were to fix its exchange rate (either as part of a currency union or through a currency peg) – to ensure that Scotland chose the most appropriate exchange rate upfront to avoid locking in any imbalance. While the value of a peg can be changed at a later date, doing so is costly; if a change in value is anticipated, it can lead to capital flight and one revaluation could increase expectations that the currency will be revalued again, which could undermine the stability of the currency.

This is an argument for favouring an initially free-floating Scottish currency – to allow foreign exchange markets to settle on the right relative price. But that option would come with other downsides that would reduce its attractiveness, including raising transaction costs and introducing uncertainty, which could hamper investment, as we describe further below.

* The frequency of the movement of people between US states has fallen in recent decades but it remains higher than in most other developed countries; see Frey W, 'The great American migration slowdown: regional and metropolitan dimensions', Brookings, 2009, www.brookings.edu/wp-content/uploads/2016/07/1209_migration_frey-1.pdf

Actions beyond the government's control can destabilise a currency regime

If people lose confidence in a country's commitment to a pegged exchange rate or to its membership of a formal or informal currency union, they can take actions that precipitate the collapse of the currency arrangement. This can happen through two channels, although only the second of these would be able to operate if Scotland was using sterling or the euro.

First, if Scotland had its own currency that was pegged and currency traders thought that the currency was overvalued, they could test the monetary authority's willingness to sustain the peg by selling large quantities of the currency. This would force the Scottish monetary authority to use its foreign exchange reserves to buy Scottish currency to sustain the exchange-rate peg. But their ability to do this would be limited by the size of their foreign exchange reserves and by the government's and the monetary authority's willingness to spend them in this way. So the peg could ultimately become unsustainable – just as happened for the BoE in 1992.

Second, if businesses and individuals feared that Scotland was likely to leave a currency union or currency peg – and that any new currency would be worth less – they could start moving their money out of Scotland to avoid it being redenominated. This would be likely to happen only if there were obvious differences in economic performance between Scotland and the country it shared a currency with (or was pegged to, if the chosen peg was inconsistent with their economic differences). Such concerns could arise, for example, because of Scotland's large current account deficit. A large current account deficit could indicate that Scotland's economy is uncompetitive with the rest of the world, requiring further devaluation of the currency to encourage people to buy from Scotland.

If such fears emerged, they could rapidly lead to the collapse of the currency regime, as happened after the break-up of Czechoslovakia. When the country separated in 1993, the Czech Republic and Slovakia announced that they would form a temporary currency union. But it was clear from the outset that the Slovak economy was far weaker than the Czech Republic's and consequently that the Slovak currency was likely to be devalued if and when the monetary union broke up. In anticipation of this, people started moving their money from Slovak banks into the Czech Republic to avoid it being devalued. As a result of this capital flight, the monetary union lasted only 33 days.[36]

The experience of the UK in the exchange-rate mechanism (ERM) and the break-up of the Czechoslovakian monetary union highlight the vulnerability of a currency regime if it is believed to be out of kilter with the economic fundamentals of the countries involved and/or if the government is not believed to be sufficiently committed to the arrangement (or, indeed, if the government has explicitly said that the arrangement will be only temporary).

It would, therefore, be important for any new independent Scottish government to make sure that it chose the right parity if it decided to join a currency union or to peg its exchange rate. If the Scottish government wanted to introduce a new currency and

peg it to another (for example, the euro in preparation for eurozone membership), it would need explicitly to decide what the appropriate valuation was. It would be more difficult if Scotland wanted to continue using sterling after independence, since this would implicitly mean choosing a one-to-one parity between the Scottish and rUK pounds. This might not be the appropriate exchange rate after independence. If that were the case, it could create instability in the currency regime in the same way as it did in Slovakia, particularly if the new Scottish government indicated that the use of sterling was intended to be only temporary.

2.6 Financial stability and the currency regime

The choice of currency would also have implications for financial stability in an independent Scotland. We focus here on the aspects of financial stability that relate specifically to the choice of currency; we do not attempt to provide a full description of all the impacts of independence on financial stability or of all the new institutions and regulations that would be required to sustain it.

The traditional role of the lender of last resort is to provide liquidity to solvent but illiquid banks

The BoE, like many other central banks, plays an important role in ensuring financial stability in the UK by acting as a so-called 'lender of last resort'. The traditional role of the lender of last resort, as set out by Bagehot,[37] is to provide liquidity to the financial sector – that is, to provide access to cash for banks and other financial institutions that are solvent but facing short-term liquidity problems.

The BoE can do this because it has the power (if the chancellor agrees) to print unlimited quantities of money. This ensures that individuals and businesses are always able to access their savings and other financial services, such as borrowing money. This is vital for the functioning of the wider economy, helping to explain why central banks intervene in the financial sector in this way but not in other sectors. The BoE did just this in the early stages of the 2008 global financial crisis.[38]

Governments also offer insurance for retail deposits held in banks, helping to prevent bank runs

The UK government also operates a deposit insurance scheme, which covers individuals for the first £85,000 of any money they hold in UK banks and UK-based subsidiaries of foreign banks. Other countries provide similar types of deposit insurance schemes to make sure that deposits are underwritten.[39] This insurance is designed to provide people with reassurance that their money is safe, even if their bank were to face financial difficulties. It not only provides benefits to individuals but also has wider economic benefits by reducing the risk of bank runs and ensuring that the failure of one bank does not necessarily lead to a sharp contraction in spending that would result from individuals suddenly losing a large share of their savings.

This deposit insurance is operated by the Financial Services Compensation Scheme (FSCS) and funded through a levy on financial services companies, proportional to the deposits they hold.[40] But the ultimate guarantor is the UK government, which in the event of widespread calls on the scheme can top up the funds to ensure the scheme

has enough money to meet all the claims. This can be done by issuing new government debt, using BoE reserves or printing money.

But governments have also stepped in to bail out insolvent institutions

The global financial crisis showed a wider role for central banks and governments in supporting the financial sector – going beyond offering deposit insurance and the traditional lender of last resort role. The UK government, like others across the developed world, stepped in to bail out financial institutions that were not only illiquid but also insolvent. That was done to prevent a crisis of confidence in the financial sector, which was expected to lead to widespread economic harm. As Armstrong and McCarthy, of the National Institute of Economic and Social Research, pointed out in 2014: "While it is sensible to say that only 'solvent banks' should be assisted, reality is less convenient… In the midst of a crisis where markets are not functioning normally, accurately assessing the solvency of a particular bank is an extremely difficult judgement." [41] In principle, it makes sense for the government to say that it will not assist insolvent financial institutions because that reduces the incentive for them to behave recklessly. But when the government is actually faced with the prospect of a bank going under, the wider social costs of allowing that to happen may be so large as to make it rational for it to step in.

During the global financial crisis, the UK government, for example, worked with the Financial Services Authority and the BoE to rescue the Royal Bank of Scotland (RBS), using its fiscal capacity to offer guarantees, direct support and indemnities to help resolve the problems facing RBS. The UK's ability to do that relied on the government's capacity to borrow money, which in turn was partly affected by the BoE's quantitative easing policy, which supported the market for UK government debt.

As a formal member of either a sterling or a euro currency union, Scotland could benefit from the lender of last resort capacity provided by the central bank for the bloc. A currency union with rUK would necessitate a formal agreement about how each country would contribute to financing the fiscal backstop to the central bank's lender of last resort operations and a shared deposit insurance scheme, as they would no longer be a fiscal union. In the case of the eurozone, the ECB is responsible for the overall liquidity of the system, while national central banks are responsible for providing liquidity to individual institutions and for operating a deposit insurance scheme to cover €100,000 per depositor.[42] The lines of legal responsibility between support for overall liquidity (from the ECB) and support for individual institutions (from the national central banks) are, however, contentious.[43] Taxpayers in countries such as Ireland, which – like Scotland – had a relatively large financial sector, were left with a substantial bill for propping up the country's banks during the financial crisis. This caused the Irish government, in 2011, to insist that the ECB should act as lender of last resort.[44,45,*] Were another crisis to emerge, Scotland might be left in a similar position.

* For a discussion of the lender of last resort actions that the ECB took during the global financial crisis, see Praet P, 'The ECB and its role as lender of last resort during the crisis', speech at the Committee on Capital Markets Regulation conference entitled 'The lender of last resort – an international perspective', 10 February 2016, retrieved 18 August 2021, www.ecb.europa.eu/press/key/date/2016/html/sp160210.en.html

Were Scotland to informally use another currency or peg its currency, its ability to act as a lender of last resort would be limited. This could become a significant issue, as the financial sector represents 6.3% of Scotland's GDP.[*] In the case of being in an informal currency union, Scotland would not be able to print money. In the case of a fixed exchange rate, the Scottish central bank could print money but doing so on a large scale would be incompatible with maintaining the peg. In those cases, Scotland's ability to act as a lender of last resort would be determined by its foreign exchange reserves and fiscal capacity – that is, how much money the Scottish government had saved up or could borrow. Therefore, if Scotland opted for one of these, its ability to act as a lender of last resort would depend on the government's record of and reputation for fiscal prudence and other considerations described in another Institute for Government report, which would affect its ability to borrow and the cost of doing so.[46]

As Dame DeAnne Julius, a former member of the BoE's monetary policy committee, has said, if Scotland were to informally adopt sterling, "the Scottish Central Bank… cannot create sterling, and so it could not fulfil that function [as lender of last resort] unless Scotland has accumulated a very large stock of sterling that the central bank or the government had access to".[47] Armstrong and McCarthy summarise the implication as follows: "Countries which do not have their own currency can have a banking crisis soon becoming a sovereign debt crisis."[48] In 2014, they analysed Scotland's options for a lender of last resort under the informal adoption of sterling, concluding that there is no appropriate solution.[49]

In principle, any currency option would allow Scotland to put in place a deposit insurance scheme similar to that currently in place in the UK, since it is financed by the private sector and therefore does not ordinarily depend on the government's ability to print money. But in the event of widespread banking failures, the scheme may not have enough money to meet all claims and so it is likely that in practice the same currency restrictions that exist for the broader lender of last resort role would also apply to deposit insurance.

If Scotland had its own currency that was allowed to float freely, the Scottish central bank could act as lender of last resort and backstop any deposit insurance scheme, effectively printing money to provide liquidity to the banks, which could continue as long as there was demand to hold the currency and people did not fear that inflation would erode its value.[50] This is what happened in Iceland in the wake of the global financial crisis, when the Icelandic central bank created krona to compensate Icelandic depositors when the major Icelandic banks failed.[51] This would provide greater security to the financial sector in Scotland than would be offered under any sort of informal currency union or currency peg – all else equal – and so help to head off crises.

[*] Institute for Government analysis of: OECD, *STAN Industrial Analysis*, 2020; Office for National Statistics, 'Regional gross domestic product (GDP)' reference tables (Tables 5 and 8), 2019; Office for National Statistics, 'Regional gross value added (balanced) by industry: all NUTS level regions' (Table 1c), 2019; Scottish government, 'GDP Quarterly National Accounts, Scotland', supplementary table (Table 10), 2020. Shown in Figure 1.

Would it matter if the Scottish central bank and government's ability to act as lender of last resort was limited?

There were broadly two distinct functions in the UK's and other countries' interventions in their financial sectors during the global financial crisis. The first was to underwrite deposits held in the country's financial institutions. The second was to intervene to avoid the collapse of financial institutions that were headquartered in that country when they faced wider problems with their business models, whatever and wherever the cause of those was. The UK did both, contributing to the deposit insurance fund and intervening in favour of failing banks.

As one of our interviewees said, there could be benefits to Scotland of not being able to bail out insolvent financial institutions. That would avoid the moral hazard inherent in countries' commitments to financial stability – that is, banks running undue risks in the belief that the government will step in if all goes wrong. This was also a claim made by Sam Bowman (then research director at the Adam Smith Institute) before the 2014 Scottish independence referendum: "With no central bank to act as a lender of last resort, banks would be required to make private provision for such facilities. International evidence from the dollarised Latin American states, notably Panama, Ecuador and El Salvador, suggests that this would improve bank soundness by eliminating moral hazard."[52] This was, in effect, the position that the Sustainable Growth Commission took, whose report in 2018 stated that: "Financial support from the SCB [Scottish Central Bank] would not extend to the holding companies of retail banks to cover activities outside Scotland, or beyond what is needed to ensure that retail depositors in Scottish banks are protected."[53]

In 2014, all the major Scottish banks publicly said that they would have relocated their headquarters south of the border if Scotland had voted for independence, to ensure they would still benefit from the fiscal and monetary backing of the UK government and BoE.[54] Such a move would reduce – and perhaps eliminate – the need for the Scottish government to bail out those institutions in the event of another financial crisis. The Sustainable Growth Commission indicated in its 2018 report that it was sanguine about this prospect.[55] But the movement of financial institutions could have other costs for Scotland; for example, if it resulted in lower tax revenues from reduced financial sector activity or more limited access to financial products for individuals and businesses in Scotland. But it is not clear whether such effects would emerge, particularly if rUK lenders continued to offer products to customers north of the border and if Scottish borrowers were happy to enter into such contracts, which would be governed by rUK commercial law.

How frequently and to what extent the Scottish central bank or the government would need to get involved in compensating depositors would depend on how well capitalised the financial sector's balance sheet was, and the money held in any official industry-funded compensation scheme, if one were set up. The Scottish government could reduce the chance of there being widespread calls on deposit insurance by making financial sector regulations more stringent – for example, requiring banks to be better capitalised and hold more safe assets to back deposits. In 2018, for example, the Sustainable Growth Commission stated that:

> "The Scottish Central Bank would introduce such rules on capital structure and asset quality on retail banks as are necessary to ensure that adequate collateral is available to match retail... deposits in such banks. The objectives are to ensure that deposits are... protected in full... enabling the activities of failing banks to be continued or (more usually) transferred to another provider... and to do so while involving minimal risk to the Scottish taxpayer or other Scottish banks."[56]

But doing so would increase banks' costs of operation and so could affect the cost of financial services offered to Scottish households and businesses. In other words, all else equal, the costs of banking in Scotland could be higher if a new Scottish government chose to adopt sterling informally or pegged a new Scottish currency than if it joined a formal currency union or allowed a new Scottish currency to float freely, because the Scottish central bank would need to impose stricter conditions on banks in order to reduce the chance of calls being made on any deposit insurance scheme.

2.7 Costs of operating under different exchange-rate regimes

The different currency options also have different implications for the ongoing costs that businesses and households in Scotland would face.

A fixed exchange rate would reduce the costs of trading goods and services

Businesses and households in Scotland do and would find it easiest (all else equal) to buy and sell goods and services with countries that use the same currency. Sharing a currency eliminates conversion costs and provides certainty that the value of a good or service will not change as exchange rates change. Trading between currencies that are pegged or otherwise have a stable enough exchange rate is also relatively simple, as both parties can be quite certain that the value of the good or service being traded will not change much. But with a floating exchange rate, the value of what is being traded becomes harder to predict and creates risk for trading partners.

An exchange rate that varies a lot can disrupt trade flows or make trade more expensive. Large businesses are likely to be able to hedge this risk, an insurance strategy that consists of obtaining assets with opposite risk profiles. The cost of such hedging will be higher if the currency is more volatile, creating costs for cross-border investors who may be discouraged from making investments.[*] Small businesses and individuals may not have access to such insurance, or may not trade extensively enough to make it worthwhile, and so would face greater uncertainty. All else equal, this might make Scotland a less attractive trading partner and investment location if the Scottish currency was floating relative to that of its trading partners.

[*] For evidence on the links between exchange-rate volatility and trade and investment, see for example MacDonald R, *Exchange Rate Economics: Theories and evidence*, Routledge, 2007.

The University of Glasgow professor, Anton Muscatelli, reports that, when considering the benefits of creating a single European currency, the European Commission estimated that the direct benefit of lower transaction costs would be worth 0.1–0.2% of GDP a year,[57] while the then governor of the BoE, Mark Carney, put the figure at 0.5% of GDP.[58]

Lower transaction costs facilitate economies of scale

Low and predictable transaction costs with major trading partners would allow Scottish businesses to serve a larger market and so benefit from returns to scale.[*] Scottish consumers would also benefit from being able to buy more competitively priced goods and services from a wider range of businesses – particularly if Scotland were in a currency union, as this would allow consumers easily to compare prices directly between suppliers in the different countries in the union.

The benefit of low transaction costs will obviously be greater the larger the trade flows are. High transaction costs are particularly burdensome for countries whose imports and exports are large relative to GDP. Scotland imports and exports a large share of its GDP since, like other small open economies, it is less self-sufficient, specialising in the production and export of some goods and services, while importing others. This means that there would be larger benefits to Scottish businesses and households of using the same currency or fixing Scotland's exchange rate to one or more of its major trading partners than there are to businesses and households in a larger country such as the UK.

Trade with rUK is currently much more important for Scotland than trade with any other countries

As discussed previously and shown in Figure 2, rUK is currently far and away Scotland's biggest trading partner – being in 2017 the source of 66% of Scotland's onshore imports and the destination for 62% of onshore exports. This points to the benefits of currency options that facilitate trade with rUK. The currency options that would minimise trading costs with rUK are either a formal or an informal currency union with rUK. This is one of the main arguments made in favour of the latter option.[59] Joining the eurozone would have the advantage of decreasing transaction costs with its 19 other members. Given current levels of integration between Scotland, rUK and the eurozone, the gains from lower transaction costs with the eurozone would likely be outweighed by higher costs in transacting with rUK. Nonetheless, independence is an opportunity for Scotland to forge its own economic path, and an independent Scotland might choose to strengthen its ties with the EU over time. But any change would be likely to happen slowly and, initially at least, transaction costs would be minimised by sharing a currency with rUK.

[*] In this report we are focusing exclusively on Scotland's choice of currency regime. But the largest effects of Scottish independence on economies of scale and trade flows would be likely to come from any changes to Scotland's trading relationship with rUK and other countries. For example, Brexit has resulted in changes to the terms of trade between the UK and the EU and other countries even though there has been no change to the currency arrangements.

Ultimately, Scotland's currency choice will both be affected by and have an effect on trade costs and trade patterns – existing trade patterns should be taken into account when choosing a currency regime but the choice will subsequently orient trade to where there are lower transaction costs. If Scotland plans to turn to European markets, having low transaction costs with eurozone countries would be beneficial.

2.8 The costs of adopting a new currency regime

All the currency options would require the setting up of some new institutions and governing frameworks. Most would also entail some upfront costs for businesses and households in switching over to a new currency – the exceptions are a formal or an informal sterling currency union, which would entail little upfront change for businesses and households.

An independent Scotland would need to create new institutions regardless of its currency choice

Scotland would need to create new institutions, which would lead to initial costs to set them up and longer-term costs to run them. Some of those institutions would be needed regardless of currency choice. For instance, in another Institute for Government report we argued that Scotland should create a debt management office and boost the role of its fiscal commission, regardless of which currency it chooses.[60] But not all currency arrangements would require Scotland to have the same institutional functions or to replicate all of those that currently exist in the UK.

As already covered, in all advanced economies, an independent institution (usually a central bank) now sets monetary policy, with a mandate from the government. It will be important for an independent Scotland to establish a credible, independent monetary authority because the targets of monetary policy are more credible when independent experts make decisions rather than politicians who might be swayed by short-term political calculations.

The appropriate independent institutions will depend on the choice of currency regime. In a free-floating currency regime, a central bank will need to be set up. This would set interest rates – and, if appropriate, engage in less traditional forms of monetary policy such as quantitative easing – to meet a mandate specified by the government. It would also have the role of issuing notes and coins and be the lender of last resort.

If Scotland were to adopt its own currency but then peg it to another, the role of monetary policy would instead be to ensure that the peg is maintained, intervening in foreign exchange markets where necessary. Under those circumstances, Scotland could adopt a currency board, as Hong Kong does. A currency board is responsible for issuing notes and coins (which are backed up by foreign reserves of the pegged currency) and maintaining the peg. A currency board would not be a lender of last resort.

In a formal currency union, monetary policy would be made by the ECB in the case of the eurozone and – possibly – a revamped BoE in the case of a new sterling currency union. Within the eurozone, member countries retain their central banks. These central banks are responsible for implementing the ECB's monetary policy, for the physical printing of money and for domestic financial sector regulation. The governors of each of the countries' central banks also form part of the ECB's decision making panels. If Scotland wanted eventually to join the eurozone, it would need to have established its own central bank.

A change to the way decisions are made at the BoE would likely be required if Scotland were to join a currency union with rUK. The BoE could retain responsibility for setting monetary policy. But it would require new governance arrangements – for example, to put in place formal lines of accountability to the Scottish government as well as the rUK government. The question of the role of the lender of last resort would also need to be decided on, with new agreements to create a shared fiscal backstop for financial sector solvency interventions. Depending on the institutional set-up of the sterling currency union, Scotland may also need a separate central bank to implement policy, similar to how the eurozone operates.

Informal adoption of another currency would result in the smallest role for an independent monetary policy institution. Its principal responsibilities would be financial regulation (although of a probably depleted financial sector) and the management of any foreign reserves. In this scenario, Scotland would not necessarily need a central bank. Dollarised Panama, for instance, does not have one. It might nonetheless choose to set one up if it intends on eventually joining the euro or having its own currency. In both cases, at that stage it would need a central bank, so having one during the informal currency union period would be an opportunity to develop its capabilities and credibility.

What resources each option requires would depend on the independent monetary authority's role. All would require some capital costs to set up the institution and time to devise and pass necessary legislation setting out its role and remit.[61] In addition, there would be day-to-day running costs – principally staffing – that would be larger if the responsibilities were greater; for example, under a floating exchange-rate regime.

In addition to enough resourcing, an independent Scotland would need to be able to attract effective leaders to run the institution. Some interviewees suggested that this might require paying a higher salary than the sector's norm – at least initially – to attract talent from elsewhere, including Scots who have moved to work in these sorts of institutions in other countries, including at the BoE.

However, overall these costs are likely to be relatively insignificant, and the differences between regimes may not be so great. Finland[62] (an adopter of the euro), Denmark[63] (pegged to the euro) and Sweden[64] (free-floating exchange rate) all employ around 400 people in their central banks.

In all cases, one of the important early tasks for an independent Scotland would be to set up a new monetary authority that was robust, credible and independent, with appropriate funding and staffing. Strong leadership would help to ensure that the new monetary authority was independent and credible. Independent, credible institutions are key to establishing a new country's reputation with currency and government bond markets and essential to the effective running of the economy. Because Scotland would be a new economic player, its monetary institutions would serve as a signal of the country's economic policy as a whole. Therefore, decisions regarding monetary institutions are crucial. But while the precise requirements for these institutions would differ between currency regimes, international examples suggest that the associated costs are not great enough that they should be a deciding factor in Scotland's choice of currency arrangement.

If Scotland adopted a new currency, it is likely that Scottish debts and assets would need to be redenominated

In almost all cases, the adoption of a new currency has been accompanied by the redenomination of debts and assets into the new currency. Sometimes this is necessarily the case (for example, in countries that adopted the euro, the old currency ceased to exist). But it is also generally the case in other contexts too (for example, during the collapse of the ruble zone). With the collapse of the Soviet Union, former Soviet states found themselves sharing a currency. Different countries slowly abandoned this between 1992 and 1995, with some countries creating new currencies and redenominating their assets, while the ruble continued to be in used in other countries.[65]

The 2018 Sustainable Growth Commission report states that "[t]he Scottish Government could in principle pass legislation changing the terms of existing private contracts but has no intention of doing so and would gain no advantage by doing so",[66] indicating that the denomination of existing contracts such as mortgages – as well as assets like bank deposits – would not change. But while it is true that the Scottish government need not pass such legislation, this may not be a sustainable position in practice. Wages, tax liabilities, social security payments and other flows would be denominated in the new currency, if one were adopted.

Many experts predict that a new Scottish currency would depreciate against the pound because they think that Scotland's economic fundamentals are weaker than rUK's and because there would be less demand for holding the new currency than for holding sterling, as it would lack any track record of maintaining its value and would not be a global reserve currency.[67] If a significant depreciation did occur, then failing to redenominate household debt contracts (such as mortgages) would lead to an increase in the burden of household debt because incomes would be lower in sterling terms but debt repayments would be unchanged. As a result, to avert a household debt crisis, the government would be under pressure to redenominate debts. A relatively recent example is the collapse of Argentina's currency board in the early 2000s. The currency was pegged to the dollar but, upon the collapse of the peg and a big devaluation, domestic dollar-denominated debts were redenominated in the domestic currency.

However, it would be difficult for the government only to redenominate some debt contracts without also redenominating assets. Mortgage payments are on the 'asset' side of financial institutions' balance sheets, while deposits are liabilities. Therefore, the stability of the financial system could be undermined if the government redenominated only debt and not assets as well.

Redenomination would be complicated by how intertwined the Scottish and rUK economies and financial systems were. Although most household debt in Scotland would have been signed under Scottish law, some contracts of large companies will have been signed under English or other jurisdictions' law, although in most cases this would not be insurmountable.

There may also be redistributive consequences from redenomination. Those households that held assets with English institutions in sterling would retain their asset values, with those savings having enhanced purchasing power in Scotland if the Scottish currency devalued against sterling.

This last point also highlights the risk of capital flight if a redenomination is anticipated. Other countries have managed currency transitions through tight deposit and capital controls – for example, the Balkan states – but they had far less sophisticated financial sectors than Scotland's. As mentioned above, the decision about the conversion rate between sterling and the new Scottish currency would therefore be critical.

If a depreciation was not anticipated in Scotland, a redenomination of both debts and assets would not be as urgent because household debt problems would not emerge and if it did happen it would be a much smoother process.

Individuals, businesses and the government will face costs in switching currencies if Scotland stops using sterling

Setting up a new currency or adopting the euro would also entail some upfront costs to businesses, households and the government. A new currency has to be designed, produced and distributed. Scotland already has the power to print its own notes, so existing infrastructure could probably be reused, which would reduce additional costs. But it would need to decide how to roll out the new currency and what kind of public information campaign and support for businesses and individuals would be needed to accompany this, potentially allowing for a period where both currencies are in circulation so people can transition.

When the eurozone was created, for example, capital markets switched to using the euro from 1 January 1999, but it took much longer for other transactions to change currency. In France, for instance, it took until October 2001 for card payments to be denominated in euros as standard[68] and most countries that transitioned to the euro opted for a strategy where temporarily the old currency could still be used for payment but only euros could be withdrawn and given as change. This meant that the initial adopters of the euro experienced a three-year transition, although more recent joiners did it more quickly, following a 'big bang' approach. A slower phasing out of the

national currency allows for more planning and is considered easier to implement but comes with higher financial cost as it requires a longer period of parallel running two currencies, while a faster approach has the benefit of avoiding complications related to having two currencies in circulation.

Having joined the EU in 2004, Poland has chosen not to take the necessary steps to join the eurozone, and has instead retained its own currency, the złoty. The National Bank of Poland estimated that the total upfront cost to Poland of joining the euro would be 0.5–0.6% of GDP.[69]

France's central bank, in its analysis of France's transition to the euro, attributed the success to three factors: effective co-ordination between the European and national level; close co-ordination between countries, which allowed them to create transition strategies that were then replicated in other eurozone countries; and good acceptance of the transition by economic agents and citizens.[70]

Although there would be some upfront costs to introducing a new currency in place of sterling, these costs are unlikely to be large in the context of this decision and so ought not to be the deciding factor in settling on any long-term currency choice. They might, however, affect the attractiveness of some of the options as a temporary stopgap. Because adopting a new currency is costly, changing currencies twice – at the point of independence and again at some future stage – might become unjustifiably expensive and burdensome. So, for example, while it might make sense to continue using sterling after independence and then later introduce a new Scottish currency or join the euro, it would be very expensive to temporarily start using the euro on independence if the intention was later to adopt a new Scottish currency (as would be needed, for example, if Scotland wanted to join the eurozone formally).

3. Summary and comparison of the currency options

One of the important early decisions for an independent Scotland would be to choose what currency to use and how to set up the institutions needed to support that regime. There are five main options that Scotland could consider:

- creating a formal sterling currency union with the remaining UK (rUK)
- joining the eurozone
- continuing to use sterling without any formal agreement with rUK
- introducing a new Scottish currency that is allowed to float freely against other currencies
- introducing a new Scottish currency whose value is pegged to another currency (or set of currencies).

Table 2 summarises how the options compare, according to the features we discussed in the previous chapter.

Table 2 **Features of the currency options for an independent Scotland**

	Formal currency union		Informally adopt £	New currency	
	Sterling	Euro		Fixed	Floating
Could adopt unilaterally?	No – would require negotiation with rUK	No – would require negotiation with EU	Yes	Yes	Yes
Has control over monetary policy?	Limited input	Limited input	No	No	Yes
Currency-related borrowing premium?	No	No	No	Yes	Yes
Externally imposed fiscal rules?	Yes	Yes	No	No	No
Exchange-rate volatility?	Low	Low	Low	Costly to keep low	High

Need for external reserves to facilitate currency regime?	No	No	Yes – to facilitate payment clearing	Yes – to defend peg	No
Transition costs?	None	Yes	None	Yes	Yes
Transaction costs?	No change	None with eurozone countries but increased costs with rUK	No change	High	Highest

3.1 A new, free-floating currency – the greatest freedom but also the greatest unknown quantity

A new, free-floating currency would provide a newly independent Scottish government with the greatest freedom and flexibility to use macroeconomic policy to manage Scotland's economy, with no external constraints aside from those that currency and bond markets impose. In that sense, a new, free-floating currency fits with the broader aspirations of independence. In choosing this option, Scotland would emulate other small advanced economies, such as Finland, Hungary, Israel, New Zealand, Norway and Sweden.

This currency option could be adopted unilaterally; unlike forming a formal currency union, Scotland would not have to negotiate this option with any other country. It also would not require the Scottish government to build up substantial foreign exchange reserves, as would be required to maintain a fixed exchange rate or to facilitate lender of last resort facilities and payment-clearing facilities if Scotland were to use sterling informally.

A new, free-floating currency would also be the only option under which Scottish monetary policy could be used freely to cushion the ups and downs of the economic cycle, including cushioning shocks that only hit Scotland or that hit Scotland differently from its neighbours. Under all the other options, monetary policy would instead be set to suit the average circumstances of a wider geographic area – whether that be the whole of the current UK (under a formal sterling union), rUK (if Scotland informally used sterling) or the eurozone (if Scotland joined the eurozone). At the time of the 2014 Scottish independence referendum, it was thought that this freedom could be very valuable to Scotland because – unlike rUK and the current eurozone countries – it had a large oil and gas sector, which was subject to regular, large shocks. But since then, North Sea output has declined, meaning that this is now a less important consideration.

However, there would be other benefits of a new, free-floating currency. In particular, the new Scottish central bank could offer lender of last resort facilities and set up a deposit insurance scheme, as it would have the ability to print money, which would aid financial stability.

But a new, free-floating currency would be the most unknown quantity of the options that would be available to Scotland after independence. It would probably take time for the new currency to gain credibility with, and enough liquidity in, foreign exchange markets and for the new government to build a reputation for sound macroeconomic policy and a commitment to the independent management of monetary policy. Without those, the currency's value would be more vulnerable to speculation. Resulting currency volatility could impart shocks to the real economy. It would also create greater exchange-rate uncertainty for trade partners and potential investors than the other options, leading to higher transaction costs. People purchasing Scottish government bonds would also be likely to charge a premium to compensate for this uncertainty over the exchange rate and absence of a track record for the Scottish government.

In the longer term, once an independent Scotland had established its reputation for fiscal discipline and a commitment to low and stable inflation, a free-floating currency would probably be more stable. Indeed, it would probably be a more stable long-term solution than an informal currency union or a pegged exchange rate, since there would be no implicit or explicit target for the exchange rate, which instead would be allowed to adjust to accommodate temporary or permanent economic changes. Floating the currency would also allow currency markets to establish its fair value relative to other currencies.

After any vote for independence, Scotland may increasingly forge its own economic path; if that happened, monetary policy set to suit other countries could become increasingly ill-suited to its economy. In that case, full control of monetary policy would be beneficial, albeit with currency risks that the Scottish government would have to manage.

A new currency would come with upfront costs to the government, businesses and households. New institutions would need to be set up, new systems introduced, currency printed, and careful planning would be required to roll out the new currency. But these transition costs would not be large enough to sway the decision about whether to introduce a new currency.

3.2 Currency union – strong, stable but constrained

Some form of formal currency union would offer some substantial advantages to Scotland, compared with the other options. At the time of the 2014 Scottish independence referendum, a currency union with rUK was the Scottish government's preferred arrangement.[1] It would be a stable and credible solution, since the barriers to leaving a currency union – while not insurmountable – are sufficiently large as to make it unlikely that Scotland would leave. By tying itself to monetary policy set by the BoE or ECB, the new Scottish government and new Scottish central bank (if one were established) would also be able to import a credible commitment to stable inflation, assuaging concerns of instability that could come with independence. These advantages, coupled with the fact that the markets for sterling- and euro-denominated government bonds are very liquid, would keep borrowing costs low. This would help Scotland fund its likely fiscal deficit more cheaply. Scotland could also benefit from the lender of last resort facilities provided by the BoE or ECB, helping to ensure financial stability and reduce Scottish financial institutions' perceived need to relocate south of the border.

But any such union would also come with constraints – both economic and political.

From a political perspective, a formal currency union would require Scotland to negotiate on an ongoing basis with either rUK or the other eurozone members to ensure the continued stability of the currency union. In forming a new sterling currency union, for example, the Scottish and rUK governments would need to agree on fiscal rules that would bind both sides (of a similar type to those that constrain eurozone members) and would need to agree how to fund a fiscal backstop to any lender of last resort facility. An independent Scotland may find it difficult to adhere to such fiscal rules, particularly in the early years after independence, as it would be likely to have a large fiscal deficit at the point of independence. The fact that the UK government ruled out the possibility of a sterling currency union in 2014 hints at how fraught relations could be between the governments of rUK and a newly independent Scotland immediately after any vote for independence, which could undermine the political co-operation needed to underpin a currency union.

New sterling currency union

Sharing a currency with its main trading partner (rUK) would be beneficial to Scotland, avoiding exchange-rate instability and conversion costs, which could otherwise discourage trade and investment.

Were an independent Scotland to enter a formal currency union with rUK, it would also continue to benefit from the monetary policy and financial stability operations of the BoE. Subject to some changes to its governance structures, the BoE could continue to decide on and implement monetary policy on behalf of and in the interests of both rUK and Scotland. In the early days of independence, the monetary policy set by the BoE would be likely to suit an independent Scotland most of the time, since the Scottish economy would remain closely integrated with rUK and Scottish policy would remain similar. The central bank could also operate quantitative easing on Scotland's behalf. To ensure financial stability, the BoE could also continue to act as the lender

of last resort to the Scottish financial sector, although an agreement would need to be reached between the rUK and Scottish governments about the fiscal backstop to this.

Nonetheless, there would be some drawbacks compared to the current situation. The absence of a fiscal union to accompany the monetary union could create new challenges. At the moment, the pooling of taxes and public spending across the UK helps to dissipate economic shocks, even those that affect Scotland and rUK differently (such as oil price shocks). But this would cease after independence. As a result, with monetary policy continuing to be set the same for Scotland and rUK, the Scottish government would need to make more active use of fiscal policy to cushion any Scotland-specific economic shocks.

Over time, if economic policy in Scotland were to diverge from that of rUK or if Scotland were to reorient its economy towards the EU, Scotland's monetary policy needs may diverge from those of rUK. The benefits of a sterling currency union relative to some of the other options may, therefore, diminish over time.

The most important obstacle to forming a sterling currency union is that, in 2014, the UK government categorically rejected the possibility of forming a currency union, in the case of Scottish independence. This option does not seem to be available to Scotland, as the situation currently stands.

Joining the eurozone

Rejoining the EU is a crucial part of the SNP's argument for holding a new independence referendum, and a commitment to eventually join the eurozone is a prerequisite to EU accession.

As a member of the eurozone, Scotland would benefit from reduced trading costs with other countries in the bloc, although it would add complications in terms of trade with rUK, which is currently Scotland's main trade partner. But this could change over time, as trade patterns would probably reorient towards the other 19 eurozone countries. Indeed, joining the eurozone would likely accelerate such a shift.

However, in the near term, with Scotland's economy much more closely aligned to rUK than the eurozone, monetary policy set by the ECB would probably be less well suited to Scotland than the BoE's. But there is already a lot of variation between eurozone economies, so it is unlikely that Scotland would be uniquely badly positioned to receive ECB policy. Greece, Ireland, the Netherlands and Portugal are also all smaller economies that have been members of the eurozone since the outset.

Despite its attractions, the option of joining the eurozone would be unlikely to be available in the short term. There are doubts about whether EU members that have their own secession movements (such as Belgium and Spain) would welcome an independent Scotland to the EU. Even if they did, there are strict criteria that prospective members of the eurozone must meet. Scotland is not currently on track to meet the fiscal sustainability criteria. It would also be required to show that it could, for a period of at least two years, stabilise the value of its own currency against the

euro. Therefore, according to the letter of the eurozone's accession rules, Scotland would need to introduce its own currency (and peg it to the euro) before it could then join the euro. So, at best, the aspiration to join the eurozone could only be realised in the medium term.

3.3 Informal adoption of sterling – fewer political constraints but more economic ones

Some of the advantages of a formal sterling currency union could be achieved if Scotland simply continued to use sterling without being part of a formal currency union with rUK, and this could be done without needing rUK's agreement.

There would be no transition costs for businesses or households and it would create no new currency-related barriers to trade with rUK. Borrowing costs would also be similar to what they would be under a formal sterling currency union.

However, informal use of sterling would be different from a formal currency union in several important respects. Scottish interests would not be represented in the UK's monetary policy decisions. This is different from both the current situation and from a hypothetical new sterling union. But this may make little practical difference to the interest-rate decisions that the BoE would make because Scotland's economy is small compared to that of rUK – so specific Scottish needs would be likely to (continue to) play a relatively minor part in the BoE's monetary policy decisions. Moreover, given the strong economic alignment between the two economies, monetary policy set by the UK unilaterally would probably be well suited to Scotland much of the time. But some other drawbacks are harder to overcome.

First, the BoE would not include Scottish government bond purchases in any future quantitative easing programme. This might not be a problem in the event of a global crisis – since under those circumstances, as shown during the Covid pandemic, large-scale asset purchases by the world's major central banks tend to have the effect of increasing liquidity in, and holding down the cost of, all advanced economy government bonds. But it would mean quantitative easing would not be able to be used to respond to any Scotland-specific shocks.

Second, Scotland could not rely on the BoE's financial stability infrastructure. In particular, the BoE would not act as a lender of last resort to Scotland's financial sector. Instead, Scotland's ability to offer lender of last resort facilities would be severely limited – constrained by the amount of money that the government held in reserves or could raise from government bond markets. It is for this reason that Scotland's main financial service providers said in 2014 that they would move their headquarters to rUK if Scotland voted for independence.[2] In its 2018 report the Sustainable Growth Commission indicated that it was sanguine about this prospect, with some supporters of independence noting that the absence of lender of last resort facilities would have benefits for Scotland by reducing moral hazard and thus improving the soundness of banks' balance sheets and operations in Scotland.[3]

Third, if Scotland wanted to have a central bank that operated a payment-clearing facility (as seems to be envisaged by the Sustainable Growth Commission), it would need to build up sterling reserves to enable this. This is because, unlike the BoE (or any other central bank that oversees money creation), the Scottish central bank would not be able to print money to aid this process. Accumulating sterling reserves would require running a trade surplus (which Scotland does not currently have), running a fiscal surplus (which would necessitate a substantial fiscal tightening in the early years of independence) or borrowing from abroad (which may require offering a higher interest rate to encourage overseas investors to invest their money in Scotland).

Finally, if the implicit parity set between the Scottish pound and the rUK pound (that is, that one Scottish pound is worth the same as one rUK pound) did not reflect the economic fundamentals of Scotland and rUK, it could create economic instability. This would be likely to be more of a problem under an informal currency union than a formal one because businesses, individuals and investors would be likely to judge that it would be easier for the Scottish government to abandon an informal currency union than a formal one. Some commentators have suggested that a one-to-one parity between the Scottish and rUK pounds would leave Scotland's currency overvalued. Under those circumstances, retaining the currency union would have economic costs to Scotland, since its exports would be less competitive. The government could therefore come under pressure to abandon the use of sterling. If the private sector suspected that that was going to happen, then people could choose to move their assets out of Scotland – or at the very least postpone making decisions about new investments in Scotland – to avoid their assets being redenominated. This sort of capital flight and delays to investment decisions could force the government's hand.

The 2018 Sustainable Growth Commission report, which favoured an informal sterling currency union as an interim step before issuing a new currency, set out some explicit tests that would need to be met before an independent Scotland would abandon sterling. The report also stated that the Scottish government would not redenominate existing assets and debts. These statements might reduce expectations of an imminent abandonment of sterling. But they may not fully calm businesses' and investors' nerves if the retention of sterling was judged to be imposing substantial costs on Scotland – either by affecting competitiveness or by constraining fiscal policy because of the need to accumulate reserves.

3.4 A new pegged currency – a prerequisite to joining the euro but it would take time and would be vulnerable to speculative attack

A new pegged currency would – relative to a floating currency – have the benefit of controlling exchange-rate volatility, thus giving businesses and investors more certainty when trading with Scotland. This would offer a similar level of stability for trade as sharing a currency, in a formal or informal currency union. This could be particularly valuable in the early days of independence, as Scotland's government and central bank established their reputation for prudent fiscal policy and low and stable inflation. But as with joining any form of currency union, pegging the currency would

constrain Scotland's ability to use monetary policy to cushion economic shocks, since monetary policy would instead need to be used to maintain the exchange rate.

Like the informal adoption of sterling, a new currency would have the benefit of not needing prior negotiation with other countries. But introducing a new currency would be relatively costly upfront compared with continuing to use sterling informally. There would be costs to government – from setting up the institutions and processes needed to issue the currency and manage the exchange rate. There would also be costs to businesses and individuals in adjusting to the new currency. But one advantage of introducing a new currency and then pegging it – compared with simply adopting sterling informally – would be that it would allow Scotland to choose the level to peg the currency at. This would help avoid some of the problems that could result from locking in an inappropriate parity between the Scottish and rUK pounds.

If this exchange rate was realistic, it could be credible to markets. But the stability of this option would rely entirely on Scotland accruing enough foreign currency reserves to manage its exchange rate. Scotland's current fiscal situation makes it very unlikely that it would hold such reserves at the time of independence. And even a realistic peg could be subject to speculative attacks if markets believed that the country did not hold enough reserves to defend it. This makes this currency option the most unstable, and therefore riskiest, for Scotland. A peg deemed untenable would also elicit the highest currency-related premium on government borrowing.

Were Scotland to want to join the eurozone, it would have to – at some point – introduce a new currency and show that its central bank could stabilise the value of that currency against the euro for at least two years. Doing this would become easier over time, once an independent Scotland had had time to build up foreign exchange reserves and to build its reputation for sound macroeconomic policy, which would reduce currency volatility and the risk of speculative attack on the currency's value.

4. Conclusion

Joining a formal currency union does not seem to be a feasible option for Scotland in the short term. Launching a pegged currency also appears unrealistic given the mismatch between Scotland's prospects of accumulating foreign reserves and the amount needed to manage the exchange rate. Only two options, therefore, are truly open to Scotland straight after independence: informally adopting sterling and launching a new, free-floating currency.

Informally adopting sterling comes with various downsides. But in the short term at least, it may be preferable to launching a new currency. A new currency would probably be particularly volatile in the period straight after independence, when there would be uncertainty about Scotland's future path and Scotland's new institutions would lack credibility with markets because of the absence of a track record of prudent fiscal and monetary policy. This volatility, as described in this report, could discourage investment and trade with Scotland and elicit high premiums on the sovereign borrowing rates.

The merits of a free-floating currency would probably increase over time. The economy of an independent Scotland would be likely to deviate from rUK's progressively, particularly if – as the SNP envisages – Scotland's economic policy changed and Scotland joined the EU. This would make having control of monetary policy more desirable. If Scotland did reorient its trade to other markets, that would also reduce the importance of maintaining low trade barriers with rUK. Over time, Scotland's government and monetary authority would also have an opportunity to establish a track record, building market confidence. The Scottish government would also eventually be able to build up foreign currency reserves to manage its exchange rate, if it considered that the most appropriate option. This would be necessary if Scotland did aspire to eventually join the euro.

Whichever currency option was chosen, however, an independent Scotland would need to build strong macroeconomic policy institutions and would face constraints on its fiscal policy. Currency choice, monetary policy and fiscal policy are inextricably interwoven. Whichever currency option was chosen, the government of a newly independent Scotland could mitigate some of the costs and risks involved by acting quickly to show its commitment to sound macroeconomic policy – that is, sustainable public finances and an independent monetary authority committed to low and stable inflation.

An independent Scotland could build its reputation for commitment to sound monetary policy by ensuring that any new monetary authority was set up independently of government, with appropriate legislative underpinning. It would also be essential to show a commitment to low and stable inflation in the early days of independence, whether through tying Scotland's monetary policy to that of the BoE or ECB or through new monetary policy targets that were assiduously pursued.

Confidence in fiscal management could be increased by laying out clear objectives for borrowing and debt and plans for tax and spending that were consistent with those objectives. Public belief in those plans could be strengthened by expanding the role of the Scottish Fiscal Commission to increase its power to scrutinise the government's fiscal plans and to produce economic and fiscal forecasts. Whichever currency option an independent Scotland adopted, before too long it would probably have to run tighter fiscal policy than the position that Scotland would be likely to inherit on day one.

References

Summary

1 Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf

Introduction

1 Black A and James A, 'Scottish independence: "Yes" vote means leaving pound, says Osborne', BBC News, 13 February 2014, retrieved 18 August 2021, www.bbc.co.uk/news/uk-scotland-scotland-politics-26166794

2 Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf

The basics of currency regimes

1 Webber E, 'Scottish independence: does the currency clash matter?', BBC News, 26 August 2014, retrieved 18 August 2021, www.bbc.co.uk/news/uk-28938670

2 *Ibid.*

3 Black A and James A, 'Scottish independence: "Yes" vote means leaving pound, says Osborne', BBC News, 13 February 2014, retrieved 18 August 2021, www.bbc.co.uk/news/uk-scotland-scotland-politics-26166794

4 Paun A, Sargeant K, Kane J, Thimont Jack M and Shuttleworth K, *Scottish Independence: EU membership and the Anglo–Scottish border*, Institute for Government, 2021, retrieved 18 August 2021, www.instituteforgovernment.org.uk/publications/scottish-independence-eu-border

5 Tetlow G and Cheung A, *The Fiscal Position of Scotland, Wales and Northern Ireland*, Institute for Government, 2021, retrieved 4 August 2021, www.instituteforgovernment.org.uk/publications/fiscal-position-four-nations

6 See, for example, 'Scotland's currency future: what economists think', *Financial Times*, 5 September 2014, retrieved 18 August 2021, www.ft.com/content/e635505a-328f-11e4-a5a2-00144feabdc0

7 See, for example, Artis M and Ehrmann M, 'The exchange rate: a shock absorber or source of shocks?', European University Institute, 2000, retrieved 18 August 2021, https://cadmus.eui.eu/bitstream/handle/1814/1678/00_38.pdf?sequence=1

8 Barber L, 'Scottish independence: Lloyds and RBS to move HQ to London if Scots vote Yes', *City A.M.*, 10 September 2014, retrieved 18 August 2021, www.cityam.com/scottish-independence-lloyds-and-rbs-move-hq-london-if-scots-vote-yes; Scuffman M, 'RBS, Lloyds to move south if Scots vote for independence', Reuters, 11 September 2014, retrieved 18 August 2021, www.reuters.com/article/uk-scotland-independence-rbs-idUKKBN0H60ER20140911

9 Eichengreen B, 'Scotland after sterling', Project Syndicate, 13 October 2020, retrieved 5 September 2021, www.project-syndicate.org/commentary/planning-for-independent-scotland-currency-and-central-bank-by-barry-eichengreen-2020-10

10 MacDonald R, 'Currency issues and options for an independent Scotland', University of Glasgow, 24 June 2013, retrieved 19 August 2021, https://policyscotland.gla.ac.uk/currency-issues-and-options-for-an-independent-scotland

11 Kydland FE and Prescott EC, 'Rules rather than discretion: the inconsistency of optimal plans', *Journal of Political Economy*, 1977, vol. 85, no. 3, pp. 473–92, retrieved 5 September 2021, www.jstor.org/stable/1830193

12 Lybek T, 'Central bank autonomy, accountability, and governance: conceptual framework', paper presented at the conference 'Seminar on Current Developments in Monetary and Financial Law', 24 May 2004, www.imf.org/external/np/leg/sem/2004/cdmfl/eng/lybek.pdf; Vieira H, 'Is the era of central bank independence drawing to a close?', blog, London School of Economics and Political Science, 10 January 2017, retrieved 18 August 2021, https://blogs.lse.ac.uk/businessreview/2017/01/10/is-the-era-of-central-bank-independence-drawing-to-a-close

13 HM Government, *Scotland Analysis: Assessment of a sterling currency union*, The Stationery Office, 2014, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/279454/CM8815_2901849_SA_SterlingUnion_acc.pdf; MacDonald R, 'Currency issues and options for an independent Scotland', University of Glasgow, 24 June 2013, retrieved 19 August 2021, https://policyscotland.gla.ac.uk/currency-issues-and-options-for-an-independent-scotland

14 MacDonald R, 'An independent Scotland's currency options redux: assessing the costs and benefits of currency choice', working paper no. 4952, CESifo, 2014, retrieved 18 August 2021, www.cesifo.org/en/publikationen/2014/working-paper/independent-scotlands-currency-options-redux-assessing-costs-and

15 Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf

16 Reuters Staff, 'Denmark's central bank chief brushes aside quantitative easing tool', Reuters, 1 April 2020, retrieved 18 August 2021, www.reuters.com/article/healthcare-coronavirus-denmark-qe-idUSC7N281021

17 Pope T and Soter T, *How Would an Independent Scotland Borrow?*, Institute for Government, 2021, www.instituteforgovernment.org.uk/publications/scotland-borrowing

18 Höpner M and Spielau A, 'Better than the euro? The European Monetary System (1979-1998)', *New Political Economy*, 2018, vol. 23, no. 2, pp. 160–73.

19 Scottish government, *Scotland's Future: Your guide to an independent Scotland*, 2013, retrieved 5 September 2021, www.gov.scot/publications/scotlands-future/pages/6

20 Paun A, Sargeant K, Kane J, Thimont Jack M and Shuttleworth K, *Scottish Independence: EU membership and the Anglo–Scottish border*, Institute for Government, 2021, retrieved 18 August 2021, www.instituteforgovernment.org.uk/publications/scottish-independence-eu-border

21 Blanchard O and Summers L, 'Rethinking stabilization policy: evolution or revolution?', working paper no. 24179, National Bureau of Economic Research, 2017, www.nber.org/system/files/working_papers/w24179/w24179.pdf

22 Organisation for Economic Co-operation and Development, 'Counter-cyclical economic policy', *OECD Economics Department Policy Notes*, 2010, no. 1, pp. 1–9, www.oecd.org/economy/public-finance/45105376.pdf

23 Armstrong A and Ebell M, *Scotland's Currency Options*, National Institute of Economic and Social Research, 2013, www.niesr.ac.uk/sites/default/files/publications/dp415.pdf

24 *Ibid.*

25 Pope T and Soter T, *How Would an Independent Scotland Borrow?*, Institute for Government, 2021, www.instituteforgovernment.org.uk/publications/scotland-borrowing

26 Eichengreen B, 'The breakup of the euro area', working paper no. 13393, National Bureau of Economic Research, 2017, retrieved 18 August 2021, www.nber.org/papers/w13393

27 Naughton P, 'Black Wednesday cost UK £3.3 billion, documents show', *The Times*, 9 February 2005, retrieved 18 August 2021, www.thetimes.co.uk/article/black-wednesday-cost-uk-pound33-billion-documents-show-ftzd96zht6n

28 Bank of England, *Bank of England Settlement Accounts*, 2021, www.bankofengland.co.uk/-/media/boe/files/payments/boesettlementaccounts.pdf

29 Central Bank of Ireland, 'ECB's US dollar reserve assets', (no date) retrieved 8 September 2021, www.centralbank.ie/monetary-policy/management-of-investment-assets/ecb-pooled-reserves

30 Ryan P, *Backing Scotland's Currency*, Common Weal Policy, 2017, retrieved 18 August 2021, https://sourcenews.scot/report-backing-scotlands-currency-foreign-exchange-reserves-for-an-independent-scotland

31 MacDonald R, 'An independent Scotland's currency options redux: assessing the costs and benefits of currency choice', working paper no. 4952, CESifo, 2014, retrieved 18 August 2021, www.cesifo.org/en/publikationen/2014/working-paper/independent-scotlands-currency-options-redux-assessing-costs-and

32 Tetlow G and Cheung A, *The Fiscal Position of Scotland, Wales and Northern Ireland*, Institute for Government, 2021, retrieved 5 September 2021, www.instituteforgovernment.org.uk/publications/fiscal-position-four-nations

33 Pope T and Soter T, *How Would an Independent Scotland Borrow?*, Institute for Government, 2021, www.instituteforgovernment.org.uk/publications/scotland-borrowing

34 Office for National Statistics, 'UK government debt and deficit: September 2019', 17 January 2020, retrieved 18 August 2021, www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicspending/bulletins/ukgovernmentdebtanddeficitforeurostatmaast/september2019

35 Krugman P, 'Lessons of Massachusetts for EMU', in Torres F and Giavazzi F (eds) *Adjustment and Growth in the European Monetary Union*, Cambridge University Press, 1993, http://gesd.free.fr/krugman93.pdf

36 HM Government, *Scotland Analysis: Currency and monetary policy*, The Stationery Office, 2013, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/191786/ScotlandAnalysis_acc-1.pdf

37 Bagehot W, *Lombard Street: A description of the money market*, Henry S. King, 1873.

38 HM Treasury, Bank of England and Financial Services Authority, 'Liquidity support facility for Northern Rock plc', Bank of England, 14 September 2007, retrieved 18 August 2021, www.bankofengland.co.uk/news/2007/september/liquidity-support-facility-for-northern-rock-plc

39 Demirgüç-Kunt A, Kane E and Laeven L, 'Deposit insurance database', working paper no. 20278, National Bureau of Economic Research, 2014, retrieved 18 August 2021, www.nber.org/papers/w20278

40 Bank of England, 'Financial Services Compensation Scheme', (no date) retrieved 18 August 2021, www.bankofengland.co.uk/prudential-regulation/authorisations/financial-services-compensation-scheme

41 Armstrong A and McCarthy D, 'Scotland's lender of last resort options', discussion paper no. 434, National Institute of Economic and Social Research, 2014, p. 9, www.niesr.ac.uk/sites/default/files/publications/dp434v2.pdf

42 European Central Bank, 'What is a deposit guarantee scheme?', 11 April 2018, retrieved 5 September 2021, www.ecb.europa.eu/explainers/tell-me-more/html/deposit_guarantee.en.html

43 Steinbach A, 'The lender of last resort in the eurozone', *Common Market Law Review*, 2016, vol. 53, no. 2, retrieved 18 August 2021, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2798277

44 Reuters Staff, 'Ireland says ECB should be lender of last resort', Reuters, 14 December 2011, retrieved 18 August 2021, www.reuters.com/article/eurozone-ireland/ireland-says-ecb-should-be-lender-of-last-resort-idUSP6E7N200Z20111214

45 Eichengreen B, *The Irish Crisis and the EU from a Distance*, International Monetary Fund, 2015, www.imf.org/external/np/seminars/eng/2014/ireland/pdf/Eichengreen_IrishCrisisEU.pdf

46 Pope T and Soter T, *How Would an Independent Scotland Borrow?*, Institute for Government, 2021, www.instituteforgovernment.org.uk/publications/scotland-borrowing

47 Ferry J, 'Scotland's next financial crisis?', These Islands, 8 February 2021, retrieved 18 August 2021, www.these-islands.co.uk/publications/i371/scotlands_next_financial_crisis.aspx

48 Armstrong A and McCarthy D, 'Scotland's lender of last resort options', discussion paper no. 434, National Institute of Economic and Social Research, 2014, p. 9, www.niesr.ac.uk/sites/default/files/publications/dp434v2.pdf

49 *Ibid.*

50 *Ibid.*

51 Ryan P, Backing Scotland's Currency, Common Weal Policy, 2017, retrieved 18 August 2021, https://sourcenews.scot/report-backing-scotlands-currency-foreign-exchange-reserves-for-an-independent-scotland

52 Financial Times, 'Scotland's currency future: what economists think', 5 September 2014, retrieved 18 August 2021, www.ft.com/content/e635505a-328f-11e4-a5a2-00144feabdc0

53 Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, part C, p. 49, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf

54 Barber L, 'Scottish independence: Lloyds and RBS to move HQ to London if Scots vote Yes', *City A.M.*, 10 September 2014, retrieved 18 August 2021, www.cityam.com/scottish-independence-lloyds-and-rbs-move-hq-london-if-scots-vote-yes; Scuffman M, 'RBS, Lloyds to move south if Scots vote for independence', Reuters, 11 September 2014, retrieved 18 August 2021, www.reuters.com/article/uk-scotland-independence-rbs-idUKKBN0H60ER20140911

55 Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, part C, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf

56 *Ibid.*

57 Muscatelli A, 'Submission from professor Anton Muscatelli', written submissions for Scotland's Economic Future Post-2014 Inquiry, Scottish Parliament, 2014, http://archive2021.parliament.scot/S4_EconomyEnergyandTourismCommittee/Inquiries/Professor_Anton_Muscatelli.pdf, citing Directorate-General for Economic and Financial Affairs, *An Evaluation of the Potential Benefits and Costs of Forming an Economic and Monetary Union, Commission of the European Communities*, 1990, https://ec.europa.eu/economy_finance/publications/pages/publication7454_en.pdf

58 Carney M, 'The economics of currency unions', speech at a lunch hosted by the Scottish Council for Development & Industry, 29 January 2014, www.bankofengland.co.uk/-/media/boe/files/speech/2014/the-economics-of-currency-unions.pdf

59 See, for example, Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf; and Dame DeAnne Julius's comments in 'Scotland's currency future: what economists think', *Financial Times*, 5 September 2014, retrieved 18 August 2021, www.ft.com/content/e635505a-328f-11e4-a5a2-00144feabdc0

60 Pope T and Soter T, *How Would an Independent Scotland Borrow?*, Institute for Government, 2021, www.instituteforgovernment.org.uk/publications/scotland-borrowing

61 Dalzell C, *Scotland's National Bank: Central banking in an independent Scotland*, Common Weal, 2017, https://commonweal.scot/wp-content/uploads/2017/11/Scotlands-National-Bank-Central-Banking-in-an-independent-Scotland.pdf

62 Bank of Finland, 'Organisation', (no date) retrieved 18 August 2021, www.suomenpankki.fi/en/bank-of-finland/organisation/#:~:text=The%20Bank%20of%20Finland%20has,Supervisory%20Authority%20is%20approximately%20190

63 Danmarks Nationalbank, 'Careers at Danmarks Nationalbank', (no date) retrieved 18 August 2021, www.nationalbanken.dk/careers

64 Sveriges Riksbank, 'Come work with us', Sveriges Riksbank, (no date) retrieved 18 August 2021, www.riksbank.se/en-gb/about-the-riksbank/come-work-with-us/#:~:text=There%20are%20430%20people%20working,and%20complicated%20questions%20are%20discussed

65 Dabrowski M, 'Collapse of the Ruble zone and its lessons', CESifo, 15 March 2017, retrieved 20 August 2021, www.bruegel.org/2017/03/collapse-of-the-ruble-zone-and-its-lessons

66 Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, p. 28, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf

67 Armstrong A and Ebell M, *Scotland's Currency Options*, National Institute of Economic and Social Research, 2013, www.niesr.ac.uk/sites/default/files/publications/dp415.pdf; MacDonald R, 'An independent Scotland's currency options redux: assessing the costs and benefits of currency choice', working paper no. 4952, CESifo, 2014, retrieved 18 August 2021, www.cesifo.org/en/publikationen/2014/working-paper/independent-scotlands-currency-options-redux-assessing-costs-and; Armstrong A and McCarthy D, 'Scotland's lender of last resort options', discussion paper no. 434, National Institute of Economic and Social Research, 2014, www.niesr.ac.uk/sites/default/files/publications/dp434v2.pdf

68 Neveu N, 'Le passage pratique à l'euro en France: bilan et principaux enseignements', Bulletin de la Banque de France, 2002, no. 105, www.banque-france.fr/fileadmin/user_upload/banque_de_france/archipel/publications/bdf_bm/etudes_bdf_bm/bdf_bm_105_etu_1.pdf

69 National Bank of Poland, *Report on Full Membership of the Republic of Poland in the Third Stage of the Economic and Monetary Union*, 2009, www.nbp.pl/en/publikacje/e_a/euro_report.pdf

70 Neveu N, 'Le passage pratique à l'euro en France: bilan et principaux enseignements', Bulletin de la Banque de France, 2002, no. 105, www.banque-france.fr/fileadmin/user_upload/banque_de_france/archipel/publications/bdf_bm/etudes_bdf_bm/bdf_bm_105_etu_1.pdf

Summary and comparison of the currency options

1 Fiscal Commission Working Group, *Fiscal Commission Working Group — First Report — Macroeconomic Framework*, Scottish government, 2013, retrieved 5 September 2021, www.realinstitutoelcano.org/wps/wcm/connect/a53335004ec4137faa27eeb5284b5e68/GovScotland_FiscalCWGReport.pdf?MOD=AJPERES&CACHEID=a53335004ec4137faa27eeb5284b5e68

2 Barber L, 'Scottish independence: Lloyds and RBS to move HQ to London if Scots vote Yes', *City A.M.*, 10 September 2014, retrieved 18 August 2021, www.cityam.com/scottish-independence-lloyds-and-rbs-move-hq-london-if-scots-vote-yes; Scuffman M, 'RBS, Lloyds to move south if Scots vote for independence', Reuters, 11 September 2014, retrieved 18 August 2021, www.reuters.com/article/uk-scotland-independence-rbs-idUKKBN0H60ER20140911

3 Sustainable Growth Commission, *Scotland – the New Case for Optimism: A strategy for inter-generational economic renaissance*, 2018, https://static1.squarespace.com/static/5afc0bbbf79392ced8b73dbf/t/5b0a988c352f53c0a5132a23/1527421195436/SGC+Full+Report.pdf

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