HM Government

Scotland analysis:
Currency and monetary policy

April 2013

Scotland analysis: Currency and monetary policy

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Introduction

In September 2014 people in Scotland will take one of the most important decisions in the history of Scotland and the whole of the United Kingdom (UK) – whether to stay in the UK, or leave it and become a new, separate and independent state.

In the event of a vote for independence, one of the most important decisions facing Scotland would be how to arrange its currency and wider macroeconomic framework. The UK Government will ensure that the debate is properly informed by analysis, and that the facts that are crucial to considering Scotland's future are set out.

This paper reviews how the current UK arrangements work and examines the options for change. It shows that these issues go wider than the choice of notes and coins in circulation. It would involve decisions on how interest rates are set – and by whom – and would affect an independent Scotland's ability to decide its levels of spending and taxation and support the wider economy.

These decisions would rightly be for people in Scotland. All options are open, but some would be subject to international agreement, notably with the UK and the EU. What is clear is that the current system would not be able to continue between two separate states, an independent Scottish state and the continuing UK.

Current UK framework

The UK Government believes that the current currency and monetary policy arrangements within the UK serve Scotland well. The UK is one of the most successful monetary, fiscal and political unions in history. It is a union that has brought economic benefits to all parts of the UK because taxation, spending, monetary policy and financial stability policy are co-ordinated across the whole UK. This has helped us weather the recent global economic crisis because governments that are able to borrow in their own currency, and make their own political and economic decisions, are able to borrow more cheaply. And with clear political accountability, a government can quickly respond to a financial crisis.

The structure of the Scottish economy is very close to that of the UK as a whole and Scotland and the rest of the UK follow very similar business cycles. This ensures that monetary policy set by the Bank of England is on average well suited to the Scottish economy. And deep economic integration across the UK helps the Scottish economy to adjust to Scotland-specific challenges.

The UK can pool its exposure to economic risks in a manner that separate states or those with formal currency unions, like the euro area for example, have not been able to. This means that money can be spent across the UK, in the areas where it is needed most.

Institutional and economic consequences of Scottish independence

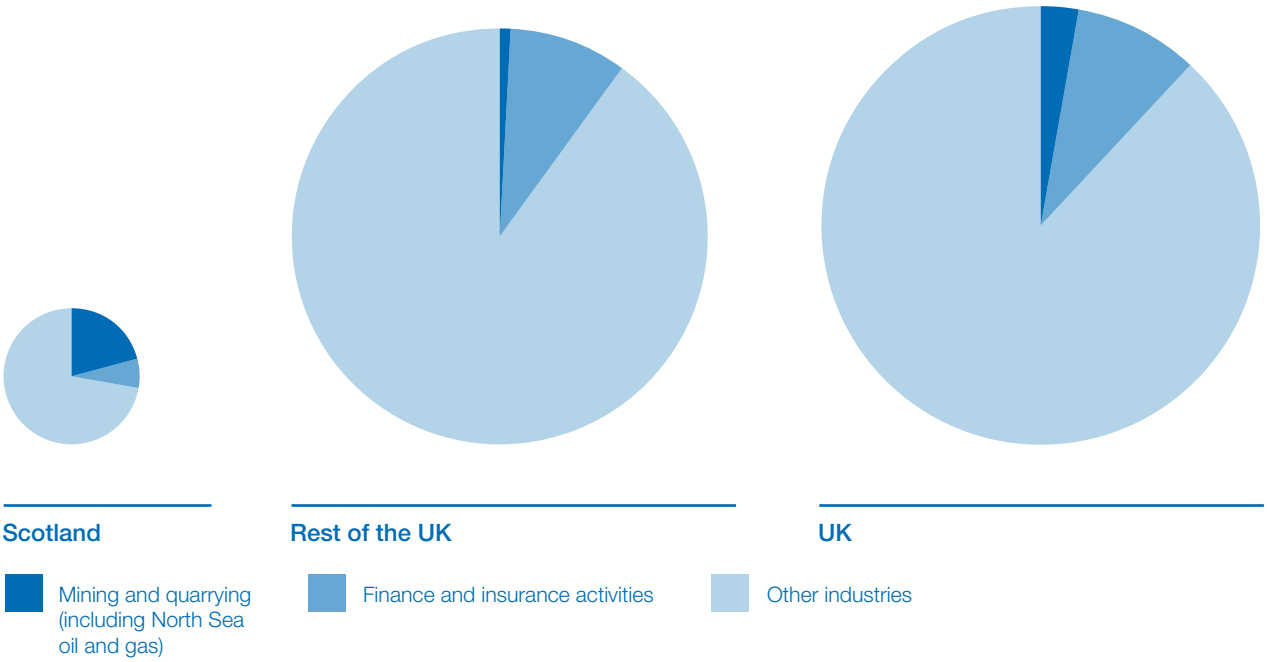
In the event of a vote for independence, Scotland would leave the UK and its existing arrangements, and would need to establish its own macroeconomic and institutional framework as part of forming a new state. The current system of fiscal risk-sharing would end.

The institutional implications of Scottish independence for the continuing UK would be more limited. The UK Government's paper, *Scotland analysis: Devolution and the implications of Scottish independence*, set out that the UK's key national institutions – including the Bank of England – would operate on behalf of the continuing UK as before, but would have no power to act in or on behalf of an independent Scottish state, and no obligation to create the structures to do so.

In the event of independence, institutional and policy divergence between Scotland and the continuing UK would be likely to lead to a weakening of economic integration. These effects would cause monetary policy set by the Bank of England to become less appropriate over time for an independent Scottish state's economic conditions.

The UK as a whole is a relatively large economy that, while not immune to shocks, can absorb fluctuations to deliver comparatively stable economic conditions. This is a pre-requisite to the certainty and stability required to allow individuals, households and businesses to plan ahead for the future.

Size and composition of the Scottish and UK economies



Source: ONS, Regional Gross Value Added (December 2012); Workplace based GVA by industry groups at current basic prices; Scottish shares of extra regio GVA used for these calculations: 90% of mining and quarrying GVA and 8% of public administration and defence GVA[1].

[1] 90% of mining and quarrying extra regio is consistent with widely used estimates of Scotland's geographical share of North Sea oil and gas (as proposed by Professor Kemp and used by the Scottish Government in their own estimates of Scottish GDP including a geographical share of North Sea oil and gas). Used here for illustrative purposes; in the event of independence, it would be subject to negotiations with the continuing UK.

If Scotland became independent, it would necessarily have a narrower economic and fiscal base, and be exposed to a number of volatile sectors such as finance and energy (including North Sea oil and gas). Volatility in these sectors would therefore have a greater impact on the overall economy. For example the volatility of the global price of oil would be likely to have a far greater effect on the prospects and stability of the economy of an independent Scottish state than it presently does on Scotland as part of the UK. This volatility would be felt regardless of the currency and macroeconomic framework adopted by a new Scottish state.

Currency options

An independent Scottish state would have four main currency options. It could:

- continue to use sterling with a formal agreement with the continuing UK (a sterling currency union);
- use sterling unilaterally, with no formal agreement with the continuing UK ("sterlingisation");
- join the euro; or
- introduce a new Scottish currency.

Each of these options would affect transaction costs, fiscal and monetary policy and financial stability in an independent Scottish state. All options would involve the establishment of new independent monetary institutions. New frameworks for fiscal and financial stability would also be necessary.

The experience of Ireland over the last hundred years shows that these options would be likely to evolve over time, as economic, social and political conditions change. The initial decision over currency arrangement may therefore be temporary.

Formal sterling currency union

The principles and terms of a formal sterling currency union would be subject to agreement with the continuing UK. A formal sterling currency union would only be possible if both an independent Scotland and the continuing UK could reach an agreement that satisfied both countries' economic interests.

If such a union could be agreed, Scottish households and businesses would continue to use sterling. There would be benefits for both Scotland and the rest of the UK from continuing to use the same currency and keeping transaction costs low, but it would also create significant economic risks.

A formal sterling currency union is very different to the current arrangements and would be a profound economic change for both states. Both states would become exposed to fiscal and financial developments in each other's economies. However, there would be a fundamental asymmetry in the degree of exposure to fiscal and financial risk as a sterling union would comprise two members of very different sizes.

An independent Scottish state would therefore need to agree a negotiated set of constraints on its economic and fiscal policies. In practice this would be likely to require rigorous oversight of Scotland's economic and fiscal plans by both the new Scottish and the continuing UK authorities. These constraints would need to reflect the difference in the degree of exposure to fiscal risk.

The lender of last resort role, typically undertaken by a central bank but backed by the government, provides an important safety net for financial institutions if they get into difficulty, protecting the wider economy. Were an independent Scottish state to look to the Bank of England to provide lender of last resort facilities, this would also need to be agreed by both the UK and Scottish governments. Questions around the governance and political accountability of the Bank of England would need to be resolved.

But, even with constraints in place, the economic rationale for the UK to agree to enter a formal sterling union with a separate state is not clear. The recent experience of the euro area has shown that it is extremely challenging to sustain a successful formal currency union without close fiscal integration and common arrangements for the resolution of banking sector difficulties.

In particular, an agreed set of euro area fiscal rules proved insufficient to prevent funding problems arising for smaller, and in many cases fiscally prudent, members of the euro area. These difficulties have also spilled over to other members of the currency union.

The degree of political commitment to a currency arrangement is also important. If financial markets perceive that a currency union (or a fixed exchange rate regime) is not economically or politically durable, or only a transitional arrangement, speculative activity can put immediate pressure on the arrangement. This was the experience of the UK's exit from the Exchange Rate Mechanism (ERM) in 1992 and of the break-up of the Czechoslovakian monetary union in 1993 after only 33 days.

Use of sterling without formal agreement

An independent Scottish state could continue to use sterling as its currency without the formal agreement of the continuing UK. This unilateral adoption of sterling (or "sterlingisation") would avoid the transition and transaction costs of a change in currency but at the expense of leaving an independent Scottish state with no control over its monetary policy.

With no ability to print money, a Scottish monetary authority could have at best only a limited function as a lender of last resort to commercial banks. The sterlingisation option would therefore impose severe constraints on monetary and fiscal policy and financial stability. A number of smaller countries have opted for this approach, but it would be likely to be too constraining for a country of the financial complexity of an independent Scottish state.

Joining the euro

Under European Union (EU) Treaties, all Member States are required to adopt the euro in future unless a specific opt-out has been negotiated as the UK and Denmark have done. The question of an independent Scotland's EU membership is considered in the UK Government's paper *Scotland analysis: Devolution and the implications of Scottish Independence*, which makes clear that it is far from certain that an independent Scotland would be able to secure an opt-out from adopting the euro. Such a decision would not be in the hands of the UK or an independent Scottish state but would require the agreement of all 27 (soon to be 28) EU Member States. Unless a formal euro opt-out were to be negotiated, an independent Scottish state may end up de facto negotiating simultaneously a commitment to adopt two different currencies: the euro (through negotiations over EU membership) and sterling (through negotiations over the membership of a formal sterling currency union).

Joining the euro area would allow an independent Scottish state to benefit from the existing euro area institutional framework, although some new Scottish institutions would have to be created (such as an independent central bank). But the Scottish economy differs significantly from

the euro area and is less well integrated with the EU than with the UK as a whole. Monetary policy set by the European Central Bank would therefore likely be less well suited to Scotland's economy than that currently set by the Bank of England.

If an independent Scottish state joined the euro area, fiscal policy would be constrained by the EU fiscal framework: principally, the Stability and Growth Pact and the Fiscal Compact. And Scotland's financial sector policy would need to reflect the framework of banking union that is currently being developed. If an independent Scottish state were to join the euro area it would face the same constraints in ensuring economic stability as other small euro area Member States.

Introducing a new Scottish currency

The introduction of a new independent Scottish currency would not require any negotiations with the continuing UK, beyond resolving the requirement for euro membership in any EU membership negotiations. There would be one-off transition costs due to the need to establish a central bank and replace sterling in circulation. There would also be a risk of rapid destabilising flows of money out of Scotland if Scottish residents preferred to hold their assets in an established currency. But adopting its own currency would be the only option under which an independent Scottish state would not have to cede sovereignty over some or all of the levers to guide its economic performance.

An independent Scottish state would be able to choose its exchange rate regime and independent fiscal and monetary policies could be used to stabilise the economy. If an independent Scottish state were to adopt its own floating currency, evidence suggests that it would result in a more volatile exchange rate. In fixed exchange rate regimes the volatility might be felt more on domestic wages and prices. Under any regime, volatility would be likely to directly affect fiscal policy. A number of small countries have managed this challenge but have typically done so by adopting a restrictive fiscal policy and running frequent budget surpluses.

The benefits of an independent Scottish currency would come at the expense of introducing higher transaction costs with all of Scotland's trading partners, in particular with the continuing UK, Scotland's neighbouring state and major trading partner. The current similarity of economic structures and performance and strong integration between Scotland and the rest of the UK means that relative to current arrangements the benefits of an independent monetary policy would be unlikely to outweigh these costs.

Conclusion

The current currency and monetary policy arrangements within the UK serve Scotland well. A move away from the current arrangements would require a set of decisions that would affect the wider management of the economy – not only the currency but also the setting of monetary and fiscal policy. The status quo would not be one of the options. The analysis in this paper concludes that all of the alternative currency arrangements would be likely to be less economically suitable for both Scotland and the rest of the UK.

Currency	The UK	Formal sterling union	Sterlingisation	Euro	Independent Scottish currency
Negotiations/ Transition costs	• None.	• Subject to agreement with the continuing UK. • Economic rationale for UK to enter a currency union with another state is not clear.	• No negotiations required. • Very limited transition costs.	• Negotiations with EU on euro membership. • Significant costs e.g. currency change and convergence with euro area.	• No negotiations with the continuing UK and EU. • Significant costs e.g. currency change, capital flight risk.
Transaction costs	• None.	• Would remain low between the continuing UK and Scotland.	• Would remain low between the continuing UK and Scotland.	• Lower with the euro area but higher with continuing UK.	• Increase with all of Scotland's trading partners.
Monetary policy: institutions and suitability	• Bank of England (BofE) acts for the whole UK and is accountable to the UK Parliament • Monetary policy is on average well suited to the Scottish economy.	• Governance of the BofE would have to be agreed with the continuing UK. • Could become less well suited over time, as economic policies and structures diverge, and integration weakens.	• BofE not required to take account of Scottish economy. But policy would de facto be set by BofE. • Money supply would be market driven and subject to fluctuations in the balance of payments.	• Scottish Govt would need to establish a national central bank. • Monetary policy set by the ECB would be likely to be less well suited than currently set by BofE.	• Fully floating: fully flexible with exchange rate adjustments. But could be source of shocks. • Managed: flexibility constrained by peg, but would reduce the risks of exchange rate shocks.
Fiscal policy	• UK's large fiscal base and ability to borrow in its own currency, means that borrowing costs are low. • Fiscal resources can be deployed across the UK, where and when they are needed most.	• Scottish Govt's borrowing costs would be higher. • Formal constraints to be agreed. Likely to require rigorous oversight of Scotland's plans by continuing UK. • Fiscal policy would need to do more to stabilise the economy. • But with no fiscal transfers and in limits set by formal constraints and market conditions.	• Scottish Govt's borrowing costs would be higher. • No formal constraints. • Fiscal policy would need to do more to stabilise the economy. • But issuing debt in a foreign currency would lead to very restrictive market conditions.	• Scottish Govt's borrowing costs would be higher. • Tax and spending constrained by EU fiscal framework. • Fiscal policy would need to do more to stabilise the economy. • Constraints of formal rules and market conditions can limit national level stabilisation.	• Scottish Govt's borrowing costs would be higher. • No formal constraints. • Floating: fiscal policy would need to offset unwanted exchange rate changes. • Managed: fiscal policy would need to do more to stabilise the economy. • Fiscal and BoP surpluses needed to accumulate reserves to maintain parity.
Financial stability	• BofE is lender of last resort (LOLR). • Clear governance and accountability framework facilitates rapid crisis resolution decisions.	• Scottish Govt would have to negotiate with continuing UK for BofE to be LOLR. • Self-insurance against financial risk may be required. Either by reducing public debt, or by paying a fee to the continuing UK.	• BofE not required to be LOLR. • Monetary authority could have only a very limited role for crisis resolution through temporary liquidity assistance.	• Legal requirement to join the Banking Union. • Prudential supervision would be the ultimate responsibility of the ECB, but a national competent authority would still need to be established.	• New Scottish central bank would be LOLR. Greater fixity of exchange rate reduces scope for LOLR • Crisis resolution depends on credibility of central bank and the fiscal 'backstop'.

Introduction

The UK's currency and monetary arrangements are intrinsically linked to the constitutional history of Scotland and the rest of the UK. In 1603, James VI became King James I of England, and the Pound Scots was pegged to the English currency at a rate of twelve to one. Following the Acts of Union in 1707, sterling officially replaced the Pound Scots at the same parity.[1] This 300 year old monetary, fiscal and political union has brought economic benefits to the entire UK. Bringing this union to an end would have wide-ranging implications for the currency and monetary arrangements between an independent Scottish state and the continuing UK.

The referendum on independence presents one of the most important decision points in Scotland's and the UK's history. It is important that the debate ahead of the referendum is informed by analysis, and that the facts that are crucial to considering Scotland's future are set out.

The UK Government believes that Scotland is better off as part of the UK, and that the UK is stronger with Scotland as a full part of it. The onus is on those who want Scotland to leave the UK to set out their proposals for independence and address some of the key questions relating to the implications. Not all of the answers to these questions can be known in advance of the referendum. This is because some of the details can only be established through negotiations between the representatives of an independent Scottish state, the continuing UK[2], and other bodies, for example the European Union (EU). These negotiations would have to take place in the event of a vote for Scottish independence.

The objective of the UK Government's Scotland analysis programme is to provide comprehensive and detailed analysis of Scotland's place in the UK and how that would be affected by independence. The outputs of the analysis will provide sources of information and aim to enhance understanding on the key issues relating to the referendum. As such, the programme should be a major contribution to the independence debate.

This is the second paper in the Scotland analysis programme. It presents the UK Government's analysis of the currency and macroeconomic policy implications of the debate on Scottish independence. It first reviews how the current arrangements that have supported economic

[1] White (2008) "What monetary arrangements for an independent Scotland?"

[2] Under the current arrangements, the UK without Scotland (England, Wales and Northern Ireland) is referred to as the "rest of the UK" and Scotland is referred to as "Scotland". When discussing possible implications in the event of independence, the UK without Scotland is referred to as the "continuing UK" and Scotland as the "independent Scottish State".

integration and stability in the UK operate, before assessing the four[3] main currency options that could be available to an independent Scottish state:

- forming a formal sterling currency union with the UK;
- adopting sterling unilaterally, or "sterlingisation";
- joining the euro area; or
- introducing an independent Scottish currency.

The Scottish Government has proposed that an independent Scottish state could form a formal sterling currency union with the UK.[4] However, the Scottish Government had previously expressed a desire to join the euro area.[5] The introduction of an independent Scottish currency has also been suggested in the wider debate.[6]

Some of these options would be subject to international negotiations, notably with the UK and the EU, which the Scottish Government has stated an independent Scotland would seek to join. Hence, while the four options are assessed here for completeness, it should be kept in mind that they may not all be feasible for an independent Scottish state. The viability of a number of the options would depend to a large extent on policy decisions outside of an independent Scotland's full control.

The currency options for an independent Scottish state would also have implications for the wider macroeconomic framework and institutional structure of the new state. Monetary arrangements operate in specific institutional frameworks that cover not just the setting of monetary policy but also fiscal and financial sector arrangements. The government of a new independent Scottish state would have to set up these new institutions and establish their credibility. The outcome would be subject to international negotiations and domestic policy decisions. It is unclear at this stage what form any new institutional framework would take. International examples, in particular the recent experience of the euro area, are used throughout this paper to help shed light on some of these questions.

An economic framework for assessing currency choices

The standard economic framework for assessing currency choices is known as the Optimum Currency Area (OCA) approach.[7] It provides the analytical framework and a set of economic criteria by which to judge the costs and benefits and therefore appropriateness of different currency arrangements. This approach was the economic basis for the UK Government's decision not to join the euro in 2003.[8]

Drawing on this framework and an extensive review of the evidence, this paper describes the existing UK arrangements and discusses the implications of the alternative currency options for:

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[3] Other options might still be envisaged, such as forming a formal currency union with a country other than the UK or the euro area, or adopting another currency unilaterally (e.g. US dollar). However, such options remain very unlikely and have not been considered in this paper.

[4] "Opportunities for Scotland's Economy", John Swinney, Glasgow Caledonian University, 11 June 2012

[5] "Your Scotland, your voice", Scottish Government 2009 White Paper.

[6] Patrick Harvie, MSP for Glasgow and Co-convener of the Scottish Greens, 21 February 2013: "We need to keep the Scottish currency option open".

[7] The Optimum Currency Area was first developed in Mundell (1961), "A theory of Optimum Currency Areas", MacKinnon (1963), "Optimum Currency Areas", and Kenen (1969), "The Optimum Currency Area: An Eclectic View".

[8] HM Treasury (2003) "The Five Tests Framework", *EMU studies*.

- **Transition costs:** one-off costs to the economy from implementing the different currency options e.g. changing the coins and banknotes.
- **Transaction costs and exchange rate risk**: the costs for households and businesses of changing currencies and (expected) movements in exchange rates.
- **Monetary policy:** whether interest rates are set at the right level for Scotland's economy; the choice of exchange rate policy; and institutional and governance arrangements.
- **Fiscal policy:** the use of changes in taxation and spending to stabilise the economy; the need to constrain borrowing; the effects on the cost of borrowing; and the risk of fiscal problems spilling over to other economies.
- **Financial stability:** crisis prevention; lender of last resort arrangements and crisis management and the interaction with fiscal responsibilities.

The roles and responsibilities of fiscal and monetary policy in economic management are relatively well understood. A primary role of monetary policy is to support economic stability and help smooth the effects of business cycles in the economy. One of the roles of fiscal policy is to complement the stabilisation role of monetary policy when required.

The issue of financial stability is more complicated, as the global financial crisis has demonstrated. There are two main aspects to financial stability. The prevention of financial crises and the management of crises should they arise. The focus of this paper is primarily on crisis management, as this is generally a key role of central banks, through their role as lender of last resort to the financial sector. A later publication in the Scotland analysis series will provide more detail on financial regulation and crisis prevention.

Economic stability is not the only objective of governments, and economic policies also aim to maximise employment and sustainable growth. Beyond its objectives of reducing the budget deficit and restoring economic stability, the UK Government's economic strategy is designed to achieve strong, sustainable and balanced growth that is more evenly shared across the country and between industries.

Stability is a pre-requisite to strong and sustainable economic growth. It provides households and businesses with the certainty that is necessary to invest and innovate. Designing a framework for monetary, fiscal and financial stability arrangements that is resilient to large and varied shocks is a continuously evolving process. The experience of the global financial crisis has been an important test for institutional frameworks in place in many advanced economies. The UK framework proved relatively resilient and flexible, and continues to respond. For example, the International Monetary Fund (IMF) has identified that the creation of the independent Office for Budget Responsibility (OBR) and the reform of financial stability arrangements have strengthened this framework.[9]

An independent Scottish state would be a small country by international standards; among European countries, it would be about the size of Denmark, Ireland, Finland, Greece or Portugal, about half the size of Norway or Sweden and 15 times smaller than Germany. The energy industry and the financial sector are important contributors to the Scottish economy, with implications for its volatility if Scotland were to leave the UK. As a new state, an independent

[9] "The government has also created new institutions to address weaknesses in the policymaking framework revealed by the crisis. These include a new Financial Policy Committee (FPC) to oversee macro-prudential policy and an independent OBR that should strengthen the credibility of fiscal analysis and forecasts. These developments and reforms move in the right direction", IMF (2011) "United Kingdom: 2011 Article IV Consultation".

Scotland would have to establish credibility in international financial markets and a track record of sound economic management.

Designing a new independent macroeconomic framework able to promote economic stability would be a major task for the government of an independent Scottish state. The decision over currency would be central to this process and is the focus of this paper. All of the alternatives to continuing as part of the UK carry significant risks, costs, and unanswered questions compared to continuing with the current arrangements.

The economic implications of independence for a new independent Scottish state would expand well beyond currency questions – to economic performance, financial stability, and fiscal policies. These areas will be covered in detail in forthcoming publications of the Scotland analysis programme, which will also examine wider areas of government policy.

Structure of the paper

Chapter 1 gives an overview of the Optimum Currency Area (OCA) approach that provides the analytical framework for the analysis. This is the same approach used in the Scottish Government's Fiscal Commission Working Group Report (2013) on macroeconomic frameworks.[10] The chapter uses this framework to judge the suitability of the existing UK arrangements and compares them with prospects under the four alternative currency options.

Chapter 2 sets out the principles behind the UK's macroeconomic and institutional framework. It sets out the four main currency options available to an independent Scottish state and provides a rapid overview of their key features.

Chapters 3 to 6 discuss each of the four currency options in turn. For each option the chapter discusses the implications for transaction costs, monetary policy, fiscal policy and financial stability. The chapters covering the euro area and independent Scottish currency options provide additional details on the possible transition process.

[10] "Fiscal Commission Working Group First Report – Annex – Assessment of Key working options" (2013): "It is common practice to begin considering currency options by referring to the work on 'Optimal Currency Areas' (OCA)." (page 2).

Chapter 1:
The UK as a successful currency area

The standard framework to assess the case for countries to share a single currency is the **Optimum Currency Areas (OCA) approach.** The main message of this approach is simple: **two or more separate countries might wish to adopt a single currency when the benefits of lowering transaction costs outweigh the costs of relinquishing an independent monetary policy.**

An analysis of this approach concludes that **Scotland and the rest of the UK are economically well placed in the current UK arrangements.** Similarity of economic structures and business cycles means that monetary policy set by the Bank of England is on average well suited to conditions in Scotland (and the rest of the UK). And economic integration and the sharing of fiscal resources help all parts of the UK to adjust to localised economic difficulties.

Independence would change this assessment, even if an independent Scotland were to remain part of a sterling currency zone. Fiscal independence would make the monetary policy of the Bank of England less well suited to Scottish economic conditions. This effect could worsen over time as economic integration progressively weakens.

Differences in the structure of the Scottish economy relative to the euro area average, and the weaker integration between Scotland and the euro area, suggest that **adopting the euro may be less well suited to Scottish economic conditions.** If an independent Scottish State were to join the euro area, the Scottish economy may start to align with the rest of the area, but that could be a slow process.

An independent Scottish currency could help the economy to adjust through an independent monetary policy and choice of appropriate exchange rate regime. Depending on the outcome of negotiations, the oil and gas sector, as well as the financial sector, may form a much greater proportion of an independent Scotland's economy than the UK economy as a whole. **The greater policy flexibility of an independent currency may help to manage an inherently more volatile economy. But a newly introduced currency, with a relatively illiquid market, could be more vulnerable to exchange rate changes that would be destabilising for the Scottish economy as a whole.**

The costs and benefits of a single currency – the Optimum Currency Area approach

1.1 Over time, a number of countries have given up their monetary independence and opted to share a common currency. This process has taken different forms, from a client country deciding to unilaterally adopt another currency or to peg its own currency to an anchor currency[1] to a group of countries deciding to share a single currency and common monetary institutions. Panama currently uses the US dollar as its official currency; Hong Kong pegs its own currency to the US dollar; and most significantly the majority of EU Member States have adopted the euro and share monetary policy and institutions in the euro area as part of the European Economic and Monetary Union.

1.2 The standard economic framework for assessing currency choices is the Optimum Currency Area (OCA) approach. This approach provides an analytical framework and a set of economic criteria by which to judge the appropriateness of different currency arrangements. It assesses the case for countries to share a common currency by weighing the benefits from lowering transactions costs against the costs of relinquishing an independent monetary policy.

1.3 There are some important benefits associated with being part of a currency area:

- **lower transaction costs:** A single currency is more convenient for international transactions. It reduces the need to physically change currency. It improves price comparability and reduces exchange rate risk.[2] This reduces the costs of doing business between the different countries of the currency area. It improves specialisation and results in a better allocation of resources, with a positive impact on productivity and growth. The greater the integration between two countries, the more beneficial the reduction in transaction costs.
- **discipline and credibility:** Joining a currency area may help to impose discipline over inflation and exchange rates. There are typically conditions associated with membership of a currency area that enhance policy makers' commitment by limiting their room to manoeuvre. This benefit is greater for countries with a history of high inflation and exchange rate volatility.

1.4 However, membership of a currency area means the loss of an independent monetary policy. There is a macroeconomic cost from losing the ability to use monetary policy and exchange rates to soften the effect of economic shocks on output, unemployment and inflation. This places more of a burden on other sources of economic adjustment, such as changes in wages and employment.

1.5 There are a number of conditions under which the costs of giving up an independent monetary policy are reduced:

- **synchronised business cycles** and similar price fluctuations across the different member countries. This ensures that monetary policy set for the currency area as a whole is on average well suited to each member.

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[1] Anchor currency: the currency used to fix the exchange rate of the domestic currency in a fixed exchange rate regime.

[2] It also reduces the need for hedging. Hedging is a way for companies to minimize exchange rate risk by, for example, agreeing in a contract the exchange rate at which a transaction will occur in the future.

- **similarity of industrial structures** means that there are not many country-specific shocks. And shocks that affect the whole currency area are not transformed into country-specific shocks by differences in economic structures. Similar structures also mean that the effects of a single monetary policy are similar. Diversification of industrial structure within each country reduces domestic volatility and exposure to localised shocks.
- **deeper integration in trade, labour market and capital flows** ensures greater gains from sharing a currency. It helps economies to adjust to country-specific shocks through movements in labour and capital. Deeper integration is also often a driver of greater synchronisation of business cycles.
- **wage and price flexibility** helps to maintain and restore economic competitiveness in the absence of exchange rate adjustments.

1.6 The Optimum Currency Area approach has developed considerably since its original articulation.[3] The main development has been to identify that economies in a single currency area can also adjust via greater risk-sharing by the private and public sectors:

- **financial integration:** means that members of a currency area have cross-border holdings of each other's assets. This spreads the effects of a local economic downturn across the currency area and allows each country to insure itself against a country-specific shock through private financial markets.[4]
- **fiscal integration:** a supra-national fiscal transfer system allows members of a currency union to redistribute funds among themselves, in support of countries affected by an adverse shock.[5]

1.7 These conditions help to ensure that the gains from a single currency are greater than the costs of losing an independent monetary policy. When the common monetary policy is not well adapted to national conditions, flexibility in the economy (internally and between members of the currency area) and private and public sector risk-sharing help the economy to adjust.

1.8 In practice, even very economically diverse currency areas are able to maintain a successful currency union if there is enough internal flexibility, regional adjustment mechanisms and a high degree of federal fiscal support underpinned by discipline at the regional level. Box 1A shows how a country as economically diverse as the United States (US) has a successful currency union thanks to its flexibility and institutional structures. Conversely, even economic areas with similar characteristics are liable to occasional regional shocks. If there is inadequate flexibility and inter-regional support to help economies adjust, then a single currency becomes less suitable.

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3 See Tavlas (2003) "The "New" Theory of Optimum Currency Areas".

4 A number of studies suggest that when there is an integrated capital market then low output correlations are more tolerable (and more likely) because income insurance through capital markets is available. See for example MacKinnon (2001) "Optimum Currency Areas revisited"; Sørenson and Yosha (1998) "International risk-sharing and European Monetary Unification"; Kalemli-Ozcan et al. (1999) "Risk-sharing and industrial specialization: regional and international evidence"; Hess and Shin (1998) "International business cycles in the United States".

5 See Kenen (1969) "The Optimum Currrency Area: An Eclectic View".

Box 1A: The US as a successful single currency area: the importance of regional adjustment mechanisms

The US is an interesting case of monetary union, because it has managed to be successful despite the striking diversity of its 50 constituent states.[1] The structures of production across the different states are very different (Krugman, 1993).[2] This should increase the likelihood that some of them will be affected by state-specific shocks and hence increase the costs of sharing a single currency. However, very few people would argue that the US does not benefit from the use of a single currency.

The existence of strong regional adjustment mechanisms between the different states is likely to have been important to this success. These mechanisms are linked to the existence of **large physical flows** across the US economy:

- a high degree of **trade integration** helps smooth localised shocks to a given state (as demand from other states can help support local production despite the slowdown in local demand); and
- **labour mobility** provides a mechanism for adjusting to longer-term structural changes. Krugman (2012)[3] uses the example of Massachusetts to illustrate the role of labour mobility. Massachusetts was hit by an asymmetric shock in the late 1980s. Unemployment sharply increased in the state. However labour mobility meant that workers emigrated from the state. Massachusetts never regained its employment share but the unemployment rate in the state declined.

Financial flows also contribute to supporting people's incomes in response to shocks to a specific state. Asdrubali et al (1996)[4] estimate that **inter-state financial flows** help smooth around three quarters of a state-specific shock to income, and identify three main channels:

- the **capital channel** – the cross-ownership of capital assets between US states is estimated to help smooth 39 per cent of the total income shock;
- the **credit channel** – the ability of the private and public sector to borrow on the US-wide credit markets is estimated to help smooth 23 per cent of the total income shock; and
- the **fiscal channel** – inter-state transfers through the federal budget in the form of lower taxes and higher spending are estimated to help smooth 13 per cent of the total income shock.[5]

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1 One of the EMU studies published by HM Treasury in 2003 (HM Treasury (2003b) "The United States as a monetary union") focused on the case of the US as a monetary union, as "it provides a working example of how different regions – quite disparate in terms of their geography, climate, industry and heritage – develop within a monetary union."

2 Krugman (1993) "Lessons of Massachusetts for EMU".

3 Krugman (2012) "Revenge of the Optimal Currency Area".

4 Asdrubali et al. (1996) "Channels of Interstate Risk Sharing: United States, 1963-1990".

5 A survey of estimates of the adjustment role of the federal budget in the US, reported by Melitz and Zumer (2001), suggested that the federal budget helped smooth 10 to 40 per cent of the income shock, with the authors' estimate at 20 per cent. Krugman (2012) uses the example of Florida to illustrate the role of the federal budget. Florida suffered an asymmetric shock during the 2007 housing bust. Through federal level automatic stabilizers, Florida paid less federal taxes and received an increase in welfare spending. This amounted to $40bn, equivalent to 5 per cent of Florida's GDP.

Box 1A (continued): The US as a successful single currency area: the importance of regional adjustment mechanisms

In general, the direct role of the federal budget through fiscal transfers appears to be small relative to private financial flows. But the experience of the recent global financial crisis emphasises that the role for the US Federal Government to ensure financial stability, hence providing support to the credit and capital channels, should not be understated. The existence of a full banking union and unified capital markets helps ensure that inter-state credit markets continue to operate efficiently even during a financial crisis, while investors have the confidence to invest in cross-border assets.

Gros (2012)[6] illustrates this point with the example of Nevada. In the recent financial crisis, any insolvent state banks were seized by the Federal Deposit Insurance Corporation (FDIC), which meant that losses were covered at the federal rather than state level. In 2008-09 FDIC closed 11 Nevada headquartered banks, totaling assets of over 30 per cent of Nevada's GDP. Furthermore, a number of "foreign" (or out of state) banks operated in Nevada. These banks were able to set losses from Nevada against profits from other states, providing a further shock absorber, through the capital and credit channels.

The UK is similar in many respects to the US. Completely integrated capital markets and a full banking union enable the credit and capital channels to work effectively. Melitz and Zumer (2001) estimate that the fiscal channel helps smooth around a fifth of personal income shocks in the UK, comparable to their estimate for the US.[7] These characteristics are closely linked to the existence of a full political union.

A conclusion of many of the analyses[8] of the success as the US as monetary union is the importance of fiscal integration, closely linked to political union in a continuously evolving process. The US began as a political union and later developed the arrangements for fiscal and monetary integration to underpin this initial political integration.

6 Gros (2012) "Banking Union: Ireland vs Nevada, an illustration of the importance of an integrated banking system".

7 Fiscal policy also plays a role for redistribution that is more important in the UK than the US. Melitz and Zumer found that net transfers help reduce regional disparity of income by 26 per cent in the UK and 17 per cent in the US.

8 Bordo, Markiewizc, Jonung (2011), "A fiscal union for the euro: Some lessons from history"; Feldstein (2011) "Europe is not the United States"; Randall Henning and Kessler (2012) "Fiscal federalism: US history for architects of Europe's fiscal union".

1.9 Any assessment of the suitability of a common currency area needs to recognise the dynamic nature of economic structures and institutions. In particular it is possible that the economic and institutional convergence required for a country to be a successful member of a currency union may be achieved after a country has joined. This is the idea of "endogenous convergence",[6] whereby membership of a single currency may in itself result in the pattern of shocks and their economic impact becoming more similar, and lead to greater integration of economic structures.

1.10 This process may help to explain the suitability and success of the UK (and the US) as currency unions, as their respective institutions have developed over a long period of time. It also means that any assessment of a common currency area will evolve dynamically over time. For example, if an independent Scottish state were to decide to join the euro area, its membership might become more economically suitable in the future, although such convergence could take many years.

6 Frankel and Rose (1998) "The Endogeneity of Optimum Currency Area Criteria".

1.11 This analysis also assumes that the nominal exchange rate is a useful adjustment mechanism for the economy. This view has been contested, notably by Buiter (2000), who argued that there is a risk that a flexible exchange rate can become a source of shocks rather than a source of stability for an economy. The argument is that exchange rates are primarily determined by international capital market flows, which may not always reflect the fundamentals of the economy.[7]

1.12 HM Treasury's previous assessment of the evidence for this argument (in the context of possible euro entry for the UK) was that a flexible sterling exchange rate has on balance been a source of stability rather than shocks for the UK economy as a whole.[8] However, the stabilising benefits of a flexible exchange rate tend to be more limited for smaller, more open economies, reflecting their greater exposure to changes in import prices. For example, Artis and Ehrman (2000) concluded that while the exchange rate tended to be a "shock absorber" rather than a "source of shocks" for Canada and the UK, this was less the case for Sweden and Denmark.[9] In the case of a new currency, with a less liquid market and viewed with greater uncertainty, there could initially be even greater volatility in its value.

1.13 While there are limitations to any economic analysis, it is necessary to look at the available evidence in the context of a well understood organising framework. And overall, the main message which emerges from this discussion is simple: two countries might wish to adopt a single currency when the benefits of lowering transaction costs outweigh the costs of relinquishing an independent monetary policy.

Assessment of the UK as a successful currency area

1.14 The analysis in this paper assesses the economic suitability of the current currency arrangements. It then compares them against potential arrangements for an independent Scottish state, using measures of the historical macroeconomic performance of Scotland, the UK and other economies.

1.15 As well as understanding the dynamic nature of any assessment, this judgement is best thought of as applying to a spectrum of suitability. That the UK fits well with the economic criteria for a successful currency area does not exclude the possibility that other arrangements could also work well. However, the evidence considered below suggests that the current arrangements are more appropriate than any of the other currency options that would be available to an independent Scottish state.

1.16 The comparison of the economies of Scotland and the rest of the UK focuses on the "onshore" economy. This is the standard way to assess the current performance of the Scottish economy.[10] Most of the effect of North Sea oil and gas on the economy is likely to be felt through the balance of payments and the fiscal position. Under the current arrangements of a monetary and fiscal union, these two aggregates are determined for the UK as a whole. This suggests that the volatile oil and gas sector would be expected to have relatively similar effects on Scotland and the rest of the UK, and hence that the

[7] Buiter (2000), "Optimal currency area: Why does the exchange rate regime matter? (with an application to UK membership in EMU)" also argued that exchange rate flexibility can at best support adjustment in the short-term but does not provide any adjustment to long-term imbalances and structural problems, and can potentially delay the required structural reforms.

[8] HM Treasury (2003) "The exchange rate and macroeconomic adjustment", *EMU study*.

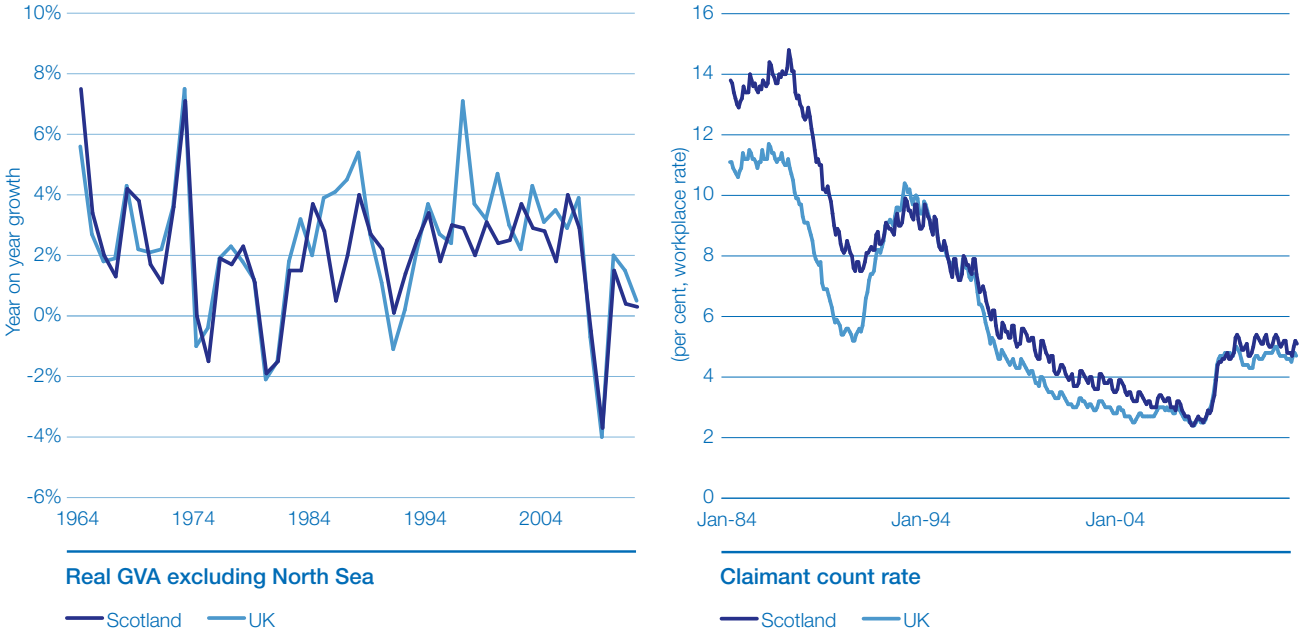
[9] Artis, Ehrman (2000) "The exchange rate. A shock absorber or source of shocks? A study of four open economies."

[10] This is for example the approach adopted by the Fiscal Commission Working Group in their "First Report – Macroeconomic Framework" (2013) to assess Scotland's growth performance (pages 48 to 50).

onshore economy is the relevant comparison. This could change in the event of Scottish independence, as an independent Scottish state would become more directly exposed to its share of the North Sea oil and gas sector. The division of North Sea oil and gas would be subject to negotiation in the event of independence.

1.17 Data available on output and unemployment suggest that the Scottish economy is well synchronised with the UK average (chart 1A). Over the 47 years of available data (1964-2011),[11] annual growth in real gross value added (excluding North Sea oil and gas) averaged 2.0 per cent in Scotland and 2.4 per cent in the UK as a whole. The correlation in growth rates is over 80 per cent. Over the period 1998 to 2011, where better data are available for Scotland, annual growth averaged 1.8 per cent in Scotland compared with 2.2 per cent for the UK as a whole; the correlation between the two growth rates is nearly 90 per cent.

Chart 1A: Growth and unemployment in Scotland and the UK



Source: Scottish Government, Office for National Statistics

1.18 In the labour market, the Scottish claimant count rate has converged towards the UK average since the early 1980s, closing a gap of more than two percentage points in 1984. Correlation in the monthly claimant count rate between Scotland and the UK average over the period 1984 to 2012 is over 95 per cent. (Chart 1A, right hand side panel)

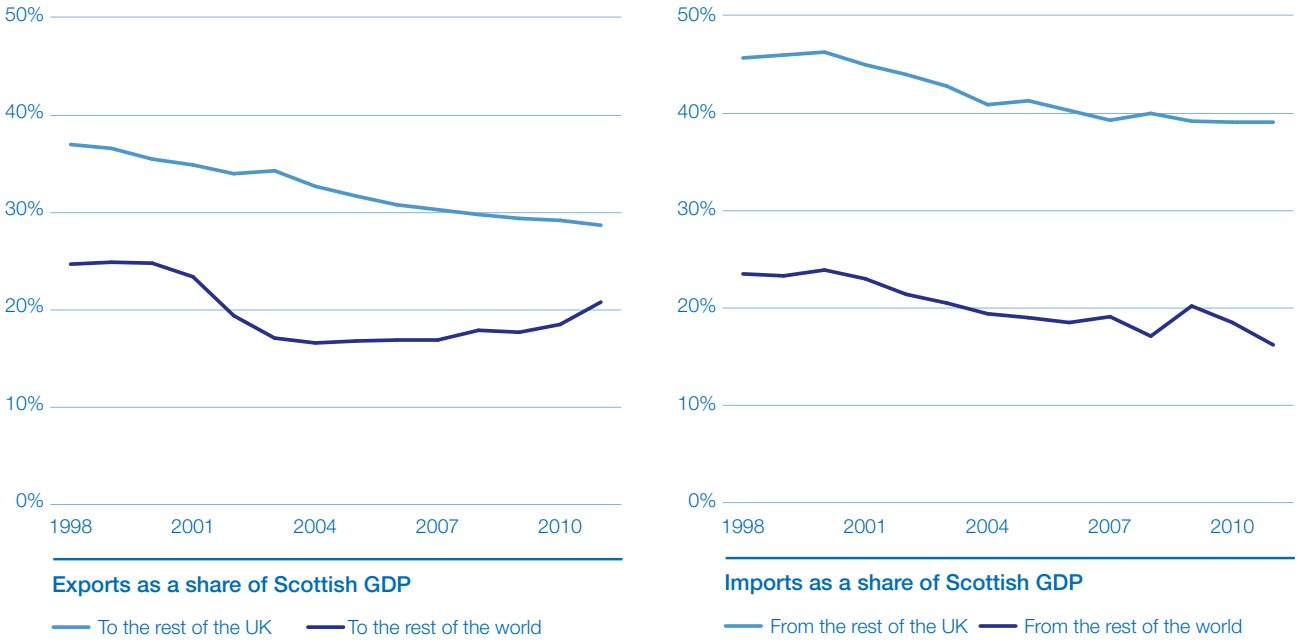
1.19 A striking similarity in the structure of the Scottish economy with the UK average (excluding North Sea oil and gas) is likely to explain some of this synchronisation. Similar structures mean that Scotland and the rest of the UK are exposed to similar economic shocks and growth opportunities. Data on regional gross value added (GVA)[12] show that in 2010, the industrial composition of Scottish GVA (across 20 industries) was one of the closest to the UK average across all regions and devolved countries, with a correlation of nearly 95 per cent. This compared with 87 per cent for Wales and 86 per cent for Northern Ireland.

[11] Data for Scotland from the Scottish Government quarterly GDP publication. Using annual data back to 1963 from the GDP 2010Q1 dataset (for the period 1963 to 1998) and revised data back to 1998 from the GDP 2012Q3 dataset (for the period 1998 to 2011). Data for the UK from the Office for National Statistics, for chained volume measure of GVA excluding North Sea Oil and Gas. ONS series UIZY for data from 1963 to 1995, and KLS2 for 1995 to 2011.

[12] Office for National Statistics, Regional Gross Value Added, Income Approach (December 2012), workplace based GVA by industry groups at current basic prices.

1.20 There is also a very high degree of economic integration between Scotland and the rest of the UK. Experimental data for the expenditure composition of Scottish nominal GDP[13] show that in 2011, Scotland exported £36bn worth of goods and services to the rest of the UK and imported £49bn from the rest of the UK or nearly 30 per cent and 40 per cent of Scottish GDP respectively, as shown in Chart 1B. Exports to Scotland are proportionately less important for the rest of the UK, as total exports for the whole UK were worth £492bn in 2011, ten times greater than the £49bn Scotland imported from the rest of the UK.

Chart 1B: The rest of the UK is Scotland's main economic partner



Source: Scottish Government, Office for National Statistics

1.21 The UK has shared a single currency, a common regulatory framework and harmonised transport and communication links for three centuries. This has resulted in highly integrated supply chains, with businesses working seamlessly with partners in Scotland and in the rest of the UK alike, supporting the large trade flows between the two partners.

1.22 Migration flows are also high. In 2010-11, nearly 44,000 people moved from Scotland to the rest of the UK, of which more than 35,000 were of working-age; and nearly 41,000 moved from the rest of the UK to Scotland, of which about 33,000 were of working age (or about one per cent of the Scottish population of working age).[14]

1.23 Finally, the UK as a whole benefits from a flexible economic structure and regulatory environment, which allows the economy in Scotland and in the rest of the UK to adjust rapidly to shocks through adjustments to wages and prices.

1.24 There is complete integration of financial markets between Scotland and the rest of the UK, as banks registered anywhere in the UK can freely operate in any part of the UK. This ensures that shocks to individual parts of the UK economy that could destabilise the financial sector locally are absorbed through a more diversified exposure to financial risk. The single UK banking system also helps support people's incomes and businesses' cash

[13] Scottish Government, Scottish National Account Project (2012Q3), table 9

[14] General Registry Office for Scotland, National Health Service Central Register, Patients movements mid-2010 to mid-2011 (working age: 16 to 64); In, out and net migration by age group between Scotland and overseas, 2001/02 to latest.

positions through temporary borrowing (via good functioning of the credit channel). At the same time, exposure to different parts of the economy (through the capital channel) helps diversify sources of income.

1.25 There is also a high degree of fiscal integration across the different parts of the UK. This means that fiscal resources can easily be deployed from parts of the UK that have favourable economic conditions towards those with less favourable conditions in response to shocks to individual parts of the UK. This happens through the automatic stabilisers[15] but discretionary actions by the Government are also possible. This pooling of fiscal resources across the UK allows for a pooling of exposure to economic risks, as fiscal resources can be deployed across the UK, where and when they are needed most.

1.26 The conclusion of this analysis is that Scotland and the rest of the UK are economically well placed in the current UK arrangements. The status of the UK as a **full fiscal and political union** has played an important role in this conclusion:

- the existence of a full political union reinforces the **credibility of the long-term commitment** for a single currency between Scotland and the rest of the UK. This limits uncertainty and exchange rate risks and supports trade and cross-border investment, especially for long-term transactions;
- the existence of a **single, unified domestic market** is likely to be an important driver of the large flows of goods and services;
- the existence of a **unified welfare system and the absence of any restrictions to the movements of workers** (including full recognition of education) is likely to support labour market mobility;
- **common financial sector regulation and mutualised mechanisms of financial crisis resolution** are key components of stable financial market integration across the UK; and
- **common fiscal policy** allows for fiscal risk-sharing. It also ensures that fiscal policy follows similar objectives in all parts of the UK, which is likely to have supported the observed synchronisation in economic conditions between Scotland and the rest of the UK. It also facilitates the coordination of monetary and fiscal policy across the UK.

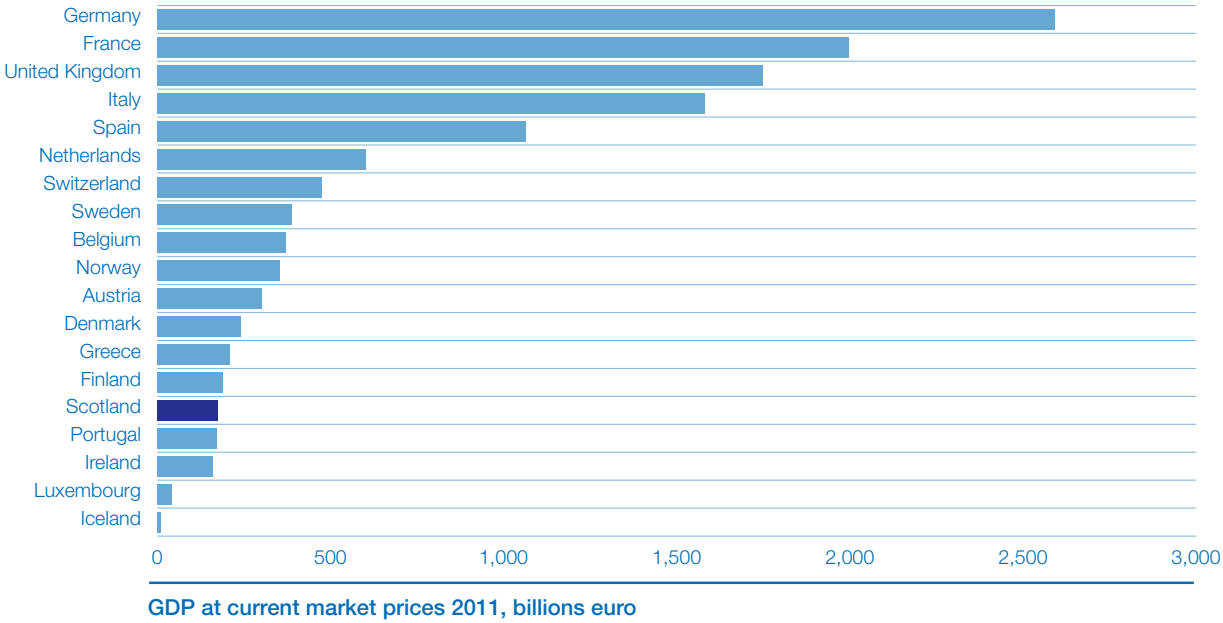
1.27 However, this analysis is inevitably a backward-looking assessment using historical economic data. An independent Scottish state would be a different economic entity. In particular its size, volatility and international economic integration would determine the appropriate choice of macroeconomic framework. The following section sets out the likely characteristics of an independent Scottish state and their implications for the suitability of its possible currency options.

[15] An economic downturn will lead to an increase in welfare payments and a decrease in tax revenues.

The economic characteristics of an independent Scottish state

1.28 An independent Scottish state would be a relatively small economy among developed nations. Chart 1C provides a ranking of GDP of Western European economies, including a hypothetical independent Scottish state.[16] It shows that Scotland would be closest in size of GDP to Portugal, Ireland, Finland, Greece and Denmark, about half the size of Norway, Belgium or Sweden and fifteen times smaller than Germany.

Chart 1C: Size of economies



Source: Eurostat; Scottish National Account Project, Scotland's GDP including a geographic share of North Sea oil and gas, converted at 2011 euro-sterling exchange rate (Bank of England)

1.29 Economic size is not, in and of itself, an important driver of an economy's success, nor does it determine the choice of a currency regime. For example, Portugal, Ireland, Finland and Greece are all in the euro area; Denmark has its own currency pegged to the euro; and Norway and Sweden both have their own floating currencies. But the dynamics of small economies are inherently different from larger economies such as the UK. These differences are reflected in the currency and policy decisions that smaller countries have adopted. In particular, small countries tend to trade more and to be inherently more volatile than larger countries.[17]

1.30 Smaller countries tend to be more reliant on trade, and their trade patterns can be dominated by a limited number of partners. This increases the benefits of exchange rate stability and lower transaction costs from joining a currency zone with major trading partners. Joining a currency zone can also improve access to larger and more liquid markets. The greater degree of trade specialisation can also mean that smaller economies are more exposed to external shocks, and as a result tend to be more volatile. They therefore have the potential to benefit more from the macroeconomic policy flexibility that floating currencies can provide.

[16] International comparisons presented here and in following chapters (Chart 5B in particular) include the contribution from North Sea oil and gas, based on the assumption that an independent Scottish state would receive a geographical share of North Sea oil and gas as estimated by the Scottish Government (Scottish National Account Project, table 10, 2011Q3). In practice, the exact share of North Sea oil and gas of an independent Scottish state would be subject to negotiations with the continuing UK. It is unclear what the outcome would be.

[17] Alesina and Spolaore (2003) "The Size of Nations".

1.31 The experience of the global financial crisis suggests that countries with more flexible macroeconomic policy regimes, in particular with more direct control on their monetary policy, can be better equipped through periods of very severe economic stress. It also suggests that fiscal prudence is particularly important for smaller, more volatile economies.[18]

1.32 Several small countries within Europe with their own currencies, such as Denmark, Norway, and Sweden have used a variety of approaches to manage this volatility.[19] Countries of this size have the potential for volatility but over time have overcome the challenge to establish a credible track record of monetary and fiscal competence. Credibility takes time to build, and these economies have recorded budget surpluses for relatively long periods. Once this policy credibility is achieved it allows countries to take different approaches to successfully managing their own currency.

1.33 The Scottish economy currently shares some of these characteristics. It is a very open economy with trade patterns dominated by its relationship with the rest of the UK and a strong exposure to exports in a small number of sectors. The Global Connection Survey data published by the Scottish Government show that in 2011: 16 per cent of total exports (excluding North Sea oil and gas) were in the financial and insurance activities; 11 per cent were manufactured food products and beverages (of which six per cent were spirits); nine per cent were wholesale and retail trade; eight per cent were manufactured refined petroleum and chemical products; and seven per cent were utilities (e.g. electricity).[20]

1.34 It is likely that an independent Scottish state would retain many of its trading links with the UK and that export advantages in the energy, food and drink and financial sectors would persist notwithstanding potentially higher transaction costs. The Scottish economy would remain particularly exposed to economic developments in the UK as well as changes to the domestic supply and global demand for a particular set of industries. As described earlier, an independent Scottish state could also be more exposed to the oil and gas sector than the UK as a whole. This would have potentially large implications for the balance of payments, the real exchange rate (see Box 1C) and the fiscal position.

1.35 These features of an independent Scottish economy would shape the balance of economic risks and opportunities, and influence the appropriate choice of currency. It is in this context that the rest of this chapter assesses the likely suitability of an independent Scottish state's alternative currency arrangements. This assessment is based on current economic trends and existing patterns of international trade. The experience of Ireland, summarised in Box 1B, shows that this assessment could change over time.

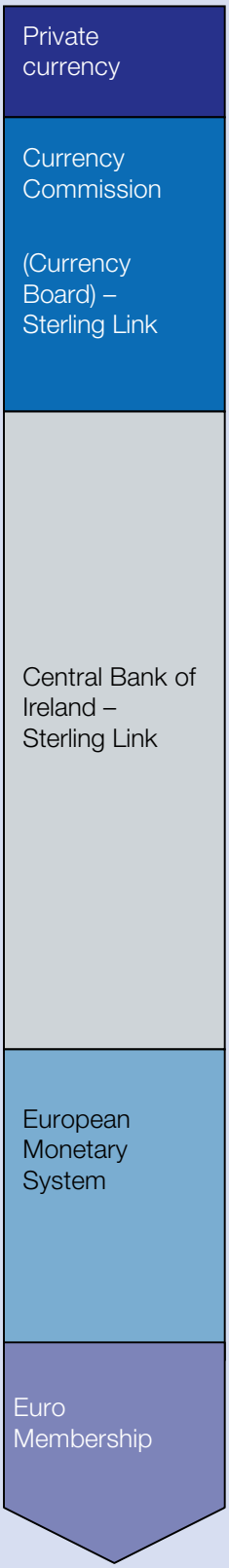
[18] OECD (2010) "Counter-cyclical economic policy": "fiscal safety margins need to be significantly larger to assist stabilisation in a small, open economy".

[19] See, for example, the discussion in "Fiscal Commission Working Group First Report Annex – Assessment of key currency options" (2013). (paragraph 111, page 34)

[20] www.scotland.gov.uk/topics/statistics/browse/economy/exports/GCSIntroduction.

Box 1B: The currency choices of Ireland from the 1920s

Following the independence of the Irish Free State in April 1922, the Irish currency regime changed progressively until breaking the link to sterling in March 1979 and joining the European Monetary System and later the euro.



1922

1926: introduction by the Irish Government of a series of distinctively Irish coins
1926-27: *Commission of Inquiry into Banking and the Issue of Notes*, chaired by Professor Henry Parker Willis

1927

Following the recommendations from the *Willis Commission*:
– Establishment of a new currency at par with sterling (first notes were issued in 1928);
– Creation of the Currency Commission (in 1927) to administer the introduction of the new Irish currency notes against receipt of sterling
– Consolidation of the existing system of private bank note issuance.

1930s: work of the *Government Commission of Inquiry into Banking Currency and Credit*

1943

1943: following the recommendations of the *Government Commission of Inquiry into Banking Currency and Credit,* the Currency Commission was replaced by the Central Bank of Ireland, with expanded powers

Until 1955: continued to operate de facto as a currency board: no lending to the banks nor the Government i.e. there was no lender of last resort; continued 100 per cent backing of Irish notes by gold and sterling; no efforts to domestically influence the supply of credits (through regulations or interest rate action)

After 1955: started to introduce more flexible features: modest lending to banks and the Government; relaxed rules for the backing of the currency (to include US dollars and some domestic assets); introduction of reserve requirements on banks and enforcement of a domestic credit policy.

In 1971 (*Central Bank Act*), the parity of the currency no longer required legislative change and could be altered by the Minister for Finance after consultation with the Central Bank.

Over the 1970s: started to question the benefits of the sterling link
1976: publication of a lecture by the Governor of the Central Bank of Ireland, "Should the sterling link be broken?" (Whitaker, 1976)

1979

15 December 1978: the Government announced that Ireland would enter the new European Monetary System
13 March 1979: the European Monetary System began to operate, without participation of the UK
30 March 1979: link between the Irish pound and sterling was broken when movements in sterling would have conducted the Irish pound to break the upper fluctuation limit against the Belgian franc.

1999

1 January 1999: Ireland joined the euro at a rate of 1 euro to 0.79 Irish pounds.
1 January 2002: the euro replaced the Irish pound in circulation.

Sources: Honohan, P. (1994) "Currency Board or Central Bank? Lessons from the Irish Pound's Link with Sterling, 1928-79"
Kelly, J. (2003): "The Irish Pound: From Origins to EMU" *Central Bank of Ireland Quarterly Bulletin Articles* (March 2003, pp 89-115)

Economic suitability of other currency arrangements for an independent Scottish state

Sterling currency zone

1.36 Joining a sterling currency zone could take the form of the following currency choices: a formal sterling currency union, using sterling unilaterally (sterlingisation), or adopting an independent Scottish currency with fixed exchange rates against sterling. At different times Ireland has tried variants of these currency options.

1.37 The earlier analysis established that Scotland is economically well placed as part of the UK. This suggests that remaining part of a sterling currency zone, formally or informally, could be an option for an independent Scottish state. However, this conclusion is conditional on the existing economic and institutional framework in the UK. This framework would change immediately following independence. The most important implication would be the loss of full political and fiscal union with the rest of the UK.

1.38 The loss of full political union would reduce confidence in the long-term commitment of an independent Scottish state and the continuing UK to maintain a common currency. This effect would be larger, the weaker the form of the sterling currency area: from stronger political commitment in a formal sterling currency union, to the weaker commitment of a Scottish currency pegged to sterling. If another currency option was thought to be more economically suitable for an independent Scottish state in the longer term, financial markets might also test the strength of the political commitment to a different short-term choice as happened with the Czechoslovakian monetary union in 1993 (see box 3B for more detail). The loss of political union could also increase the perceived risk of circumstances arising in which the currency union might be dissolved. This would increase uncertainty and the risk premium faced by the public (and potentially the private) sector on their borrowing.

1.39 The loss of fiscal union could also reduce the suitability of the Bank of England monetary policy for Scotland, as different fiscal policies could lead to differences in economic conditions and affect the synchronisation of business cycles observed under the current arrangements.

1.40 It is clear that the option of an independent Scottish state remaining part of a sterling currency zone would not be a continuation of the status quo. It would be a profound economic change that would lead to a fundamentally different economic relationship between Scotland and the rest of the UK. This difference would need to be reflected in appropriate changes to an independent Scottish state's institutional and macroeconomic framework. A detailed assessment of the implications for Scotland of continuing to use sterling is set out in Chapters 3 and 4.

Euro currency zone

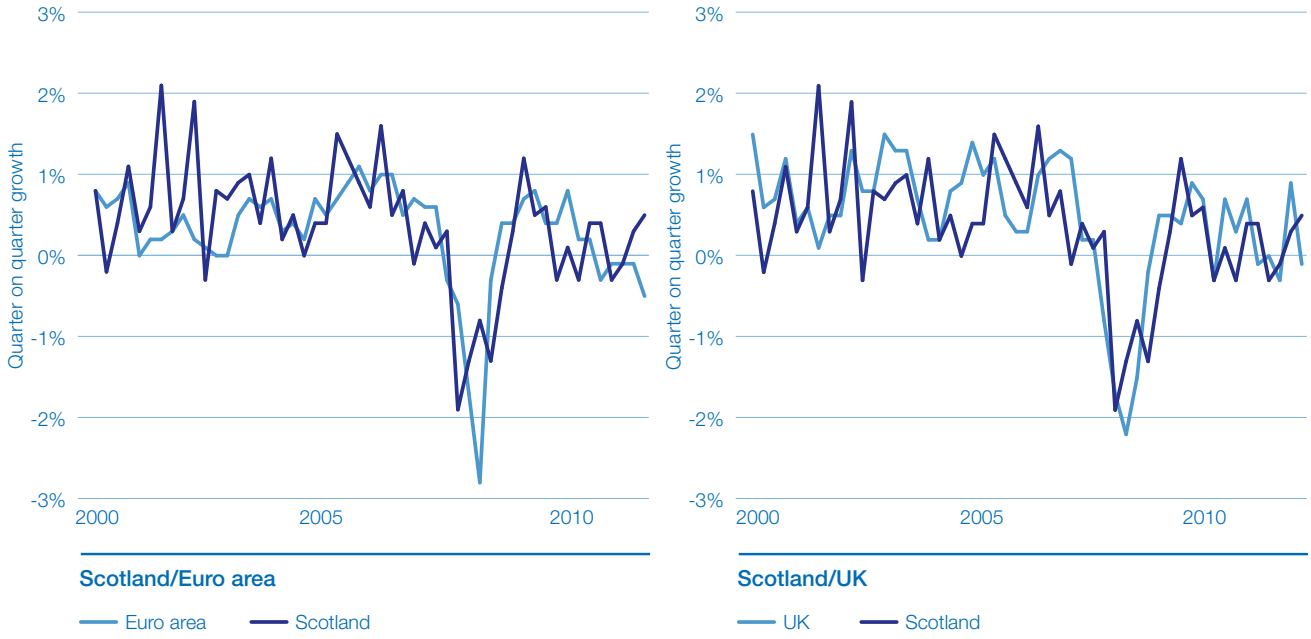
1.41 Joining a euro currency zone could take the form of the following currency choices for an independent Scottish state: joining the euro area or adopting an independent Scottish currency with a fixed exchange rate against the euro.

1.42 An assessment of the economic suitability of an independent Scottish state joining a euro currency zone suggests that this option would be less appropriate than the current UK arrangements.

1.43 Adopting the euro would reduce an independent Scottish state's transaction costs with the euro area countries. However the economic benefit would be unlikely to offset the costs of introducing an exchange rate risk with the rest of the UK. This is because the rest of the UK is, by some distance, Scotland's primary economic partner.

1.44 Chart 1D shows a relatively strong synchronisation in business cycles between Scotland and the euro area, although only a limited historical comparison is possible, and is dominated by the large swing in output in the 2008 recession. Between the first quarter of 2000 and the third quarter of 2012, quarterly growth in real GVA averaged 0.4 per cent in Scotland (excluding North Sea oil and gas) and 0.3 per cent in the euro area; the correlation between the two growth rates was above 55 per cent. (This compares with an average quarterly growth of 0.5 per cent for the UK as a whole, correlated at nearly 65 per cent with quarterly growth in Scotland). This would tend to indicate that the European Central Bank's (ECB) monetary policy would on average be relatively well adapted to Scottish conditions. However, a comparatively short period of cyclical convergence is not a guarantee that this convergence could be sustained over time in the face of future shocks.

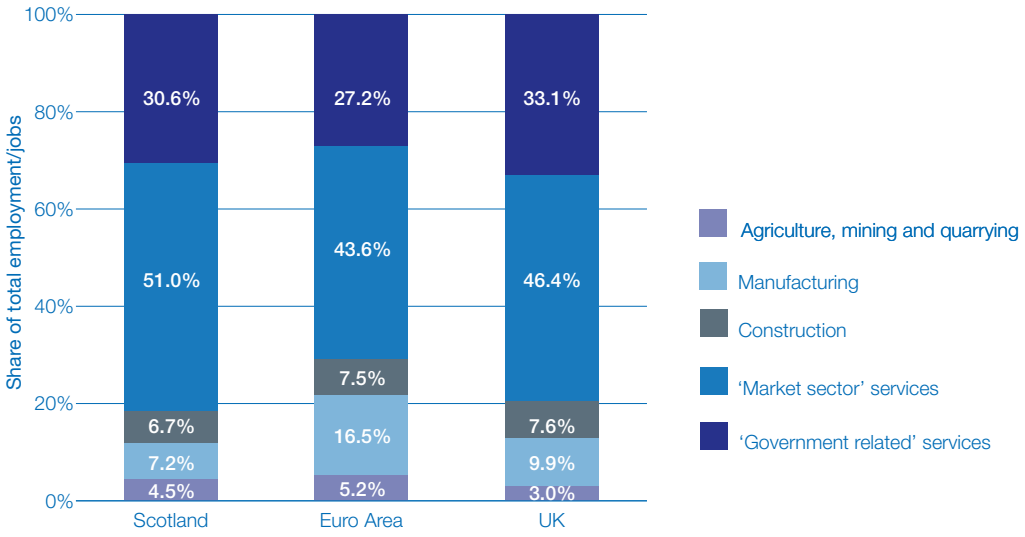
Chart 1D: Real GVA growth in Scotland, the euro area and the UK



Source: Scottish Government, Eurostat, ONS

1.45 Further, Chart 1E shows that the industrial structure of the Scottish economy displays some important differences from the euro area. In particular, manufacturing is a much larger share of employment in the euro area than in Scotland. This suggests that Scotland would be more likely to be hit by shocks that do not affect the euro area than to be hit by shocks that do not affect the UK as a whole. And even if shocks affecting the Scottish economy and the wider euro area were broadly similar, their effects may be transmitted differently through the economy by differences in financial, trade, or housing-market structures.

Chart 1E: Employment composition in Scotland, the euro area and the UK (2011)



Source: Eurostat, ONS[28]

1.46 In addition, there are differences between members of the euro area that are masked by the area-wide average but could create tensions for the single monetary policy. In the past five years, the euro area unemployment rate has increased by more than four percentage points, but over the same period the unemployment rate has fallen to below six per cent in Germany, and risen to 26 per cent in Spain.[22] As a whole, Scotland as part of the euro currency zone would be more likely to be exposed to shocks that the ECB would not accommodate than it currently is under the Bank of England's monetary policy.

1.47 With greater risks that ECB policy would be less well adapted to Scottish economic conditions, cross-border flows could help the economy to adjust. Details are not always available for Scotland's integration with the euro area, but data on movements of goods, services and people between Scotland and the European Union can provide an upper bound for Scotland's integration with the euro area. The data suggest that Scotland is currently much less integrated with the euro area than it is with the rest of the UK. Flows of capital and labour between Member States would therefore provide less of an avenue for economic adjustment if an independent Scottish state were to join the euro area.

1.48 Data from the Global Connection Survey published by the Scottish Government provide some detail on the geographic destination of Scottish exports of goods and services. It shows that in 2011, despite a sharp increase in exports to the EU, Scotland exported more than four times more to the rest of the UK than to the EU as a whole.[23] The adoption of the euro could divert some of an independent Scotland's trade with the UK towards the euro area, but experience from the euro area suggests that this process would be likely to be slow. The UK would be expected to remain Scotland's main partner for some time albeit with higher transaction costs for businesses and consumers.

[21] Note that employment composition data are reported from the Labour Force Survey (LFS) for the euro area and for the UK (as published by Eurostat) but the only data published for Scotland are ONS data from the Workforce Jobs Survey (WFJ). Comparison of LFS and WFJ data for the UK suggests that some small differences are likely to be due to differences between the two sources (slightly higher weight for manufacturing and for Government related services, lower weight for market sector services in LFS than in WFJ), but the large difference in exposure to manufacturing between Scotland and the euro area is very likely to be due to underlying differences in the industrial composition of the economy.

[22] Eurostat, ILO unemployment rate, all aged 15 to 74, data for 2007Q4 to 2012Q4.

[23] Data are not available for the euro area only, but EU data provide an upper bound for trade with the euro area.

1.49 Migration flows between Scotland and the EU remain of a much smaller scale than between Scotland and the rest of the UK, despite the increase driven by new EU Member States since 2004 (some of whom are not yet part of the euro area). Fewer than 20,000 people immigrated to Scotland from the European Union every year on average over the past five years. In contrast more than 45,000 people immigrated to Scotland from the rest of the UK.[24] Over the same period, fewer than 10,000 people emigrated from Scotland to the European Union every year on average, compared with more than 40,000 people to the rest of the UK.

1.50 The process of "endogenous convergence", discussed above, and the continual evolution of an economy's structures and institutions would probably erode some of these differences over time and increase integration. Moreover, it is likely that, in this situation, the authorities would take some specific policy actions to increase the degree of economic convergence. But this tends to be a gradual process. It would take a long time before the degree of convergence and integration that currently exists between Scotland and the rest of the UK could be reached between an independent Scottish state and the rest of the euro area.

1.51 More limited integration between Scotland and euro area countries also suggests that inter-country flexibility will provide less support to the economy's adjustment mechanisms. In this context, internal flexibility (in prices and wages) would help the Scottish economy to adjust to Scotland-specific shocks.

An independent Scottish currency

1.52 An independent Scottish state could introduce its own currency and leave it to float freely in international markets. The main advantage of a flexible exchange rate regime would be to allow movements in the nominal exchange rate to support the adjustment of Scotland's real exchange rate in response to a shock. These exchange rate movements would relieve some of the pressure on prices and wages to smooth the adjustment.

1.53 However, gaining the benefit of a flexible nominal exchange rate would also come at a cost for the Scottish economy and for the continuing UK, by introducing exchange rate risk and increasing transaction costs. The earlier analysis concluded that, relative to the current arrangements, the costs from introducing an exchange rate risk would be likely to be large compared to the benefits for an independent Scottish state from flexible exchange rates.

1.54 The idea that the exchange rate may also be a source of shocks is particularly relevant to this option. An independent Scottish currency, as a newly introduced exchange rate, with a relatively illiquid market, and an economy with a large financial sector and exposure to the inherent volatility of oil and gas, could be more vulnerable to exchange rate changes that would be destabilising for the Scottish economy as a whole (Box 1C). As part of the UK, Scotland is a very open economy (with imports and exports representing respectively 55 per cent and 50 per cent of GDP in 2011). This exchange rate volatility could create conflicts for economic policy between the stabilisation of inflation and output.

[24] Data on migration between Scotland and the European Union are obtained from the International Passengers Survey results published by the Office for National Statistics; Data on migration between Scotland and the rest of the UK are based on the National Health Service Central Register, published by the General Register Office for Scotland.

Box 1C: Exposure to oil and the real exchange rate

The allocation of oil and gas reserves would be a key element of any independence negotiations. Depending on the outcome of negotiations, an independent Scottish state may be much more exposed to the oil and gas sector than the UK economy as a whole. In this scenario, the real exchange rate of an independent Scottish state would be expected to be much more directly influenced by changes in the price or production of oil and gas. For example, an increase in oil prices or production would have two effects on the oil-exporting sector:

- an increase in the value of exports; and
- an increase in investment in the oil sector.

This would, in turn, have two main effects on the rest of the Scottish economy:

- an income effect, as some of the extra income from trade and investment could be spent in the domestic economy; and
- a reallocation effect, as investment in the oil sector might displace some factors of production away from the non-oil sector.

These effects would lead to a real exchange rate appreciation through an appreciation in the nominal exchange rate (when exchange rates are flexible) and/or higher domestic inflation. Appreciation of the real exchange rate can have a negative impact on the tradable non-oil sector, by making it uncompetitive (Dutch disease).[1] This can have long-term negative costs for the economy, especially if the non-oil export sector provides wider benefits to the economy (e.g. from knowledge spillovers). Volatility in the real exchange rate of the non-oil sector can also discourage investment. However, the size of these effects will vary depending on the share of the extra income that is spent domestically, rather than abroad, and the size of the investment response.

For example, the increase in oil prices in recent years has had only limited effects on the Norwegian economy. This is because Norway saves a significant proportion of its oil and gas revenue in a pension fund. Much of this saving has been invested abroad, and the outflow of capital has limited upward pressure on the exchange rate.[2] Increased saving has also meant that the impact on domestic demand has been limited. Norwegian production of oil and gas has also been falling throughout the 2000s, which has limited the increase in investment.

The UK's oil sector is largely foreign-owned, and a large part of post-tax profits are expected to be sent abroad, with little effect on domestic demand. In addition, North Sea production peaked in 1999 and has since fallen by more than 60 per cent. However, fluctuations in oil prices and production would have a large effect on the fiscal revenues available to an independent Scottish state. Decisions on how to use the fiscal revenues could have important implications for the impact of the oil sector on the real exchange rate.

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1 "Dutch disease" is named after the economic crisis that affected the Netherlands in the 1960s following the discovery of North Sea gas and the sharp appreciation in the Dutch gilder.

2 However, an oil fund may not be fully successful in 'sterilising' the effect on the real exchange rate, if markets and agents are forward looking and anticipate that accumulated reserves will ultimately be spent.

Conclusion

1.55 **Scotland and the rest of the UK are economically well placed as members of a single currency area in the current UK arrangements.** A high degree of economic and political integration means the use of sterling as a single currency benefits all parts of the UK. The pooling of fiscal resources allows for a pooling of exposure to economic risks, as fiscal resources can be deployed across the UK, where and when they are needed most. This is complemented by the private sector risk-sharing provided by the UK's single market and fully integrated financial sector.

1.56 However this analysis is inevitably a backward-looking assessment using historical economic data. **An independent Scottish state would be a different economic entity.** An independent Scottish state would be a relatively small economy among developed nations. Economic size is not, in and of itself, an important driver of an economy's success, nor does it determine the choice of a currency regime. But the dynamics of small countries' economies are inherently different from larger economies such as the UK.

1.57 **An independent Scottish state remaining part of a sterling currency zone would be very different to the current arrangements.** It would be a profound economic change that would lead to a fundamentally different economic relationship between an independent Scotland and the continuing UK.

1.58 An assessment of the economic suitability of an independent Scottish state joining a euro currency zone suggests that **adopting the euro would be less appropriate than the current UK arrangements.**

1.59 **An independent Scottish currency could help the economy to adjust through an independent monetary policy and choice of appropriate exchange rate regime.** An independent Scottish state would be a relatively small open economy with a large financial sector and greater exposure to the oil and gas sector. Greater policy flexibility may help to manage an inherently more volatile economy. **But a newly introduced exchange rate, with a relatively illiquid market, could be more vulnerable to exchange rate changes that would be destabilising for Scotland's trade with its main international partners (notably, the continuing UK) and the Scottish economy as a whole.**

Chapter 2: Macroeconomic frameworks and currency options

The UK's macroeconomic framework provides for a **full coordination of monetary and fiscal policy.** The recent global financial crisis, and the experience of the euro area in particular, have highlighted two important benefits from an integrated framework:

- governments that are able to borrow in their own currency, underpinned by a full political union, are able to borrow more cheaply. This increases their **capacity to use fiscal policy to support the economy in response to a crisis;** and
- a simpler model for political accountability facilitates **rapid and coordinated emergency intervention in response to a financial crisis.**

This framework has been **able to respond flexibly to the crisis and its structure and institutions continue to evolve.** In the event of independence, an independent Scottish state would need to establish its own macroeconomic and institutional framework. Four currency options could in principle be available to an independent Scottish state. These are:

- forming a formal sterling currency union with the UK;
- adopting sterling unilaterally (sterlingisation);
- joining the euro area; or
- introducing an independent Scottish currency.

Each option would have different implications for the exact macroeconomic policy framework available to an independent Scottish state – for its monetary institutions but also for the role and scope for fiscal policy and for the design and effectiveness of its financial stability arrangements. **None of the options are likely to provide the same scope to use fiscal policy to support the economy and the same effectiveness for the resolution of financial crises as is currently available as part of the UK.**

Introduction

2.1 This chapter sets out the interaction of monetary institutions, fiscal policy and financial stability in the UK's macroeconomic framework. A rapid overview of the four currency options and their framework and institutional implications follows.

The UK's macroeconomic framework

Monetary policy

2.2 At the centre of the UK's monetary policy arrangements is the independent Monetary Policy Committee (MPC) of the Bank of England, which is operationally responsible for monetary policy. The Bank of England Act 1998 states that the objectives of the MPC are to maintain price stability, and subject to that, to support the economic policy of the Government. The Act requires HM Treasury to specify the remit for price stability and the Government's economic policy objectives at least once in every period of 12 months.

2.3 At Budget 2013 the Chancellor of the Exchequer set an updated remit for the MPC based on the Government's *Review of the monetary policy framework*. The Chancellor reaffirmed the inflation target of two per cent, as measured by the 12-month increase in the Consumer Prices Index. The Chancellor also updated the remit to clarify the trade-offs that are involved in setting monetary policy to meet a forward-looking inflation target. Box 2A provides more detail on the *Review of the monetary policy framework* and the updated remit. The remit also defines the Government's objectives for growth and employment, to be "to achieve strong, sustainable and balanced growth that is more evenly shared across the country and between industries".

Box 2A: Review of the monetary policy framework in the UK

Based on a *Review of the monetary policy framework* in the UK, published by the Government alongside Budget 2013, the Government has updated the remit for the MPC.

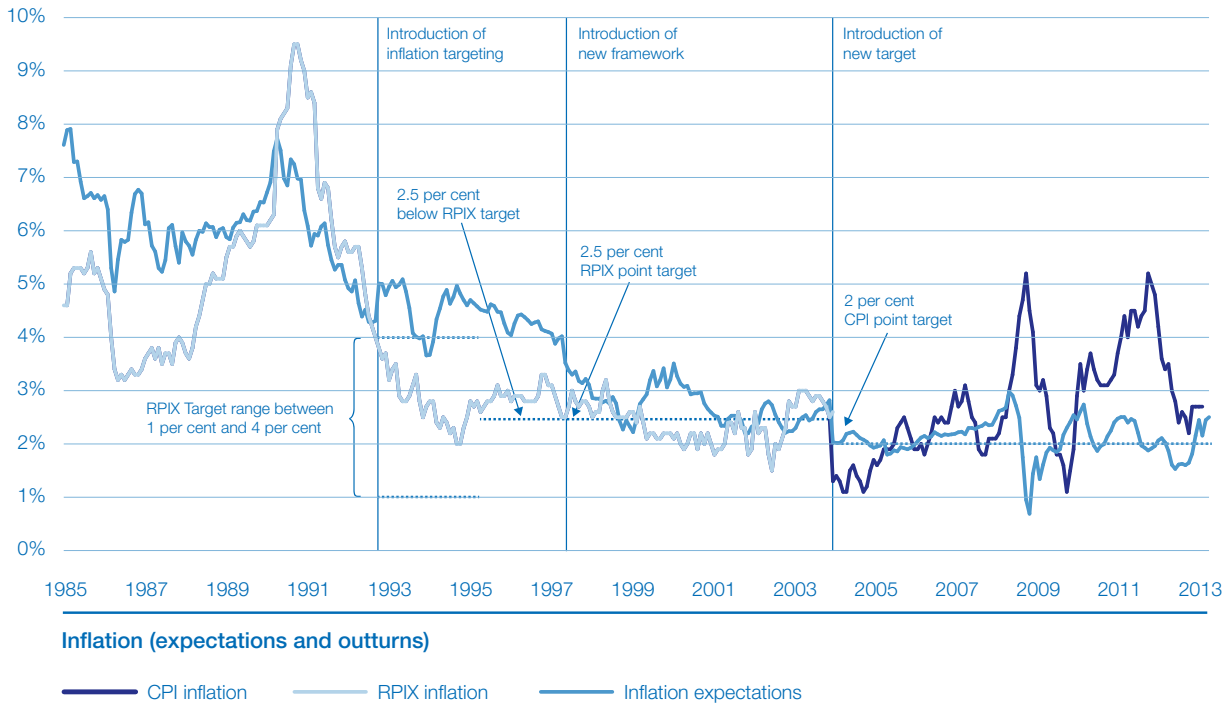
The *Review* includes an assessment of the performance of inflation targeting in the UK over two decades, which have seen low and stable inflation and anchored inflation expectations. Output growth was also relatively stable in the 15 years to 2008 until the global financial crisis and recession of 2008-09. Based on the assessment set out in the *Review*, the Government believes that low and stable medium-term inflation is a necessary, though not sufficient, pre-requisite for economic prosperity.

The updated remit, aside from retaining a flexible inflation targeting framework with a 2 per cent CPI inflation target which has served the UK well, has clarified the trade-offs that are involved in setting monetary policy to meet a forward-looking inflation target while giving due consideration to output volatility. The remit requires that the MPC promotes understanding of these trade-offs, which is particularly important in exceptional circumstances such as those currently prevailing. The remit also recognises that given ongoing economic challenges, the potential use of unconventional instruments is likely to remain important. In particular, the MPC has been requested to assess the merits of the approach of forward guidance through intermediate thresholds – policy commitments conditional on future economic developments – in order to influence expectations and thereby meet its objectives more effectively. The *Review* and updated MPC remit ensure the UK's monetary policy framework remains at the forefront of international best practice.

Box 2A (continued): Review of the monetary policy framework in the UK

The chart below shows that long-term inflation expectations in financial markets have remained anchored since the introduction of inflation targeting. Relative to much of the post-war period, inflation has remained low and stable since 1992. Inflation expectations fell after 1992, and again after the MPC was granted operational independence in 1997.

Market inflation expectations and inflation outturns, 1985-2013



Source: Office for National Statistics, Bank of England and HM Treasury calculations

The measure of inflation expectations shown is the rate implied by the gilt yield curve. This has been adjusted by -0.8 percentage points during the period of CPI inflation targeting to show approximate expectations of CPI inflation. The size of the adjustment corresponds to the average difference between RPIX and CPI inflation over the period January 1997-January 2013.

The last data points are January 2013 for CPI inflation and March 2013 for inflation expectations.

Inflation expectations data is the monthly average rate except for March 2013, which is the average of daily rates between 1 and 14 March.

2.4 The MPC is accountable to the UK Government for the remit. The Bank of England is accountable to the UK Parliament through regular reports and evidence presented to Parliament and scrutinised by the Treasury Select Committee. The Bank is accountable to the public at large through the monthly publication of the minutes of the Monetary Policy Committee meetings and the quarterly *Inflation Reports*. The remits for the MPC since 1997 have required the Governor to write an "open letter" to the Chancellor whenever inflation moves away from the target by more than one percentage point in either direction, on the day that CPI data is published. This provides a formal mechanism of transparency and accountability in the event of appreciable deviations from target. The remit set at Budget 2013 now ensures a more meaningful exchange about the MPC's strategy to return inflation to the target after consideration of the trade-offs, by requiring the open letter from the Governor to be sent alongside the minutes of the MPC meeting that follow the

publication of CPI data. This allows the MPC time to form and communicate its strategy, referring as necessary to the latest Inflation Report and forecasts.[1]

2.5 The Chancellor of the Exchequer is responsible for appointing the four external members of the MPC. Members of the Court of the Bank of England and the Governor of the Bank of England are Crown appointments. A non-voting representative from the Treasury attends MPC meetings to ensure appropriate coordination of monetary and fiscal policy, including by briefing the MPC on fiscal policy developments and other areas of the Government's economic policies. Members of the MPC do not represent particular parts of the UK. The Bank of England is responsible for monetary policy over the entire UK and is accountable to all parts of the UK through the UK Parliament.

Fiscal policy

2.6 The UK's fiscal model is characterised by a high degree of pooling of tax revenues combined with substantial devolution of spending powers. While this model continues to evolve, notably through the devolution of tax and borrowing powers in the recent Scotland Act 2012, it aims to balance the benefits of devolved decision-making against ensuring sufficient fiscal risk-sharing to support all parts of the UK.

2.7 The Scottish Parliament is responsible for the majority of Scotland's public spending. Much of the spending undertaken by the UK Government is on welfare payments, such as unemployment benefits, which provide an automatic stabilisation in response to an economic downturn. Following the implementation of the Scotland Act 2012, taxes devolved to the Scottish Parliament will fund around one-third of the spending for which it is responsible. Funding a substantial share of total spending through tax revenues collected at the UK level provides a way for the Scottish economy to adjust in the event of difficulty. In response to an economic downturn in Scotland, tax revenues automatically fall, relieving some of the pressure on the private sector, while spending continues to be funded by tax revenues from across the UK. The same mechanism means that Scottish tax revenues also help support the rest of the UK when the need arises.

2.8 The existence of a large, unified fiscal base and centralised borrowing also ensures better access to borrowing when this is necessary to help stabilise the economy in response to a UK-wide shock. The UK Government is able to borrow against the more certain prospects provided by a larger and more diversified tax base and in a currency over which it has full and direct control. It has a long track record of managing public finances. These characteristics ensure markets' confidence in the UK fiscal sustainability and ensure that the UK Government can borrow at an acceptable cost when it needs to do so.

2.9 The recent global financial crisis has emphasised the importance of a credible framework for fiscal management in times of severe economic stress. The UK framework has allowed the UK Government to support all parts of the UK during this period. Responding to weaknesses exposed by the crisis, this framework is evolving to strengthen its effectiveness and credibility, including through the introduction of the independent Office for Budget Responsibility. The OECD commented in its latest *Economic survey of the United Kingdom* that the UK benefited from a "strong institutional framework, including the independent OBR, tasked with producing the official economic and fiscal forecasts".[2]

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[1] The remit requires the Committee to set out the following in the open letter: the outlook for inflation and the reasons why inflation has moved away from target; the policy action the Committee is tabling in response; the horizon over which the Committee judges it is appropriate to return inflation to the target; the trade-off that has been made with regard to inflation and output volatility in dertermining the scale and duration of any expected deviation of inflation form the target; and how this approach meets the Government's monetary policy objectives.

[2] OECD (2013) "Economic Survey of the United Kingdom" (page 16).

Financial stability

2.10 The Bank of England, as the UK central bank, plays an important role in the crisis resolution aspects of financial stability by providing lender of last resort facilities to the UK's financial sector. There are various aspects to the role of lender of last resort of a central bank and how it interacts with governments' wider financial stability interventions. Box 2B provides more details on the function of lender of last resort and its fiscal implications.

2.11 The UK's macroeconomic framework has continued to evolve in response to the challenges posed by the financial crisis. The framework provides clear governance and political accountability that facilitates rapid crisis resolution decisions when the need arises. The Memorandum of Understanding of Crisis Management annexed to the Financial Services Act 2012 reinforces this framework. It makes clear that in a financial crisis, while the Bank of England continues to have operational responsibility, it is the Chancellor that is solely responsible for the commitment of public funds. This decision rests explicitly with the UK Government and not the central bank.

2.12 Through the Financial Services Act 2012,[3] the Bank of England will be responsible for **financial stability** and its Financial Policy Committee will implement macro-prudential regulation to address systemic risks with a view to protecting and enhancing the resilience of the UK financial system.

Box 2B: What is a lender of last resort?

The development of the concept of a lender of last resort is most often credited to Bagehot (1873).[1] It is a commonly used term, but in practice it can have many interpretations.

The traditional role of a lender of last resort is for a central bank to provide temporary liquidity assistance to an otherwise solvent institution, at a penal rate and secured against high quality assets. It can also be thought of more widely as the provision of general liquidity to the financial system rather than just a single institution. It is a traditional function of the central bank because the central bank is able to "print" money, meaning it is not subject to liquidity risk, and can provide funds in the event of a liquidity crisis. In this way it can help prevent bank runs and maintain the stability of the financial sector.

In 2007 the Bank of England provided traditional LOLR support to Northern Rock. The Bank provided funding at a penal rate of interest (i.e. at commercial rates in excess of the overnight standing facility) and Northern Rock was required to provide collateral against the lending.[2]

However, the recent financial crisis demonstrated that in addition to the orthodox LOLR operations, it can become necessary for a state to deploy other measures to mitigate serious risks to financial stability, protect consumers and prevent serious harm to the economy. Such extraordinary measures, designed to tackle acute confidence crises and solvency issues, require close coordination between the central bank and the government. The central bank acts as lender of last resort and resolution authority, while the government, as the central fiscal authority, has the capacity to provide a fiscal backstop to the financial sector (through guarantees, direct support or indemnities to the central bank).

[1] Bagehot (1873) *Lombard Street: A Description of the Money Market*.

[2] Bank of England, News Release – *Liquidity support facility for Northern Rock plc* (14 September 2007) http://www.bankofengland.co.uk/publications/Pages/news/2007/090.aspx

[3] For more information on the Financial Services Act 2012, please see HM Treasury website: www.hm-treasury.gov.uk/fin_financial_services_bill.htm

Box 2B (continued): What is a lender of last resort?

The global financial crisis provides examples of such extraordinary measures. Effective coordination between HM Treasury, the Financial Services Authority and the Bank of England allowed the Government's RBS interventions to be arranged over a single weekend, preventing catastrophic consequences for the financial system. The Treasury eventually provided £45bn to recapitalise RBS and a commitment of a further £275bn of state support in the form of guarantees and funding.[3] The Government is taking robust action to tackle the "too big to fail" problem, including enhanced resolution mechanisms for large firms. However, it is clear that in a systemic crisis, it is essential that there can be effective coordination between the lender of last resort and the government.

Strong international integration of financial markets has resulted in a number of traditional LOLR operations having cross-border effects. In particular, large operations aiming at the provision of general liquidity to the financial system were often extended to financial institutions registered abroad. For example, during the financial crisis, non US-registered banks were able to access emergency loans from the US Federal Reserve and non euro area registered banks were able to access the ECB's long-term refinancing operations.

However, the financial crisis has shown that such international cooperation is typically limited to liquidity based interventions. When questions are raised about the solvency of domestically-domiciled institutions, it is national governments that can be required to commit public funds to these financial institutions in order to stabilise the wider financial system.[4]

[3] National Audit Office, *Taxpayer support for UK banks: FAQs*, http://www.nao.org.uk/banking_faq.aspx

[4] Alistair Darling, on his experience of the recapitalisation of RBS as the Chancellor of the Exchequer, evidence to the House of Lords Economic Affairs Committee (24-Oct-12): "All I can tell you is that, on the night of 7 [October] 2008, no one at all anywhere in the world rushed to chip in to bail out RBS, despite the fact that it had a very large trading arm in the United States and many of the losses that it made were there. Obviously the US Fed was immensely helpful in terms of liquidity support and tiding over; it kept RBS going for a whole afternoon when it got into trouble on that Tuesday. When it came to recapitalisation, though—I think that the recapitalisation figure is about 30% of Scottish GDP—there was no one queuing up to do it. As Mervyn King said, these banks are global in life but national in death."

Implications of currency options for the new macroeconomic framework

2.13 Under any of the four options, independence would have immediate implications for the macroeconomic framework of an independent Scottish state:

- **new monetary arrangements** would have to be defined, through a negotiated international agreement with the continuing UK and/or with the euro area, and through the setting up of new independent monetary institutions. In addition to the issue of suitability of monetary policy discussed in Chapter 1, this process would involve a number of transition costs and raise some key questions around credibility, models of governance and political accountability of the new institutions;
- a **fiscal framework** that complements the choice of monetary framework would need to be established; and

- a new independent Scottish state would have to introduce its own **framework for financial stability**, both for crisis prevention and crisis management. In the area of crisis prevention, an independent Scottish state would have to comply with the EU requirements and set up its own regulatory regime.[4] The new independent Scottish state would also have to set up its own crisis management procedures, or negotiate with the continuing UK or the euro area the conditions to share common procedures.

A formal sterling currency union

2.14 Throughout this paper, a **formal currency union** refers to the case where two or more independent states formally agree to share a single currency and common institutions and policy settings.

2.15 Examples of such formal agreements between independent states are rare. The euro area is the main example of a modern formal currency union. This example has the following institutional and policy features:

- members of the formal currency union adopt a **common monetary authority** that represents and is accountable to the currency area as a whole, but is independent from political pressures and national interests; and
- members of the currency union also agree on a number of **formal arrangements over fiscal policy and financial stability**. These arrangements apply to all members of the currency union and are designed to prevent the risks of spillovers between members affecting the stability of the union as a whole.

Unilateral use of sterling

2.16 **Unilateral use of a foreign currency** refers to the case of a state adopting unilaterally the currency of another – generally larger – state, while the larger state is not required to change any of its institutions and policies, and may simply continue to operate with a focus on its formal area of responsibility without taking account of conditions in the client state. This process is often referred to as dollarization, reflecting the historic dominance of the unilateral use of dollar although since the creation of the euro there have been examples of euroisation. So the case of an independent Scotland potentially adopting sterling unilaterally has come to be referred to as "sterlingisation".

2.17 The experience of existing dollarized (or euroised) economies show that money supply is entirely market driven. The foreign currency used for day-to-day transactions must be obtained through borrowing or capital income from investments abroad, or by exporting goods and services. To ensure the provision of smaller coinage to their economy, dollarized countries often print a local currency which is fully convertible into the foreign currency.

2.18 The main examples are for small, developing, very open economies such as Panama or Montenegro, with relatively less sophisticated financial sectors than that of Scotland. It is unlikely their experience will provide a fully relevant example of how such arrangements may apply to an independent Scottish state deciding to informally adopt sterling (or any other currency) as its domestic currency.

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[4] Under the EU Treaties, an independent Scottish state would be required to have its own regulatory regime, unless it was able to negotiate any changes to standard conditions. It would need to establish a competent authority that would regulate and supervise financial services provided in Scotland. All EU Member States are responsible for putting in place a regulatory regime that fulfils the State's obligations and are also liable for infraction proceedings if the regulator behaves in a way which is contrary to European rules. An independent Scottish state would also be required to have its own body of financial services legislation and would be responsible for ensuring that it is compatible with EU law.

Joining the euro area

2.19 This option is to some extent better defined than the previous two, as it is possible to look at the experience of Member States who have adopted the euro since its formation, and experiences of those already in the euro area.

2.20 Under the EU Treaties, all Member States, except those with an explicit opt-out (UK and Denmark) are required to adopt the euro in future. The question of an independent Scotland's EU membership is considered in detail in the UK Government's paper *Scotland analysis: Devolution and the implications of Scottish independence*, which makes clear that it is far from certain that an independent Scottish state would be able to secure an opt-out. Such a decision would not be in the hands of the UK or an independent Scotland but would require the agreement of all 27 (soon to be 28) EU Member States. Unless a formal euro opt-out were to be negotiated, an independent Scottish state may end up de facto negotiating simultaneously a commitment to adopt two different currencies: the euro (through negotiations over EU membership) and sterling (through negotiations over the membership of a formal sterling currency union).

2.21 Euro area institutions are currently undergoing significant changes and the exact conditions for fiscal policy and financial stability could be very different by the time an independent Scottish state were to adopt the euro.

A new independent Scottish currency

2.22 Finally, an independent Scottish state could introduce a new independent Scottish currency. It would then need to chose one of the following exchange rate regimes (by increasing degree of commitment to exchange rate stability):

- **floating exchange rate,** where exchange rate movements would be driven by market demand for the independent Scottish currency;
- **managed exchange rate,** where an independent Scotland would decide to manage its exchange rate against another currency (e.g. sterling, euro or US dollar), in the form of a band or a spot peg;
- **currency board,** where an independent Scotland would commit to full convertibility of its currency at a fixed parity with another currency such as sterling, euro or US dollar.

2.23 In all cases, a new currency would have to be introduced that would replace sterling. This might come with a number of transition costs for the issuing authority and for households and businesses (including the financial sector).

2.24 In a floating and in a managed exchange rate regime, an independent Scottish state would have its own central bank. It would have more or less latitude to conduct independent monetary policy and operate as a lender of last resort to commercial banks, depending on the type of exchange rate regime chosen and on the external constraints to the exchange rate.

2.25 Alternatively, an independent Scottish state could replace its central bank with a currency board. A currency board is a monetary authority that is required by law to manage a country's foreign exchange reserves in order to maintain a chosen exchange rate and full convertibility between the domestic currency and the anchor currency. This would be similar to the current arrangements in the Channel Islands, the Isle of Man and Gibraltar (see Box 2C).

Box 2C: Use of sterling in British Overseas Territories

Jersey, Guernsey and the Isle of Man are all British Crown Dependences. Gibraltar is a British Overseas Territory. All of these territories have a currency board arrangement with sterling. Bank of England banknotes are accepted as legal tender but each territory also issues its own currency. These are the Jersey pound, the Guernsey pound, the Manx pound and the Gibraltar pound respectively. All of the individual currencies are kept at parity with sterling. As with other currency board arrangements, any local note issued is 100 per cent backed by sterling reserves. The territories are very small, with Jersey having the largest population (98,000 in 2011[1]). This would constitute just two per cent of Scotland's population. Due to their small size, the monetary policy credibility that a currency board brings is more important than the flexibility of other monetary policy choices (this is discussed further in Chapter 6).

[1] State of Jersey Statistics Unit. http://www.gov.je/Government/JerseyWorld/StatisticsUnit/Population/Pages/Population.aspx

2.26 An unusual feature of the UK's currency management is that the Bank of England does not have a monopoly on the supply of banknotes in the economy. Currently, a number of banks in Scotland (and Northern Ireland) are able to issue their own banknotes through a long standing arrangement with the Bank of England. However, this arrangement may need to change in the event of independence, as discussed in Box 2D.

Box 2D: Scottish bank notes

Three commercial banks in Scotland (Bank of Scotland, RBS and Clydesdale), are authorised to issue their own banknotes. These banks have been regulated in regard to the backing of these notes since 1845.[1] As at 29 February 2012, the three authorised banks had a total of £3.8bn of Notes in Circulation and £460 million of Notes with the Potential to Enter Circulation.[2, 3]

Under the Scottish and Northern Ireland Banknote Regulations 2009, the authorised banks are required to hold backing assets for their notes at all times. The backing requirements aim to ensure that, if an authorised bank were to get into difficulty, holders of their notes would be afforded a similar level of protection as holders of Bank of England notes. The backing assets may be a combination of Bank of England notes, UK coin or funds held in an interest bearing account at the Bank. Bank of England notes held as backing assets may be held at an approved location or at the Bank. Notes held at the Bank may include £1 million and £100 million notes (known as 'Giants' and 'Titans') and are held there permanently. Under the current legislation, at least 60 per cent of the value of notes in circulation must be backed by Bank of England notes or UK coin. The remainder (as well as those with the potential to enter circulation) may be backed by Bank of England notes, UK coin, or funds in an interest bearing account at the Bank.

[1] Part 6 of the Banking Act 2009 updated and modernised the framework for commercial note issuance to provide enhanced noteholder protection.

[2] Bank of England (2012) *Scottish & Northern Ireland Banknote Issuance Annual Report 2012*.

[3] Further technical definition of Notes in Circulation and Notes with the Potential to Enter Circulation at http://www.bankofengland.co.uk/banknotes/Pages/about/s_ni_roleofbackingassets.aspx

Box 2D (continued): Scottish bank notes

This arrangement would need to change in the event of independence. The UK Government's paper *Scotland Analysis: Devolution and the implications of Scottish independence* established that the Bank of England would continue to act solely as the central bank of the continuing UK in the event of independence. Therefore in a formal sterling currency union, both Governments would need to agree if the commercial banks in an independent Scottish state could continue to issue sterling banknotes. If this were the case, the banks note issuance would have to continue to be regulated in an equivalent manner to current arrangements, with issued notes backed by high-quality securities and assets. The weaker political commitment of a currency union compared with the current political union may also affect the wider public acceptability and confidence in the convertibility of Scottish bank notes.

Under sterlingisation, a similar negotiation would be required if commercial banks were to continue to issue banknotes regulated by the Bank of England. Alternatively, Scottish commercial banks could continue to issue banknotes regulated by a Scottish monetary authority, rather than the Bank of England. However, in this case it would be the responsibility of a Scottish monetary authority to ensure public confidence and acceptance of these notes.

A report from the European Central Bank (ECB)[4] has previously considered the issues that Scottish notes would create within the euro area. It listed five possible distortions: monetary financing, competitive distortions, public acceptability, monetary income calculations and statistical reporting. If an independent Scottish state were to join the euro area, the ECB would have the exclusive right to authorise any entity that was not part of the European system of central banks (ESCB) to issue its own notes. Any non-ESCB note issuance would not be able to continue automatically. Any continuation would have to address the five possible distortions and the ECB would then decide on a case-by-case basis.

If an independent Scottish state introduced its own currency, it would have to choose whether to allow commercial banks to continue to issue notes. If so, the new Scottish central bank would replace the Bank of England and regulate the private issuance of Scottish bank notes. Alternatively, the new Scottish central bank may be given a monopoly over note issuance.

[4] ECB (1999) "Report on the legal protection of banknotes in the European Union Member States".

Conclusion

2.27 This analysis has highlighted the **characteristics and benefits of the UK as a full monetary, fiscal and political union**. This union provides the framework for a full coordination of fiscal and monetary policy. The recent global crisis and the experience of the euro area in particular have highlighted two important benefits from an integrated framework:

- **governments with a larger fiscal base and the ability to borrow in their own currency, underpinned by a full political union, are subject to a lower default risk and able to borrow more cheaply. This increases their capacity to use fiscal policy to support the economy in response to a crisis;** and
- **a simpler model for political accountability facilitates rapid and coordinated emergency intervention in response to a financial crisis.**

2.28 For the formal sterling currency union and euro options, the detail of the final arrangements would be subject to the outcome of international negotiations. **It is unlikely that any of the potential currency options would provide the same benefits for an independent Scottish state as the UK's framework.** None of the options are likely to provide the same scope to use fiscal policy to support the economy or the same effectiveness for the resolution of financial crises as is currently available as part of the UK.

Chapter 3:
Formal sterling currency union

The current proposal of the Scottish Government is for an independent Scottish state to enter a formal sterling currency union with the continuing UK. If such a union could be agreed, sterling would be used as a single currency and the Bank of England would act as a common central bank to both countries. Scottish households and businesses would continue to use sterling. There would be **benefits for both Scotland and the rest of the UK from continuing to use the same currency and keeping transaction costs low**, but it would also create significant macroeconomic risks.

The economic suitability of Scotland's current use of sterling would decline in the event of independence. In this scenario, as monetary policy would become less well suited to the Scottish economy, **fiscal policy would be required to take a stronger stabilisation role**. This counter-cyclical fiscal policy would have to be entirely self-funded in the absence of fiscal transfers from the UK. But **membership of a currency union would also place constraints on the fiscal policy of an independent Scottish state**.

The experience of the euro area has shown that the scope for fiscal policy to respond in a crisis can be greatly limited by market perceptions and conditions, especially if there is no lender of last resort apparatus for sovereign debt. This provides a case for greater mutualisation of sovereign risks, but with that must come enforceable controls on fiscal policy.

The Bank of England would continue to play an important financial stability role. This may include the provision of lender of last resort facilities to the financial sector. In this case, the implicit commitment of public funds to underwrite any financial stability interventions could also create important fiscal risks for the continuing UK. The UK's interest would be to minimise these risks through a well designed fiscal framework and clear conditions for financial stability interventions.

An independent Scottish state would need to agree to a negotiated set of constraints on economic and fiscal policy. In practice this would be likely to include rigorous oversight of Scotland's economic and fiscal plans by the UK authorities. This has been the experience in the euro area where there has been an ever increasing requirement for greater fiscal coordination and control and greater political union.

But the economic rationale for the UK to agree to enter a formal sterling union with another state is not clear. The recent experience of the euro area has shown that it is extremely challenging to sustain a successful formal currency union without close fiscal integration and common arrangements for the resolution of banking sector difficulties. For independent countries to design and agree on such a complex and untested institutional framework would be very challenging as is illustrated by the ongoing discussions of reform in the euro area.

Introduction

3.1 A formal currency union refers to the case where two or more independent states formally agree to share a single currency and common institutions and policy settings. There are few contemporary examples of such monetary arrangements between independent states. There are parallels with the euro area, but also some clear differences. It is therefore not clear how a formal sterling currency union might work in practice.

3.2 A clear lesson from the euro area experience is that any negotiations for a formal currency union would have to cover a number of conditions. These conditions would need to include (but not necessarily be confined to) monetary policy governance, fiscal policy, debt management and financial stability (in particular crisis resolution procedures).

Transaction costs

3.3 The maintenance of low transaction costs between an independent Scottish state and the continuing UK is a key part of the potential microeconomic gains from a formal sterling currency union. The use of a single currency eliminates exchange rate risk and related transaction costs from purchases across the currency area. It also removes the need for exchange rate conversion when comparing prices across countries.[1]

3.4 These factors mean that businesses and consumers are better able to compare prices and purchase the most competitively priced goods from across the single currency area. This could lead to market efficiency and competition remaining nearer to current levels compared with options where an independent Scottish state would no longer retain sterling. The use of a single currency means that Scottish and UK consumers currently benefit from lower prices, increased quality and greater choice. There can also be dynamic benefits to the continued use of the same currency, as resources shift away from inefficient producers to the most efficient firms.

3.5 The benefits of lower transaction costs would remain large only for as long as integration between the two countries remained strong. These benefits would be greater for an independent Scottish state than for the continuing UK, given the asymmetry of trade exposure. Chapter 1 highlighted the strong degree of integration between Scotland and the rest of the UK. Evidence on the likely emergence of a ”border effect”[2] suggests that independence could undermine the strength of this integration, although flows of trade and capital between an independent Scottish state and the continuing UK would be expected to remain large.

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[1] These effects can be sizeable. Rodriguez (2002) estimated for example the transaction cost savings from EMU as being worth up to 0.7 per cent of EMU GDP.

[2] International evidence shows that flows of trade, labour and capital are much larger between two regions of a same country than between two (otherwise similar) regions of two different countries. See McCallum (1995) for the seminal contribution to the border effect literature.

Monetary policy and institutions

3.6 The feasibility of a formal sterling currency union from a monetary perspective would need to be assessed in two respects. First, the institutional framework in which monetary policy would be set, including possible governance arrangements between the independent Scottish state and the continuing UK. Second, the suitability of monetary policy for Scottish and UK economic conditions.

Monetary institutions

3.7 The UK Government's paper *Scotland Analysis: Devolution and the implications of Scottish independence* established that in the event of Scottish independence, the Bank of England would continue to act as the central bank of the continuing UK only, and would continue to operate in its current framework. The Government of the continuing UK would be responsible for nominating members of the Monetary Policy Committee and setting the objectives for monetary policy. The MPC would continue to set monetary policy to reach these objectives, and remain accountable to the Parliament of the continuing UK.

3.8 As such, an independent Scottish state would have no automatic entitlement to using the services of the Bank of England as its central bank. It would be open to representatives of a new Scottish state to seek to make use of arrangements that exist within the UK. The principles and terms of any such arrangements would be subject to negotiation with the continuing UK. But a number of the principal requirements are clear. The primary question is the role and governance arrangements of the central bank in implementing monetary policy. The current political accountability and governance arrangements could clearly not continue in a formal sterling currency union.

3.9 A formal sterling currency union could involve a union-wide central bank, accountable to two sovereign states. The euro area is an example of such an institutional model that can provide some useful insights. It has the following institutional and monetary policy features:

- the existence of **a common monetary authority – the Eurosystem** – consisting of the European Central Bank (ECB), backed by a network of national central banks of euro area Member States responsible for implementing monetary policy;
- the Treaty on the Functioning of the European Union (TFEU)[3] provides for the **Eurosystem's independence** from political pressure, including from EU institutions or national governments in the conduct of its tasks and duties. The Treaty can only be changed by unanimity;
- **the conduct of monetary policy for the euro area is the competence of the ECB only, under the responsibility of the ECB Governing Council.**[4] This responsibility includes the setting of measures, such as inflation targets, if the Governing Council believes that is the best way to implement the Treaty. The ECB Governing Council comprises 23 members – the six members of the Executive Board, nominated by the European Council, and the Governors of the 17 National Central Banks. Although nominated by their national authorities, the Governors are expected to take decisions for the interests of the whole euro area; and

[3] The Treaty on the Functioning of the European Union generally refers to the European System of Central Banks (ESCB) rather than to the Eurosystem, since it was drawn up on the premise that all EU Member States would eventually adopt the euro (the ESCB consists of the ECB together with national central banks of *all* EU Member States).

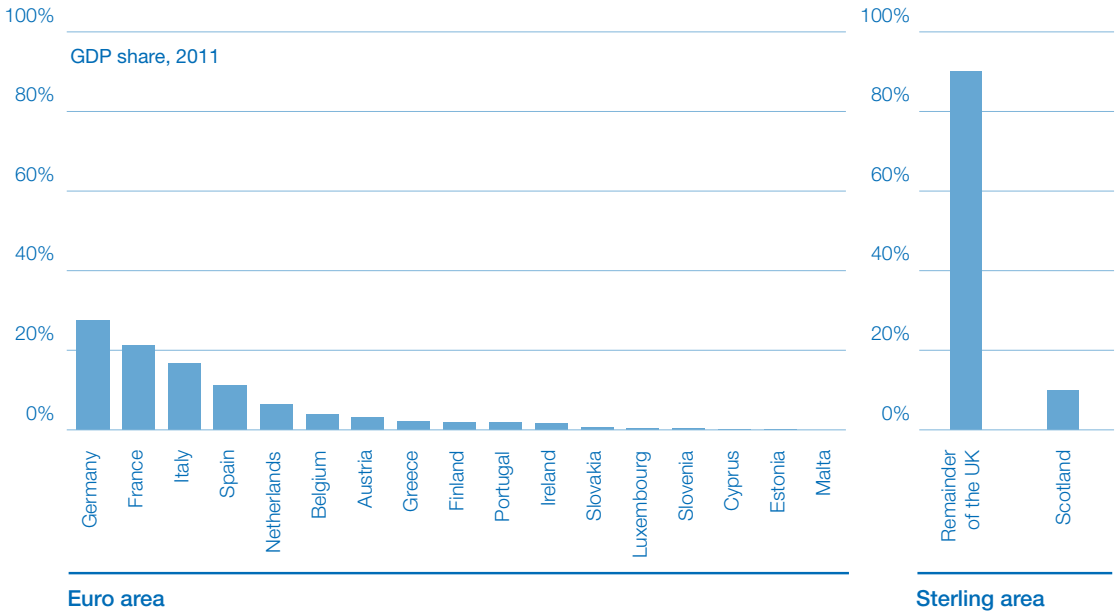
[4] The Governing Council is also responsible for clarifying the ECB's price stability mandate, including with respect to its focus and quantitative definition. The ECB's "two pillars": economic analysis and monetary analysis, form the basis of the Council's overall assessment of the risks to price stability and its monetary policy decisions.

- **the Eurosystem also contributes to financial stability in terms of crisis management, including by acting as a lender of last resort to commercial banks under clearly defined conditions**, and undertaking specific interventions aimed at safeguarding the monetary policy transmission mechanism (i.e. the channel through which monetary policy decisions affect the economy).

3.10 However, characteristics of a formal sterling currency union between the continuing UK and an independent Scottish state would differ significantly from the euro area example. First, the euro area was founded as an agreement across many states to give up their national currencies and monetary institutions to introduce a new single currency with new common institutions. In contrast, a formal sterling currency union would begin with a request from a smaller new member (an independent Scottish state) to a larger established member (the continuing UK) to modify its existing arrangements to allow for a common use of the larger member's currency and institutions.

3.11 Secondly, there are currently 17 members in the euro area, with the largest member representing less than 30 per cent of total GDP of the euro area as a whole.[5] A formal sterling currency union would involve the union of just two states with a fundamental difference in economic size. The continuing UK would comprise around 90 per cent of total GDP in a sterling currency union (Chart 3A).[6]

Chart 3A: GDP share of the different member states in the euro area and in a FSCU



Source: 2011 GDP at current market prices, from Eurostat, ONS and Scottish National Account Project (Scottish GDP including a geographical share of North Sea oil and gas)

3.12 The difference in the economic size of the members of a formal sterling union is an extremely important distinction. In particular, the continuing UK, as the larger economy, would be much more exposed to the risks that an independent Scottish state might face fiscal difficulties. The imbalance of exposures to economic and financial risk would need to be reflected in the institutional balance of the governance arrangements of a

[5] Eurostat GDP data at current market prices: in 2011, Germany contributed 28 per cent to total euro area GDP, followed by France (21 per cent) and Italy (17 per cent).

[6] This calculation is based on data from the Scottish Government for Scottish GDP in 2011 including the Scottish Government's estimate of a geographical share of North Sea oil and gas. The exact share would be subject to negotiations on the allocation of the UK's oil and gas reserves.

formal currency union. It would also influence the position of the two governments in any negotiation about the set of constraints that would be required for a currency union to satisfy the economic interest of both states.

3.13 There are international examples of common currency areas that share these characteristics. The Belgium-Luxembourg Economic Union (BLEU) and the Common Monetary Area between South Africa, Lesotho, Swaziland and Namibia are discussed in Box 3A. These examples are not formal currency unions, but rather an intermediary between a formal currency union and a currency board. But the historic context of their creation and their composition – arrangements between a large economy and one or more smaller independent states – mean that they may offer some interesting parallels.

3.14 There are a number of models for the role that a central bank might play, ranging from a fully symmetric institutional model as observed in the euro area, to looser arrangements closer to the sterlingisation and currency board models (discussed in Chapters 4 and 6). An independent Scottish state and the continuing UK would have to design and agree on a new institutional framework that would be suitable for their specific characteristics. This framework would be unique, complex, untested and would have to evolve as new challenges arise. This chapter does not attempt to pre-empt the outcomes of any negotiations over political accountability and the governance of the monetary institutions. It describes as a formal sterling currency union any arrangements that would give the Bank of England formal responsibility for the conduct of monetary policy in an independent Scottish state as well as the continuing UK.

Box 3A: International examples of common currency areas

Common Monetary Area between South Africa and Lesotho, Swaziland and Namibia[1]

The economy of the region is dominated by South Africa: South African GDP is about 20 times larger than the GDP of Lesotho, Swaziland and Namibia taken together.[2] The South African Rand had been widely used and circulated in the area since its introduction, and this informal arrangement was made formal in 1974 when South Africa, Lesotho and Swaziland signed the Rand Monetary Area agreement. It was replaced in 1986 with the Common Monetary Area when Namibia joined the arrangement.

Reflecting these economic and historical characteristics, the Common Monetary Area is to a large extent dominated by South Africa. Each country has its own central bank, but, de facto, the South African Reserve Bank formulates monetary policy for the area as a whole. Each country also has its own currency, but the parity with the South African rand is fixed, and the rand is accepted as a legal tender in all four countries. There are a number of formal arrangements between South Africa and the smaller members: monetary arrangements provide for consultation; the four members share a common pool of foreign reserves; and the government of South Africa makes compensatory payments to the three smaller members to cover the loss of seigniorage.

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1 Van Zyl (2002) "South Africa's experience of regional currency areas and the use of foreign currencies", Foulo (2002) "Regional currency areas and the use of foreign currencies: Lesotho's experience"

2 International Monetary Fund, World Economic Outlook (October 2012), 2008 GDP at current prices (US dollars)

Box 3A (continued): International examples of common currency areas

Belgium-Luxembourg Economic Union[3]

The Luxembourg economy is about nine times smaller than the Belgian economy.[4] Luxembourg was a member of the Zollverein (German Custom Union) until 1919. After the exit of the Zollverein, Luxembourg proposed France as an economic partner. Following the French refusal, Luxembourg entered into an economic union with Belgium. The two countries agreed on a monetary association in 1921, which remained in place until they both joined the euro area in 1999.

Both countries had separate currencies (the Luxembourg franc and the Belgian franc), but they were fixed at par and were legal tender in both countries. Luxembourg de facto ceded all control of monetary policy to the Belgian central bank and did not have any representative at the Belgian central bank.

The monetary association did not always operate smoothly. There were severe tensions in the early 1980s, as Belgium chose to devalue the currency rather than undergo the internal process of adjustment that Luxembourg had achieved through a reduction in wages. This made the Luxembourg economy over-competitive but had destabilising effects, especially on the financial sector.

In response to these tensions, preparations were made to make the Luxembourg franc independent. This included introducing the Luxembourg Monetary Institute (an embryo monetary authority), asking commercial banks to separate their balance sheets between assets and liabilities denominated in Belgian francs and those in Luxembourg francs, and negotiating with Belgium to increase the quota for notes issuance, to ensure that enough Luxembourg banknotes would be available in the event of a separation. It was eventually decided that making the Luxembourg franc independent would require longer-term preparations and Luxembourg decided to maintain the monetary association. However, preparations continued to ensure that separation would be possible if tensions were to re-emerge.

[3] Mersch (2004) "Economic policy in the framework of accession to the European Union and the Economic and Monetary Union", Mersch (2010) Interview, *Virtuel de la Connaissance sur l'Europe*

[4] Eurostat GDP data at current market prices 2011

Suitability of monetary policy to Scottish economic conditions

3.15 Chapter 1 concluded that Scotland is economically well placed as part of the UK and monetary policy is, on average, well-suited for the Scottish economy. Deep public and private sector integration helps the economy to adjust when necessary.

3.16 A formal sterling currency union would be unable to replicate the existing arrangements within the UK. There would be an immediate erosion of the suitability of monetary policy, as the elimination of fiscal policy coordination between Scotland and the rest of the UK would change the monetary transmission mechanism. This effect may initially be small but would be likely to grow over time, particularly if an independent Scottish state and the continuing UK were to pursue markedly different strategies for fiscal policy.

3.17 Independence and the introduction of different fiscal and economic policies would be likely to start a wider process of divergence that would lead to the Scottish economy becoming less synchronised with the UK average over time. The Scottish economy would

become exposed to different economic shocks, and to a different transmission of these shocks through the economy. Under these conditions, monetary policy set by the Bank of England would be likely to become less adapted over time to Scottish conditions.

3.18 In addition, although the exact allocation of North Sea oil and gas reserves would be subject to negotiation, it is likely that an independent Scottish state would be more exposed to the volatile oil and gas sector than the UK average. This could cause the Scottish economy to diverge from the continuing UK, affecting the structure of the economy, price volatility and business cycle synchronisation, in particular through its effect on the fiscal position and the balance of payments (Box 1C).

3.19 The response of the economy to shocks will also be affected by any changes in the degree of economic integration between Scotland and the rest of the UK. A weakening in integration due to the "border effect" would reduce the efficiency of some of the Scottish economy's mechanisms of adjustment to Scotland-specific shocks. Fiscal independence would also eliminate the adjustment role of fiscal transfers from the rest of the UK.

3.20 Fiscal autonomy and economic divergence can place intense pressure on the commitment to currency unions, potentially very rapidly. National governments may come under political pressure to exit monetary arrangements that are seen as damaging to the economy. Low market confidence in the political commitment to the currency union may generate capital flight, reinforcing the economic divergence and the pressure to exit. The short-lived experience of the Czechoslovakian monetary union following the separation of the Czech Republic and Slovakia, described in Box 3B, illustrates these risks.

Box 3B: Breakup of Czechoslovakian monetary union

In 1992, Czechoslovakia agreed to split into the Czech Republic and Slovakia. The spilt came into effect on 1 January 1993. After the political split the two states attempted to preserve monetary and economic union. Monetary union was planned to last at least six months, but was conditional. Either side could withdraw if fiscal deficits or transfers of private capital between the two countries exceeded preset limits, or the shared monetary policy committee failed to agree a common policy. But with an uncertain political commitment and no fiscal transfers, the currency union lacked credibility. Thirty-three days after independence the monetary union failed.

During late 1992 and throughout January 1993, capital flowed from Slovakia to the Czech Republic in anticipation of a currency spilt and a Slovakian devaluation (as deposit-holders transferred their wealth from Slovakia to the Czech Republic to avoid deposits being redenominated into a less valuable currency). Therefore the Czech government decided on 19 January to separate the currency. Secret negotiations with Slovakia led to a date for separation being set for 8 February. The separation was publicly announced on 2 February, with capital controls implemented to stop any capital transfers. During the separation period (4-7 February), the old currency was exchanged, with the new currency becoming valid on 8 February. Regular Czechoslovak banknotes were temporarily used, with a paper stamp attached to mark whether the notes were Czech or Slovak. During this transition thousands of Slovaks crossed the Czech border to have their old notes stamped as Czech. Stamped banknotes were gradually replaced with new Czech and Slovak banknotes, with the process finishing by August.

The collapse of the monetary union shows that divergence between two formerly united countries does not have to be slow. As the economies of the Czech Republic and Slovakia were relatively different, the markets treated them as different countries before the political spilt had even occurred. This put instant pressure on the monetary union when it came into force.

3.21 It is clear that, from a monetary perspective, the existing UK arrangements could not be translated into the framework of a formal sterling currency union in the event of independence. Beyond questions about the implementation and suitability of monetary policy, this arrangement would also raise some fundamental questions about the constitutional role of the respective governments, including in the areas of fiscal policy and financial stability. These too would be subject to negotiation, which would need to reflect the political and economic interests of both an independent Scottish state and the continuing UK.

3.22 From the economic perspective of the UK, the loss of fiscal risk-sharing with Scotland and likelihood of economic divergence would have similar qualitative effects on the suitability of the UK's monetary policy. However the quantitative effect would be much smaller given the differences in economic size.

Fiscal policy in a formal currency union

3.23 Much of the discussion around possible currency arrangements relates to the institutional framework for monetary policy. However the most significant economic implications of the choice of currency for an independent Scottish state would be its effect on fiscal policy.

3.24 Regardless of the choice of currency, independence would bring an end to the pooling of fiscal resources across the UK. Fiscal transfers play an important role in helping economic adjustment to shocks that affect only some members of a currency union. The pooling of fiscal resources across the UK therefore helps all parts of the UK to compensate for the absence of an autonomous monetary policy by allowing the UK's fiscal resources to be deployed where and when they are needed most.[7]

3.25 In the absence of this system of fiscal transfers, an independent Scottish state could attempt to replicate the stabilising response of fiscal policy, but without access to the fiscal resources of the rest of the UK. This would require the Scottish government to borrow (or spend savings) equivalent to the fiscal transfers that would otherwise have been received from the rest of the UK in response to an economic shock that primarily affected Scotland. The Scottish government could in principle also decide to provide an additional discretionary use of Scotland's fiscal resources if it judged it appropriate. This would in effect substitute inter-temporal fiscal risk-sharing within Scotland, in place of the fiscal risk-sharing which currently occurs across the UK.

3.26 However the rest of this chapter explains that this approach would in practice be unlikely to work as well as the current UK framework. At the same time as requiring fiscal policy to do more to stabilise the economy, a formal sterling currency union would also reduce its effectiveness. The ability to use fiscal policy in this manner would also be curtailed by the need for an agreed set of fiscal constraints and a likely increase in Scottish borrowing costs.

Fiscal policy would need to do more to stabilise the economy

3.27 In a formal sterling currency union fiscal policy would need to do more to stabilise the Scottish economy. This is a well established principle for effective monetary unions[8] for a number of reasons.

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[7] The fiscal policy response can be the result of a discretionary decision by policy makers, but in practice, it is the automatic stabilisers that typically fulfill this role. The UK's automatic stabilisers are also relatively large by international standards. See OBR (2012) "Cyclically adjusting the public finances".

[8] See for example, "Fiscal Stabilisation and EMU", and "Modelling shocks and adjustments in EMU" (HMT 2003) for a discussion in the context of potential UK membership of the euro area and Gali & Monacelli (2004) "Optimal monetary and fiscal policy in a currency union", for a more general theoretical discussion.

3.28 First, as discussed previously, **monetary policy would become less well suited to Scottish economic conditions** due to the loss of fiscal union and the likely divergence in economic conditions between the two countries.

3.29 Second, **the Scottish economy would be expected to become more volatile**. Smaller countries are typically subject to more volatility than larger countries. This is because they tend to exhibit a greater degree of specialisation and so can be more vulnerable to idiosyncratic shocks. Moreover, they also tend to be open with high trade shares, and generally a more specialised composition of trade. Depending on the outcome of negotiations on the allocation of North Sea oil and gas reserves, exposure to this sector could also increase the volatility of the Scottish economy.

3.30 Third, the **"border effect" would be likely to undermine economic integration** and the mechanisms of private sector risk-sharing. In particular, the complete integration of Scottish capital and credit markets with the rest of the UK helps stabilise the economy in response to localised economic shocks (see Box 1A for more details on the role of these channels). The degree of financial integration would be likely to decline over time as policies and institutions develop. This would undermine the private sector risk-sharing that currently occurs through the capital and credit channels.

3.31 Changes to the effects of fiscal and monetary policy on the Scottish economy, would lead to an increased risk of shocks affecting Scotland that had not affected the UK. The result would be more frequent macroeconomic imbalances within a sterling currency union than currently occurs within the UK. These imbalances would need to be corrected over time. However, the economic mechanisms for reversing the imbalances, such as financial and fiscal integration, would be weakened by independence.

Limits to the ability of fiscal policy to stabilise the economy

Problems with fiscal coordination

3.32 There is a risk that fiscal responses provided by individual members of a currency union in response to a union-wide shock might be more limited than what would have been provided had the stimulus been designed at the currency union level (through union-wide fiscal tools or through international fiscal coordination).

3.33 This risk arises because the high degree of openness between members of a currency union means that the effect of the fiscal stimulus in one individual state spreads to the economy of other members of the union (fiscal spillovers). As such, national governments do not get the full benefits of their own fiscal spending in terms of national output and income, while they can hope to get benefits from fiscal stimulus implemented (and paid for) by other members of the union (known as free-riding).

3.34 This is not a new insight. Similar questions were explored as far back as 1968 by Oates[9] in the context of public finances in a federal system. For the reasons described above, Oates concluded that the "Stabilization Branch [of the public fiscal department] must do its job primarily at the central level".

3.35 Fahri and Werning (2012, 2012b)[10] develop a comparable analysis to the specific case of currency unions. They examine the role of fiscal transfers in overcoming fiscal coordination issues in a currency union. Fiscal transfers and the inter-regional insurance they provide are found to be a key component to the success of currency unions:

[9] Oates (1968) "The Theory of Public Finances in a Federal System".

[10] Fahri and Werning (2012) "Fiscal Unions"; Fahri and Werning (2012b) "Fiscal Multipliers, Liquidity Traps and Currency Unions".

- first, as inter-regional insurance can help provide temporary support in the case of incomplete financial markets (discussed in more detail in the following section);
- second, because even with complete financial markets, regional fiscal stabilisation is inefficiently low when too much of the effect of national fiscal spending spills over to other members of the union, deterring national fiscal interventions.

3.36 Hence, efforts to use fiscal policy to stabilise individual economies are likely to be insufficient in the absence of effective coordination at the union-wide level. This is despite the need for a larger role for fiscal stabilisation. And this will tend to happen even if fiscal policy is relatively lightly constrained by market conditions and any form of formal fiscal constraints.

Problems with self-insuring

3.37 At the heart of the original debate around the creation of EMU was the question of whether fiscal transfers between Member States were necessary to complement country-level fiscal stabilisation (see MacDougall Report[11] and literature surveyed by the European Commission, 1990[12]). The conclusion was that country-level fiscal insurance – governments saving in the "good times", and borrowing if necessary – would provide members of the currency union with sufficient fiscal resources to provide fiscal stabilisation in response to economic shocks.

3.38 The same conclusion was reached by HM Treasury's *Assessment of the Five Economic Tests* for EMU membership. The Assessment argued that greater fiscal federalism in the euro area was unnecessary given that Member States already had a high degree of fiscal stabilisation freedom and capacity at the national level. Member States in the euro area were able to use inter-temporal insurance (the ability to borrow over the cycle and use automatic stabilisers or discretionary fiscal policy) in order to stabilise an economic shock. This capacity removed the need for euro area inter-regional insurance (the sharing of fiscal resources between regions at the federal, or euro area level).[13]

3.39 The recent experience of the euro area in the financial crisis has tested these conclusions. The emergence of significant macroeconomic imbalances has had greater than expected impacts on Member States' short to medium-term fiscal positions. As Krugman observes[14], no economist predicted Member States would be faced with such large fiscal burdens. As a result, Member States' capacity to use fiscal policy to support their economies has been severely constrained. The emergence of significant macro-financial risks has also exposed fragilities caused by interdependencies between sovereigns and banking sectors.

3.40 Constraints on deficit financing that emerged were more connected with balance of payment constraints linked to the overall external debt position of the economy (private and public sector) rather than the state of public finances only.[15] As such, some euro area countries with apparently relatively sound public finances prior to the recession have found

[11] The MacDougall report ("Report of the study group on the role of public finance in European integration", 1977) recommended an increase in the Community Budget to 7 per cent of GDP for the purpose of providing budgetary transfers in response to country-specific difficulties.

[12] European Commission (1990) "One market, One Money. An evaluation of the potential benefits of forming an Economic and Monetary Union".

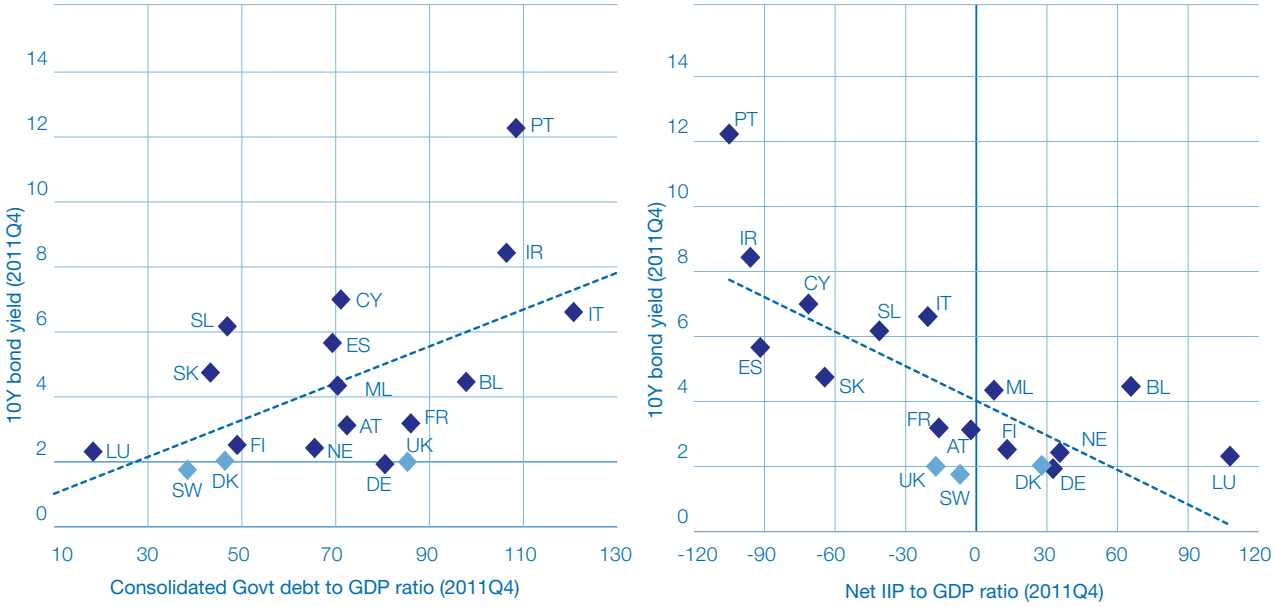
[13] The Assessment concluded: "the difference, on stabilisation grounds, between providing fiscal insurance at a federal level or at the Member State level should be limited".

[14] Krugman (2012), "Revenge of the Optimal Currency Area".

[15] Wolff (2012) "A budget for Europe's monetary union".

themselves facing a very large interest rate risk premium. Chart 3B shows that euro area countries with higher public debt to GDP ratio faced higher borrowing costs (left hand-side panel); and that the effect on borrowing costs was even stronger[16] for countries with large public and private sector external debt (right hand-side panel).

Chart 3B: Drivers of interest rates risk premium



Sovereign bond 10Y yields vs debt to GDP ratio

Sovereign bond 10Y yields vs net international investment position

Source: Eurostat, European Central Bank

3.41 This suggests that in a currency union the scope for fiscal policy to support the economy in response to a large shock to one member of the union could be limited by very restrictive market conditions. This could affect all members of the currency union, in a way that does not exist under the current arrangements within the UK.

3.42 It may be possible to mitigate this risk by explicitly designing an apparatus for providing a lender of last resort to the sovereign. These developments explain the moves towards greater fiscal and political integration in the euro area. National level fiscal stabilisation alone, supported by a set of fiscal rules, was insufficient to meet the demands of a severe economic crisis. The pressures placed on Member States' public finances necessitated the introduction of an initially temporary, now permanent insurance mechanism to provide emergency financial assistance for euro area countries: the temporary European Financial Stability Facility (EFSF) and subsequently the permanent European Stability Mechanism (ESM). This new framework has yet to be fully tested. Stiglitz (2013)[17] has argued that the euro area requires greater fiscal federalism, the creation of "Eurobonds" and a banking union.

[16] R-squared from the regression of 10-year bond yields on public debt to GDP ratio (for euro area countries only) is nearly 30 per cent; for the regression of 10-year bond yields on international investment position (for euro area countries only) is nearly 60 per cent

[17] Stiglitz (2013) "What is Italy saying?"

3.43 However, a decision to adapt the euro area framework to a formal sterling currency union would lead to a greater mutualisation of risks and the possibility of "moral hazard". This risk would have to be controlled with tougher, agreed cross border controls on fiscal policy and financial sector regulations. The constraints would also be likely to be more binding for an independent Scotland than the continuing UK, given their relative economic sizes and exposure to risk.

3.44 Even in normal times, stricter market conditions mean that an independent Scottish state would be likely to pay more to finance its public debt (Box 3C). This conclusion reflects analysis on fiscal arrangements to be published later in the Scotland analysis programme.

Box 3C: Borrowing costs for an independent Scottish state

It is highly likely that **an independent Scottish state would also have higher funding costs and face more constraining market conditions, for any given fiscal position relative to the UK** (Goodhart comments that the premium of Scottish funding costs over UK costs "could easily be above 1 per cent even if economic events went quite well, potentially spiking quite higher[1]") because:

- the market for Scottish sovereign debt would be thinner and the Scottish government would have to pay a liquidity premium;
- it would have no track record of credible fiscal management and repayment;[2]
- it would have a smaller and more volatile tax base, dependent on oil revenues; and
- as part of a currency zone (formal sterling currency union, sterlingisation or euro area), the independent Scottish state would be borrowing in a currency on which it would have no direct control – effectively borrowing in a foreign currency. As such, it would be subject to greater default risk.

[1] C. Goodhart, 2013, "Scottish Financial Structure" in Goudie, A. (ed) (2013).

[2] Standard & Poors notes the political score it assigns to sovereigns can fall by up to 2 notches where countries have displayed a "generally strong but shorter track record of policies that deliver sustainable public finances and balanced economic growth". Standard and Poors (2011) "Sovereign Government Rating Methodology and Assumptions".

The need for formal fiscal constraints

3.45 In theory, financial markets should ensure that members of a formal currency union will borrow at rates that are consistent with their individual risk and should prevent excessive borrowing.

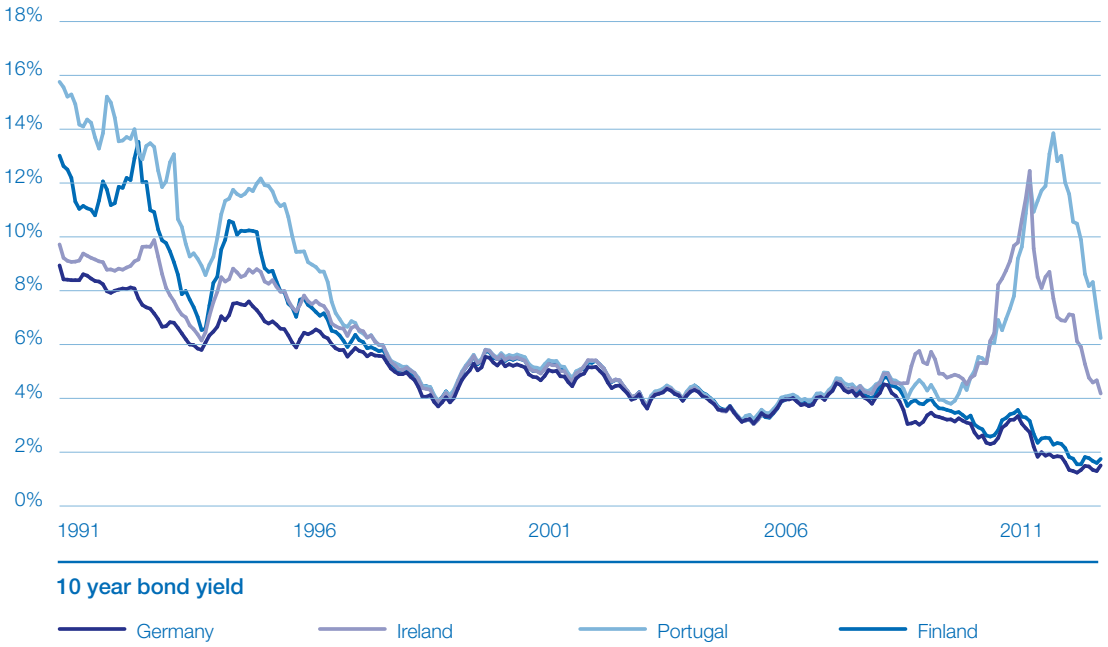
3.46 However, the experience of the euro area was that sovereign rates converged rapidly after the introduction of the euro. This occurred despite very different fiscal positions across Member States, suggesting that market discipline mechanisms did not initially operate fully, and that markets failed to accurately price risks. There are a number of reasons why this may have happened. It may have occurred: because of the expectation that economic and fiscal conditions between members of the currency union would eventually converge; due to a lack of transparency on fiscal positions; and/or an expectation that the no bail-out provisions would not apply.[18]

[18] As described below in more detail, euro area institutions included from the start a 'no-bail out' clause, stipulating that debt of each state was its sole responsibility. Convergence in borrowing costs observed prior to the crisis may suggest that financial markets did not believe this clause would apply, i.e. that some form of cross-union guarantee might offer them protection in case of difficulties in one Member State.

3.47 As the euro area crisis also showed, a convergence in sovereign spreads can be very rapidly reversed, and a sudden change in market perception can cause rapid and large corrections. Because of spillovers and interdependencies, this can have a direct impact on all members of the union, creating risks of contagion from one member to another, and potentially making it necessary for the union as a whole to intervene to support some of the members. The existence of these interdependencies drives the requirement for a rigorous fiscal framework to complement a formal currency union.

3.48 Chart 3C shows how the bond yields of Ireland, Portugal and Finland converged on German bond yields in the run up to and after the inception of the euro. It then shows how rapidly this convergence can reverse, with Portuguese and Irish yields increasing throughout 2009 and 2010. In contrast, German and Finnish yields fell during this period.[19]

Chart 3C: Bond yields of selected euro area countries, 1991 to January 2013



Source: Eurostat, ECB

3.49 It was this line of argument that was behind the establishment and subsequent development of constraints on the fiscal policy of euro area countries, including the Stability and Growth Pact, Excessive Deficit Procedures and the Fiscal Compact (set out in more detail in Chapter 5). This framework is designed to facilitate the operation of market discipline and provide a back-stop if market discipline still fails to fully apply. It is intended to reassure markets about the sustainability of the currency union and of Member States' public finances, and limit borrowing costs and the risk of sovereign debt problems in more difficult times. From the start of the euro area it included:

- a requirement for consistent and transparent statistical publications for the state of the public finances;
- a credible no bail-out clause and clarity on the role of the central bank as lender of last resort to sovereigns; and
- some explicit and enforceable constraints on debt and borrowing (fiscal rules).

[19] Ireland, Portugal and Finland have been used as they are the countries closest in size to Scotland (as measured by GDP) within the euro area. Although Greece is also close in size, it was not included in this analysis as it was considered to be a less relevant example.

3.50 However, in recent years it has become clear that European Treaty provisions proved inadequate to ensure appropriate fiscal discipline and efficient market discrimination between the different members in the run-up to the crisis. This is an area where Eurosystem institutions are currently changing in response to the recent euro area crisis. Reforms in the euro area have aimed at strengthening the rigour of this fiscal framework, in particular through the Fiscal Compact (as part of the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union), which commits that the budget position for signatories shall be "balanced or in surplus" and that such a rule should be included in national law and be of "binding force and permanent character, preferably constitutional".[20]

3.51 At the same time, the euro area has also taken steps to provide inter-regional fiscal support at the euro area level through the European Stability Mechanism. A greater mutualisation of fiscal risks has also reinforced the need for stronger fiscal controls and more rigorous oversight.

3.52 In the light of the euro area experience, it is clear that appropriate fiscal constraints would be needed in a formal currency union between an independent Scottish state and the continuing UK. However, as already mentioned, there would be a fundamental asymmetry in the degree of exposure to fiscal risk as a sterling union would comprise two members of very different sizes. In addition, investors may continue to expect the continuing UK to bear some responsibility for guaranteeing debt initially issued by the UK but subsequently inherited by the independent Scottish state. This could add to the risk that financial markets may expect the UK Government to underwrite Scottish sovereign liabilities, were an independent Scottish state to be subject to a period of fiscal or financial distress.

3.53 The appropriate set of fiscal rules and constraints under which the continuing UK may agree to form a sterling currency union would therefore be likely to be more stringent and less symmetric than those developed in the euro area.

3.54 They would certainly include some independently verified fiscal constraints. As suggested by the Fiscal Commission in its report to the Scottish Government,[21] an independent Scottish state could establish its own independent fiscal authority, a Scottish version of the OBR. However, some mechanism for third-party verification would also be necessary.[22] A formal sterling union would require some UK oversight of an independent Scottish state's fiscal position alongside a framework that would be judged suitable for the currency union as a whole.

3.55 The degree of fiscal oversight may also need to stretch beyond the agreement on an appropriate set of fiscal rules and some form of national-level independent oversight. Regular monitoring of Scotland's fiscal position by the continuing UK would probably be required, including some mechanism for intervention if fiscal risks to the stability of the currency union were to arise.

3.56 This could potentially include the possibility for the continuing UK to assess Scotland's fiscal plans in light of their impact on the fiscal sustainability of the currency union as a whole, including efforts to minimise the risks of tax competition that could lead to an erosion of the tax base and sub-optimal taxation choices.

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[20] "Treaty on stability, coordination and governance in the Economic and Monetary Union", www.consilium.europa.eu/media/1478399/07_-_txg.en12.pdf

[21] "Fiscal Commission Working Group First Report – Macroeconomic Framework" (2013).

[22] For example, the euro area currently requires budget plans to be submitted to the European Commission by each Member State, to ensure compliance with the Stability and Growth Pact (SGP), and sanctions are available under the Excessive Deficit Procedure (EDP).

3.57 In summary, a formal currency union between the continuing UK and an independent Scottish state could place a number of demands on fiscal arrangements. It would require a more active fiscal policy to stabilise the economy in response to shocks, in a context where market discipline would reduce the scope for fiscal stabilisation. In addition, it would create important fiscal risks for the continuing UK that it would seek to minimise in any negotiation to form a sterling currency union with an independent Scotland. These conditions would be likely to reduce the sovereignty of the new independent Scottish state over its fiscal choices.

Financial stability

3.58 In a formal sterling currency union the Bank of England would play a role in ensuring financial stability across the two countries, at least to the extent that this is important to the monetary transmission mechanism and the effectiveness of monetary policy. An important question is whether this responsibility might include a role as the lender of last resort to the financial sector (defined in Box 2B). A framework for crisis management procedures between the two countries would need to be agreed.

3.59 It is not clear how the current arrangements would evolve if the Bank of England were to become the central bank for two independent countries. In particular, if the Bank of England were to act as a lender of last resort in response to a solvency crisis (see Box 2B) in both jurisdictions, this would involve an implicit commitment of public funds. This would require a set of negotiated terms between the continuing UK and an independent Scottish state regarding the conditions of interventions by the Bank of England, and any indemnifications for them.

3.60 The Bank of England's interventions and the governance and political accountability behind crisis resolution procedures would have to be clearly defined and agreed between an independent Scottish state and the continuing UK, to limit the risks of fiscal spillovers from lender of last resort operations. It is clear that the coordination of crisis resolution procedures would be a lot more complex with two governments and one central bank than under the current system.

3.61 However, the experience of the euro area has demonstrated that crisis management requires both monetary roles (to address liquidity issues) and fiscal roles (to address solvency). Clear rules under which the central bank would be required to act as lender of last resort may not be enough on their own. If the relevant fiscal authority does not have the fiscal space or tools to respond to the solvency problems (e.g. recapitalisation of the banking sector) this is likely to increase the risks of joint banking and sovereign crises. This can result in the emergence of a vicious circle between banks and sovereign debt. In the euro area, recognition of these risks has motivated the development of a banking union to underpin the currency union, encompassing an integrated system of financial sector supervision and a common fiscal backstop for the euro area banking sector as a whole.

3.62 At the other end of the spectrum, it might be possible to design financial stability arrangements where each member would be responsible for the resolution of solvency crisis in its own jurisdiction (as opposed to a common fiscal backstop). This would require each member to "self-insure" against the potential liabilities of its financial sector. Under the current domicile arrangements,[23] an independent Scottish state would have a very large banking sector relative to the size of its economy. The size of this sector would be a

[23] It is not clear whether domicile arrangements would remain the same in the event of Scottish independence. International examples show that the fiscal capacity of the sovereign can influence the domicile decisions of financial institutions: this is the case for example in New Zealand, where all financial institutions are actually registered in Australia.

significant contingent fiscal risk. An independent Scottish state would therefore need to establish sufficient fiscal space to provide implicit insurance against the risk of future crises in the sector.

3.63 Hence one option might be for Scotland to self-insure by pre-funding the risk i.e. by lowering its public debt level. Alternatively it could potentially look to pay a fee to the UK Government to provide this insurance. Either possibility would place a further significant fiscal constraint on an independent Scottish state in a sterling currency union.[24] Carefully designed financial regulation could ensure that the financial sector self-insures, limiting the fiscal burden on the sovereign. The exact financial stability arrangements for a formal sterling currency union would have to be agreed between the continuing UK and an independent Scottish state to minimise fiscal and financial risks.

3.64 Existing supervision requirements defined under European law would also have to be taken into account in these negotiations. Under European law, an independent Scottish state would be required to establish its own competent authority to regulate and supervise financial services and could not amount to banking union with the UK as a separate Member State. Regulation of the UK financial services is carried out under the legislative framework put in place by the UK Parliament.

3.65 It might theoretically be possible for an independent Scotland, with the agreement of the continuing UK, to appoint the Prudential Regulation Authority (PRA) and Financial Conduct Authority (FCA) as its regulators, but this would not allow the FCA and PRA to regulate Scottish firms on a "UK wide" basis. The provision of services by Scottish firms to the rest of the UK would be done under passporting provisions of EU law, meaning that the independent Scottish state and the continuing UK would not be a common jurisdiction – even if the regulator had jurisdiction over both. An independent Scotland would need to establish and maintain a body of financial services legislation and would have a range of specific responsibilities under EU law, which could not be shared with the UK Government. A forthcoming publication on financial services as part of the Scotland analysis series will provide more detail on these questions.

Conclusion

3.66 The current policy proposal of the Scottish Government is for an independent Scottish state to enter a formal sterling currency union with the continuing UK. **If such a union could be agreed, sterling would be used as a single currency and the Bank of England would act as a common central bank to both countries**. There would be benefits for both an independent Scotland and the continuing UK from continuing to use the same currency and keep transaction costs low, but it would also create significant macroeconomic risks.

3.67 **The economic suitability of Scotland's current use of sterling would decline in the event of independence**. Monetary policy would become less well suited to Scottish economic conditions and there would be weaker private sector mechanisms to stabilise the economy. **Fiscal policy would therefore need to do more to stabilise the economy.** With independent fiscal policies, and in the absence of fiscal transfers, this extra support would have to be self-funded. This would take the form of large fiscal surpluses in good times providing a buffer for self-insurance against shocks, and/or deficit funded counter-cyclical fiscal policy. However, cost of borrowing would be likely to be higher for an independent Scottish state. **Membership of a**

[24] Establishing the costs of self-insuring or the actuarially fair price of obtaining insurance would be extremely difficult to do given the nature of the risk and complexity of the financial sector. But the current size of the financial sector in Scotland implies that the numbers would be likely to be significant.

currency union could also place constraints on the efficiency of the fiscal policy lever, and the scope for fiscal stabilisation available to an independent Scottish state.

3.68 The experience of the euro area has shown that market conditions and perceptions can greatly limit the ability of members of a currency union to access credit markets to use fiscal policy in response to a large shock, especially if there is no lender of last resort apparatus for sovereign debt. It has also highlighted that, acting individually, members of a currency union tend to provide less fiscal stimulus to their economy than they would with better fiscal coordination.

3.69 In addition, the experience of the euro area has illustrated the difficulty of restricting the consequences of fiscal actions solely to the individual member of a currency union, and the need for enforceable fiscal constraints that could limit the sovereignty of members of the currency union.

3.70 **The Bank of England could continue to play an important role to support financial stability in the event that a formal currency union were to be agreed.** This may include the provision of lender of last resort facilities to the financial sector. In this case, the implicit commitment of public funds to underwrite any financial stability interventions could also create important fiscal risks for the UK. The UK's interest would be to minimise these risks through a well designed framework and clear conditions for financial stability interventions.

Chapter 4:
Unilateral adoption of sterling

An independent Scottish state could continue to use sterling as its currency without a formal agreement with the continuing UK. In this case, **an independent Scottish state would unilaterally adopt sterling (so-called "sterlingisation"), while the continuing UK would not be required to change any of its institutions and policies**. The Bank of England may simply continue to operate with a focus on its formal area of responsibility without taking account of Scottish economic conditions.

The main benefit from this option would be the **simplicity of the transition process and the ability to maintain low transaction costs** between an independent Scottish state and the continuing UK. However **this would come at the cost of restrictive constraints on the ability of an independent Scottish state to use its main macroeconomic policy levers.**

An independent Scottish state would have extremely limited control over its monetary policy. The supply of sterling in the economy would have to be "imported" through balance of payments surpluses.

Market conditions would be likely to place severe constraints on an independent Scottish state's ability to use its fiscal policy lever. It would borrow in a currency on which it would have no control, and in a monetary environment that may be seen as unsustainable in the long-run by investors. Under these circumstances, an independent Scottish state would be expected to face high borrowing costs.

There would be limited levers to support financial stability. With no ability to print money, a Scottish monetary authority would have at best a limited function as a lender of last resort to commercial banks. This would be restricted to the provision of temporary financial assistance out of excess foreign reserves, with potential fiscal implications. The experience of dollarized countries suggests that the Bank of England would not be required to support financial institutions domiciled in Scotland.

In sum, the sterlingisation option would impose severe constraints on the macroeconomic policy levers available to an independent Scottish state. These constraints typically explain the appeal of this arrangement to the limited number of small countries that have adopted it, since they provide a commitment device in response to a history of economic mismanagement. However, **this framework may be too constraining as a long-term choice for a country the size and financial complexity of an independent Scottish state**.[1]

Introduction

4.1 An independent Scottish state could continue to use sterling as its currency without a formal agreement with the continuing UK. It would unilaterally adopt sterling, while the UK would not be required to change any of its institutions and policies, and the Bank of England may simply continue to operate with a focus on its formal area of responsibility (England, Wales and Northern Ireland) without taking account of economic conditions in the independent Scottish state. This can be termed a "sterlingisation" option, in reference to the widely accepted name of "dollarization", reflecting the historic dominance of the unilateral use of dollar. A number of small countries operate in this setting: Ecuador and Panama with the US dollar; Montenegro and Kosovo with the euro. Box 4A provides more detail on the case of Montenegro.

Box 4A: Montenegro's use of the euro

Montenegro first unilaterally adopted the Deutsche Mark in 1999 and then the euro in 2002. This was intended to combat the extreme monetary instability that had occurred in the country during the previous two decades. The collapse of Yugoslavia had led to two separate periods of hyperinflation in Montenegro, including one of the most extreme phases of hyperinflation in economic history in 1994. Even in 1999, when the Deutsche Mark was adopted, annual inflation was over 42 per cent. The adoption of the euro was done outside of the official framework for euro entry and there was no formal discussion with the EU or the ECB prior to the decision to adopt the euro.

The adoption of the euro allowed Montenegro to acquire a credible monetary policy during post-war reconstruction. Inflation was below three per cent in 2011. However unilateral euroisation resulted in Montenegro importing inappropriately loose monetary conditions. In particular, Montenegro had very limited policy tools available to restrict the rapid increase in credit growth in 2008 and prevent the economy from overheating.[1]

In terms of financial stability, any financial sector support to either solvent or insolvent financial institutions is largely determined by the fiscal capacity of the government. The IMF recommended in its last Article IV review of Montenegro that significant reserves were maintained in order to provide a backstop for the financial sector.

[1] IMF, (2011) "Montenegro: 2011 Article IV consultation".

[1] "International evidence suggests that informal monetary unions tend to be adopted by transition economies or small territories with a special relationship with a larger trading partner (...). Advanced economies of a significant scale tend not to operate in such a monetary framework. Though an option in the short-term, it is not likely to be a long-term solution.", Fiscal Commission Working Group First Report – Annex Assessment of key currency options (2013).

4.2 Countries that use this approach have no independent monetary policy.[2] But in many cases that is precisely the motivation: the effective "importing" of responsibility for monetary policy is typically designed to avoid repeating a history of poor currency and exchange rate management. Adopting the currency of a credible anchor country can help an inflation-prone country eliminate the inflation-bias problem of discretionary monetary policy[3]. This bias may stem from two sources: attempts to over-stimulate the economy and incentives to monetise budget deficits and debts. For many developing countries, dollarisation provides a much better commitment device than alternative forms of fixed exchange rates.

4.3 Operational cost is also a factor. Under sterlingisation a Scottish monetary authority with a limited role to manage the money supply, rather than a full central bank, would probably suffice. The required institutional apparatus needed to manage an independent currency can be more complex and expensive to establish and maintain. However, it is unlikely that either of these two motivations would apply to a newly independent Scottish state.

4.4 The closest alternative to full sterlingisation would be a currency board that tied the currency to sterling. Under this option an independent Scotland would have its own currency, but the Scottish currency would be fully convertible at a fixed parity with sterling and fully backed by sterling reserves. A currency board scenario is described in more detail in Chapter 6 but a comparison of sterlingisation with a currency board illustrates some key features of the sterlingisation option, and will be discussed through this chapter.

Transaction costs

4.5 With sterlingisation Scottish households and businesses would simply continue to use sterling as before, and there would be no, or very limited, transition costs for day-to-day economic activity.[4] In contrast, the currency board option would require Scotland to introduce its own currency to replace sterling. This would clearly have higher transitional and transaction costs. In fact, the absence of a separate Scottish currency would represent a useful commitment device to the sterlingisation strategy, given the practical difficulties of replacing the currency. This should strengthen confidence in the long-term commitment to use sterling. Transaction costs would be kept low, even for long-term decisions, including cross-border investment.

4.6 Commitments to currency boards are inherently less binding and this is reflected in their history. While Hong Kong has successfully maintained a currency board with the US dollar since 1983, the Argentine Currency board was abandoned in 2002 and the peso devalued against the dollar (Box 6C provides more detail). The degree of political commitment is clearly important, but the greater logistical ease with which this approach can be abandoned may have implications for transaction costs, especially on long-term operations or in times of financial pressure.

Monetary policy

4.7 Experiences from countries that have unilaterally adopted a foreign currency suggest that an independent Scottish state could either have no central bank (Panama) or have a central bank with limited powers and responsibilities (Montenegro), and this would not be a currency issuing bank. Either choice could potentially conflict with the institutional requirements for EU membership.

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[2] Berg, Borensztein (2000) "The Pros and Cons of Full Dollarization".

[3] Barro and Gordon (1963) "Rules, Discretion and Reputation in a Model of Monetary Policy".

[4] This would raise a question about the use of Scottish banknotes – see Box 2D for more detail.

4.8 Countries using a foreign currency unilaterally have very limited control over their monetary policy. There is no central bank with the ability to create reserves in the banking system and influence the wider supply of money in the economy i.e. to "print money". The money supply is market driven. The currency used for day-to-day transactions must be obtained by exporting goods or services or borrowing capital from abroad. Hence a surplus in the balance of payments would lead to an expansion of the money supply (which would tend to be inflationary for the Scottish economy) and a deficit to a contraction of the money supply (which would tend to be deflationary).

4.9 A degree of counter-cyclical monetary policy may be possible. There may be some scope for a Scottish monetary authority to manage changes in the money supply by building reserves in times of balance of payments surpluses, limiting the monetary expansion, and then running down reserves to limit the contractionary effect of balance of payments deficits. However these powers are likely to be extremely limited. By contrast, a currency board may have more scope to control its issuance of domestic currency in response to inflows of foreign reserves.

4.10 Monetary policy and exchange rate adjustments would therefore be almost entirely subject to policies conducted in the continuing UK. The continuing UK would be responsible for deciding if it wished to accommodate the needs of the Scottish economy. The US position on dollarization (known as The Three "Nos")[5] has been to not modify its institutions or its policy stance to accommodate the needs of dollarized economies:

- the US does not extend financial supervision to banks registered in dollarized countries;
- the US does not provide access to the Federal Discount Window to banks registered in dollarized countries; and
- the US does not modify the procedures or orientation of its monetary policy to take account of conditions of dollarized economies.

4.11 Alongside the ability to influence its domestic monetary conditions, Scotland would also lose access to the seigniorage benefits of currency issuance. The Bank of England's note issue is wholly backed by a variety of high-quality securities and assets, including those acquired through the Bank's open market operations, and UK Government bonds. The income from these assets, less the costs of the production, issue, and custody of banknotes, is paid to the Government as seigniorage. This was worth £851m in 2011/12.[6]

4.12 In addition to limited control over the total amount of liquidity available in the country, countries using a foreign currency unilaterally may have difficulties managing the composition of the available liquidity. It can be a particular problem to provide sufficient quantities of coins and smaller bank notes for everyday transactions. A local Scottish currency, fully backed by sterling, might be issued to facilitate domestic transactions (as is the case in Panama with the Panamanian Balboa).

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[5] Larry Summers, then US Secretary of States, said in 1999 that it would not be appropriate for the US authorities to "extend the net of bank supervision, to provide access to the Federal Reserve discount window, or adjust bank supervisory responsibility or the procedures or orientation of U.S. monetary policy in light of another country deciding to adopt the dollar" (cited in Kenen (2000)).

[6] Bank of England Annual Report 2012.

4.13 Finally, an independent Scotland would be unable to rely on exchange rate adjustment mechanisms in response to a very large shock to its economy. The inability to use monetary policy effectively to manage demand in the Scottish economy would therefore place greater emphasis on other sources of economic adjustment, in particular fiscal policy, but also highly flexible labour and product markets.

Fiscal policy

4.14 Monetary policy would be driven by the Bank of England's response to economic conditions in the UK, and by changes in the independent Scottish state's balance of payments. As described previously, this suggests that monetary policy would become less effective at stabilising the Scottish economy. This option could therefore require a more active role for fiscal policy to stabilise the Scottish economy in response to shocks. Unlike the current situation in the UK, whereby fiscal policy seeks to support the stabilisation objective of monetary policy, a sterlingisation scenario would potentially require fiscal policy to offset the destabilising effects of an imported, but inappropriate, monetary policy.

4.15 With no formal monetary interactions between the independent Scottish state and the continuing UK, it would be unlikely that there would be any formal fiscal arrangements between the two countries. However, the independent Scottish state would borrow in a currency over which it would have no control. This would make Scottish sovereign bonds subject to a higher default risk and increase the risks of potentially destabilising increases in borrowing costs, especially in times of economic stress. Uncertainty about the long-term sustainability of a sterlingisation arrangement would also influence market perceptions and reinforce the upward pressure on borrowing costs.

4.16 The loss of fiscal transfers and the implied constraints on the fiscal position, would curtail the ability of the Scottish government to use fiscal policy to stabilise the economy. Instead, the independent Scottish state would need to rely more heavily on mechanisms of inter-temporal self-insurance against large economic shocks. An independent Scottish state would in effect have to self-insure against such economic risks by "pre-funding" its fiscal position to retain the flexibility for fiscal policy to respond in times of economic stress. In practice, this would require Scotland to run (potentially large) fiscal surpluses in the "good times".[7]

Financial stability

4.17 The continued use of sterling as the official Scottish currency would limit transition costs and provide a stable environment that could be beneficial to maintaining a large Scottish financial sector. However, sterlingisation would raise a number of very important questions for the management of systemic risk at the macroeconomic level, and lender of last resort and crisis resolution functions more broadly.

4.18 In a sterlingisation arrangement, the Scottish monetary authority would be unable to "print money" (i.e. create central bank reserves) and would therefore be subject to its own default risk. As such, it could have at best only a limited function as a lender of last resort to commercial banks. It would be restricted to the provision of temporary financial assistance out of excess sterling and other foreign reserves. It is also likely that fiscal surpluses would be required to accumulate these excess foreign reserves, further increasing the restrictions on fiscal policy.

[7] The definition of "good times" can reasonably be left to be ambiguous for the purposes of demonstrating the argument. But it is likely that this would not be restricted to periods when the economy is running above its potential output, if sufficient resources are to be built up, i.e. it may imply a mildly pro-cyclical fiscal stance, when the economy is below its potential level of output, but not in recession.

4.19 The monetary authority (supported by the fiscal authority) would not be able to act as the ultimate guarantor of financial stability to prevent systemic bank runs. There would be no 'sovereign backstop' to the financial system. Well designed and strict financial sector regulations may ease the reliance on accumulated reserves, and by extension fiscal policy. For example, the use of counter-cyclical capital buffers should help to reduce systemic risks to the financial sector and limit the need for public support by ensuring that the banking sector self-insures.

4.20 Historical and international examples suggest that it can be possible for a country to follow the sterlingisation approach without recourse to a lender of last resort, such as Ireland in the early 20th century (see Boxes 1B and 6D for more detail), and Panama currently. However, these examples are clearly of limited relevance for a country of Scotland's size and economic and financial complexity.

Conclusion

4.21 An independent Scottish state could continue to use sterling as its currency without a formal agreement with the continuing UK (or "sterlingisation"). The continuing UK would not be required to change any of its institutions and policies. In particular, the Bank of England may simply continue to operate with a focus on its formal area of responsibility (England, Wales and Northern Ireland) without taking account of Scottish economic conditions.

4.22 **Sterlingisation would minimise transition costs and help to maintain low transaction costs with the UK. But it would also place very important constraints on the macroeconomic instruments available to an independent Scottish state to stabilise its economy.**

4.23 Scotland would have an extremely limited control over its monetary policy, which would de facto be set by the Bank of England. The supply of money in the economy would be market driven and subject to fluctuations in the balance of payments. With less effective monetary policy, fiscal policy would be required to have a greater stabilisation role, but would be constrained by higher borrowing costs.

4.24 The tools available to an independent Scottish state to respond to a financial crisis would be limited. The monetary authority of the new independent Scottish state would be unable to print money and hence could have only a very limited role for crisis resolution.

4.25 **Sterlingisation would impose severe monetary and fiscal discipline on a new independent Scottish state. This framework may be too constraining as a long-term choice for a country the size and financial complexity of an independent Scottish state.**

Chapter 5:
Joining the euro area

As part of the negotiations of its EU membership, an independent Scottish state would need to resolve the question of euro membership. **All new Member States admitted to the EU since 1993 have been formally required to commit to euro membership**.

If an independent Scottish state were to join the euro area there would be a significant one-off cost to the economy from the change-over of notes and coins and from changes to business accounting and payment systems.

At a macroeconomic level, euro area monetary policy would be set for the euro area as a whole, and Scotland's size means that its economic conditions would have limited influence on euro area monetary policy. **Less well adapted monetary policy could put more pressure on an independent Scottish state's fiscal policy to compensate for the poorer suitability of monetary policy**.

In doing so, an independent Scottish state would be likely to face the same constraints as other small euro area countries. **The recent experience of the euro area is that national level fiscal policy alone has not been able to provide effective counter-cyclical support to the economy in response to a severe economic shock**.

Instead, a key lesson of the euro area crisis is that monetary union requires greater fiscal integration. **The euro area is currently reforming in response to these challenges, developing mechanisms for cross country fiscal support, tougher rules on fiscal rigour and a stronger banking union**. These are necessary steps to ensure greater stability in the euro area economy in the future.

If an independent Scottish state were to join the euro area, it would benefit from this stronger macroeconomic framework, but it would face the same constraints in ensuring economic stability as other small euro area Member States.

Introduction

5.1 Under EU membership criteria, all Member States are required to commit to join the euro area unless they negotiate a formal opt-out. The option of adopting the euro would therefore require serious consideration by an indepedent Scottish state. This chapter discusses the potential implications for the Scottish economy and its macroeconomic framework.

Conditions and requirements for euro membership

5.2 The UK Government's paper *Scotland analysis: Devolution and the implications of Scottish independence* set out that the UK's EU membership would continue automatically. An independent Scottish state would be a new state; there is a strong case that it would have to go through some form of accession process to become a member of the EU. Negotiations would be needed to bring this about. It therefore cannot be guaranteed that an independent Scottish state would benefit from any of the current opt-outs the UK has negotiated, in particular from membership of the single currency.

5.3 The Maastricht Treaty (1992) obliges EU Member States to adopt the euro upon meeting certain monetary and budgetary convergence criteria, although the UK and Denmark negotiated exemptions.[1] Under EU enlargement criteria, membership of the single currency is obligatory for all accession states. And all countries that have joined the EU since 1993 have committed to adopt the euro in due course.

5.4 Formally, the EU requires this commitment, as well as acceptance of the Maastricht conditions on deficit and debt, as part of the acquis communautaire of all new Member States. Since an independent Scotland would be a new state and would have to go through some form of accession process to become a member of the EU, it would in principle be required to make a formal commitment to adopt the euro at some time in the future.

5.5 The Maastricht criteria (detailed in Box 5A) require membership of the Exchange Rate Mechanism (ERM II) for a two-year period.[2] Sterling options (formal sterling currency union, sterlingisation and currency board with sterling) would not satisfy this criterion. It is unlikely that an independent Scottish state could adopt the euro immediately upon independence and no country has formally joined the euro area without having first had its own independent currency. This may create an obligation for Scotland to adopt its own currency first, in order to meet the convergence criteria, and then adopt the euro. Certainly, there would be major uncertainties over this question, which would also be relevant to negotiations with the continuing UK over a formal sterling currency union.

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[1] Under its accession treaty, Sweden is obliged to join the euro area once it meets the necessary conditions. Although the Swedish people rejected euro membership in a 2003 referendum, and Sweden has yet to fulfil the final criterion (membership of ERM II), the Swedish Government acknowledges that the political and legal obligation persists, although it has set no timetable for meeting it.

[2] In ERM II, the exchange rate of non euro area countries is fixed at an agreed rate against the euro, and allowed to fluctuate by up to 15 per cent above and below this rate. Coordinated interventions by the ECB and the national central bank are possible to support the currency when necessary.

Box 5A: The Maastricht Convergence criteria

- **Price stability:** inflation less than one and a half percentage points above three best performing Member States (at present would require inflation to be below 3.1 per cent)
- **Sustainable public finances:** government deficit less than 3 per cent of GDP and government debt less than 60 per cent of GDP
- **Durability of convergence:** long-term interest rate less than two percentage points above the three best performing member states in terms of price stability (at present this would require the long-term rate to be below 5.8 per cent)
- **Exchange rate stability:** stable exchange rate against the euro as allowed for in ERM II, without severe tensions or devaluation against the euro
- **Compatibility of national law with Treaty provisions:** this refers to compatibility of national legislation with Articles 130 and 131 of the Treaty and the Statute of the ESCB/ECB and covers central bank independence, prohibition of monetary financing and legal integration of national central banks in the Eurosystem.

Source: www.ecb.int/ecb/orga/escb/html/convergence-criteria.en.html

5.6 Despite the fact that an independent Scottish state would have to negotiate EU membership, the Scottish Government has indicated that it would seek to join the EU but not to adopt the euro in the foreseeable future.[3] As outlined above, such a decision would not be in the hands of the UK or an independent Scotland but would require the agreement of all 27 (soon to be 28) EU Member States.

5.7 A formal commitment for an independent Scottish state to join the euro area at some future date is not without economic consequence. Financial markets would exploit any perceived inconsistencies in macroeconomic policy arrangements, or perceptions that commitments to current arrangements are not absolute. The existence of a commitment to a very different macroeconomic policy could influence the perception of the permanence of any new monetary arrangement.

5.8 The remainder of the chapter considers the economic implications for an independent Scottish state of euro membership.

Transition costs

5.9 One immediate consequence of an independent Scottish state deciding to join the euro area would be the need to transition from using sterling to using the euro. This could in fact imply two successive transitions: from sterling to an independent Scottish currency; and then from an independent Scottish currency to the euro. Each of these transitions could create important costs for the economy.

5.10 These transition costs would take two forms:

- **microeconomic costs:** costs to households, businesses and the public sector that would arise from the changeover to using the new currency and the requirement to set-up new processes and institutional infrastructure (such as a central bank); and

[3] John Swinney, Cabinet Secretary for Finance, Employment and Sustainable Growth, in an interview with the Scotsman, 26 February 2013: "I can't foresee a set of circumstances that will see the economic conditions being correct for the euro for some considerable time (...) It would be difficult to define that but it feels neither to me like the short term or the medium term."

- **macroeconomic costs:** costs that would arise from the transition of the Scottish economy from membership of the UK's macroeconomic policy framework to membership of the euro area.

Microeconomic transition costs

5.11 Transitioning to a new currency – introducing an independent Scottish currency and joining the euro – would impose one-off costs on businesses, individuals and the public sector. Microeconomic changeover costs include dual pricing systems, new accountancy and IT systems and the creation of new Scottish institutions, including a central bank.

5.12 Dual pricing systems would be required during the transition period when both the new currency and the legacy currency are in circulation. These costs could be minimised if there were a fixed exchange rate between the two currencies (i.e. if the independent Scottish currency was pegged to sterling at its introduction, before moving to a euro peg before the transition to euro).

Macroeconomic costs

5.13 The EMU study *Modelling the transition to EMU*[4] identified a number of transition costs that the UK would have faced if it had opted to join the euro area. Similar costs could arise if an independent Scottish state were to join the euro area. These costs could arise for two main reasons:

- first, the monetary policy settings prevailing in an independent Scottish state might differ from those prevailing in the euro area. If this were the case, then the Scottish authorities would need to decide whether to close the gap gradually in a pre-transition phase, or in a single step at the moment of entry. Longer term interest rates would adjust ahead of entry, although the pace of such convergence would depend on how confident markets would be about the timing of entry; and

- second, there could be a divergence between the prevailing exchange rate between the Scottish currency and the euro and the longer term equilibrium rate. In principle, any such divergence could be resolved before an independent Scottish state actually adopted the euro, but some of the adjustment could occur after the event. Given that the nominal exchange rate would be fixed after having joined the euro area, subsequent adjustment of the real exchange rate would have to occur internally, through Scottish inflation rates being higher or lower than the euro area average.

5.14 Four considerations would determine whether the transition period would be smooth or turbulent:

- the difference between monetary policy conditions in an independent Scottish state and the euro area;

- whether Scottish inflation was broadly consistent with ECB's price stability strategy;

- the extent of any divergence of Scottish effective exchange rate from its medium term equilibrium; and

- the extent of wage and price stickiness and the potential for internal adjustment in the Scottish economy.

[4] Peter Westaway, HM Treasury, *Modelling transition to EMU* (2003)

5.15 These considerations suggest that it could be harder for an independent Scottish state to ensure a smooth transition if it were to switch directly from a peg against sterling to a peg against the euro. This is because the sterling-euro exchange rate would reflect market judgements of the appropriate rate for the UK as a whole, taking into account expected differences between the monetary policy stance of the ECB and the Bank of England.

5.16 By contrast, a staged transition would enable the Scottish currency to evolve gradually between the monetary conditions prevailing in the UK and those in the euro area, and to find an entry exchange rate that might be more appropriate than the prevailing sterling-euro rate.

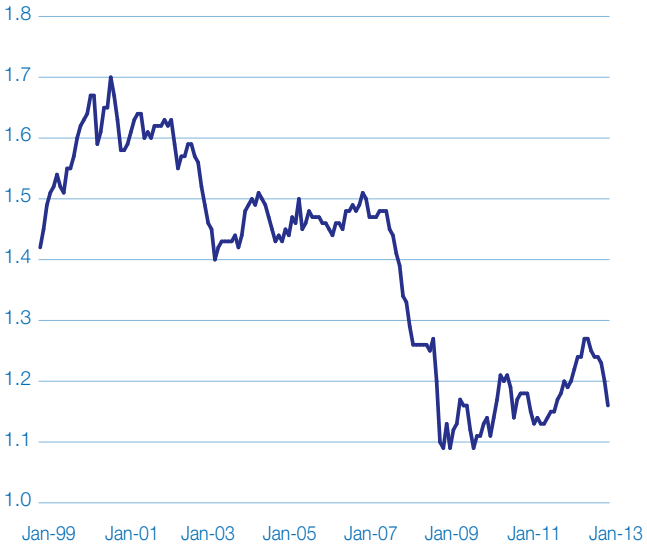
5.17 In any case, it would appear difficult to comply with the exchange rate provisions of the Maastricht Treaty, if an independent Scottish state were to go directly from a sterling peg into the euro area. In addition to the macroeconomic impact of transitioning to the euro area, the initial transition from sterling to an independent Scottish currency would be expected to generate a lot of uncertainty, in particular on the value of a new independent Scottish currency relative to sterling.

Transaction costs

5.18 Beyond the transition period, joining the euro area would have important long-term implications for an independent Scottish state. One immediate effect would be on transaction costs. By adopting the euro, an independent Scottish rate would benefit from lower transaction costs with other members of the euro area. However, adopting the euro would also introduce an exchange rate risk with the UK. Chart 5A shows that the exchange rate between sterling and the euro has exhibited some volatility and occasional sharp movements within short periods.

5.19 As discussed in Chapter 1, the rest of the UK is currently by far Scotland's main economic partner. Statistics published by the Scottish Government[5] show that Scottish exports to EU countries (an upper bound for exports to euro area countries) were four times lower than Scottish exports to the rest of the UK in 2011. Independence and the adoption of the euro could divert some of Scotland's trade with the rest of the UK towards the euro area,

Chart 5A: Euro-sterling exchange rate



Monthly average, spot exchange rates, euro into sterling

Source: Bank of England

[5] Global Connection Survey: www.scotland.gov.uk/topics/statistics/browse/economy/exports/GCSIntroduction

but experience from the euro area suggests that this process would take time and the UK would be expected to remain the main partner of an independent Scottish state for some time.

5.20 Therefore, gains to an independent Scottish state from having lower transaction costs with the euro area would be likely to be small relative to the costs of introducing an exchange rate risk with the continuing UK. Costs would increase for both the Scottish and UK economies.

Monetary policy and institutions

5.21 Upon joining the euro area, the euro would become the currency of the independent Scottish state, and the Eurosystem its relevant monetary authority. The monetary framework of the independent Scottish state would be subject to conditions prevailing at that time in the euro area (as would other aspects of its macroeconomic framework, including fiscal policy and financial stability, discussed later in this chapter). Monetary policy applicable for an independent Scottish state would be set by the ECB's Governing Council.

Monetary institutions

5.22 The euro area is characterised by the existence of a common monetary authority, the Eurosystem, consisting of the European Central Bank (ECB), backed by a network of national central banks of euro area Member States, which are responsible for implementing monetary policy. To join the euro area, an independent Scottish state would need to establish its own national central bank to implement monetary policy and other functions of the Eurosystem as established by the Treaty on Functioning of the European Union (TFEU). Article 130 of the TFEU requires that each Member State have in place an institution to participate in the ESCB, whose independence ("institutional, personal and financial") is enshrined in national law.

5.23 Independence from political pressure, including national political pressures, is a key principle of the Eurosystem. Monetary policy is the competence of the ECB only, under the responsibility of the ECB Governing Council. The ECB Governing Council comprises 23 members – the six members of the Executive Board, nominated by the European Council, and the Governors of the 17 National Central Banks. Although nominated by their national authorities, the Governors are expected to take decisions for the interests of the whole euro area and not to be influenced by their nationality.

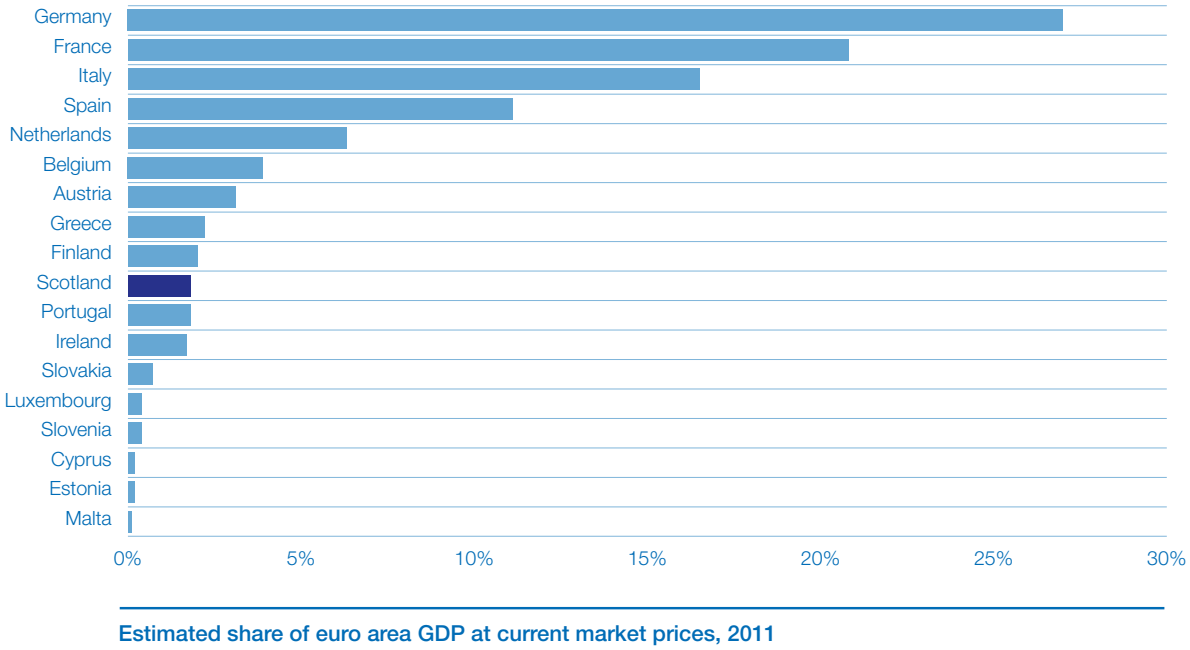
Monetary policy

5.24 The primary objective of the Eurosystem is to maintain price stability across the euro area as a whole. As such, monetary policy set by the ECB Governing Council would take Scottish economic conditions into account to the extent that they affect price developments in the euro area as a whole. In 2011, Scottish GDP (including a geographical share of North Sea oil[6] and at 2011 euro-sterling exchange rate) represented less than two per cent of total output in the euro area. Chart 5B shows this is a size very similar to that of Finland, Portugal, Greece and Ireland. The influence of Scottish economic conditions on the euro area average and therefore on the monetary policy set by the ECB would be limited.

[6] As estimated by the Scottish Government and published as part of the Scottish National Account Project.

5.25 In addition, as set out in Chapter 1, the Scottish economy appears to present some marked differences from the euro area average across a number of important characteristics, in particular on the structure of the economy. This suggests that the Scottish economy is more likely to be exposed to asymmetric shocks with the euro area – shocks that would affect the Scottish economy but not the euro area – than with the rest of the UK. It would therefore be more likely that the specific needs of the Scottish economy would not be as well accommodated by the ECB as they are under monetary policy set by the Bank of England under the current arrangements. The monetary policy set by the ECB would therefore be likely to be less well adapted to Scottish conditions than that of the Bank of England.

Chart 5B: Estimated weight of an independent Scottish state in the euro area



Source: 2011 GDP at current market prices, from Eurostat and Scottish National Account Project (Scottish GDP including a geographical share of North Sea oil and gas, converted at 2011 euro-sterling exchange rate, BoE)

5.26 Sharing a common monetary policy with the euro area may start a process of convergence that would promote greater synchronisation and integration between an independent Scottish state and the rest of the euro area. However, the experience of the euro area shows that this effect could take many years (or may not occur at all), and that there could be some persistent transition costs to Scotland from having monetary policy set by the ECB.

Fiscal policy

Greater need for fiscal stabilisation

5.27 The monetary policy set by the ECB for the euro area as a whole is likely to be less well suited to help stabilise volatility specific to the Scottish economy, placing more pressure on private sector adjustment mechanisms and on the need for fiscal stabilisation.

5.28 Private sector risk-sharing mechanisms are unlikely to provide as much support to adjustment as part of the euro area as they currently do as part of the UK, as the Scottish economy is less closely integrated to the euro area. Flows of labour and capital are more limited, providing less support to stabilise the economy in response to a Scotland-specific shock.

5.29 There is complete integration in the financial markets between Scotland and the rest of the UK. Adopting the euro would increase financial integration of the Scottish economy with the euro area, but it would take time before the current degree of integration in the UK is reached and provides similar private sector adjustment mechanisms through the credit and capital channels.

5.30 As a more volatile economy, with less support to adjustment from monetary policy and from the private sector, an independent Scottish state as part of the euro area would have to rely more heavily on fiscal policy to stabilise its economy. However, as with the option of a formal sterling currency union, membership of the euro area would limit the scope for fiscal stabilisation.

Constraints on the scope for fiscal stabilisation

5.31 Chapter 3 used the experience of the euro area to illustrate how national fiscal stabilisation in response to a large shock can face important constraints in a currency union:

- national fiscal policies can have more limited effectiveness in the absence of coordination at the currency union level;
- market conditions and perceptions can place very restrictive constrains on the ability to use fiscal policy in response to large shocks; and
- members of the currency union have to comply with a number of formal constraints on fiscal policy.

Formal fiscal constraints

5.32 An independent Scottish state in the euro area would need to adopt the fiscal framework in place in the area at that time. Budgetary policies remain the competence of Member States, but a number of institutional arrangements have been made to help ensure sound public finances, as already discussed in Chapter 3. In particular, excessive deficit procedures, as developed in the Stability and Growth Pact (SGP), and stricter rules through the Fiscal Compact aim to limit the risks to price stability that might otherwise arise from unsound public finances. The volatility of tax revenues from North Sea oil and gas would be challenging to manage in the current fiscal framework of the euro area. At the same time, the euro area has also taken steps to provide inter-regional fiscal insurance at the euro area level, via the European Stability Mechanism (ESM), albeit only in specific circumstances when the stability of the euro area as a whole is under threat.

5.33 A combination of restrictive market conditions and limits to the coordination of fiscal policy has reduced the scope for some members of the euro area to use fiscal policy to complement monetary policy in stabilising their economies. This has happened despite monetary policy being possibly less well suited to domestic conditions and private sector risk-sharing less developed in the euro area than in the US or the UK. As a result, a larger internal adjustment, via prices and wages, has been required.[7]

Financial stability

5.34 The euro area is undertaking significant reforms to its financial stability framework. The emergence of serious macro-financial risks in the euro area exposed weaknesses caused by interdependencies between sovereigns and banking sectors. These have had a detrimental impact on short to medium term fiscal positions and have been a central element in the sovereign debt problems that have arisen in several euro area economies. Euro area members are individually responsible for, and highly vulnerable to, the cost of banking crises; at the same time, banks are also exposed to their own governments through their holding of sovereign debt, leaving them susceptible to losses as a result of the sovereign's fiscal weakness. This contrasts with full banking union in the US (as discussed in Box 1A), in which individual states are less vulnerable to financial instability.

5.35 In response to the crisis, the euro area has made important steps towards the principles of a banking union in order to re-establish the stability of the financial sector and break the vicious circle between the banks and sovereigns. Progress so far includes:

- a Single Supervisory Mechanism. Under this proposal, ultimate responsibility for specific supervisory tasks related to the financial stability of all euro area banks will lie with the European Central Bank (ECB). National supervisors will continue to play an important role in day-to-day supervision and in preparing and implementing ECB decisions;
- harmonized deposit protection schemes;
- a single European recovery and resolution framework; and
- a single rulebook in the form of capital requirements.

5.36 In the scenario of an independent Scottish state joining the euro, it would be legally required to join the banking union and comply with any requirements agreed as further elements of the banking union are developed. Prudential supervision of Scottish banks would be the ultimate responsibility of the ECB, but the independent Scottish state would still be required to establish a national competent authority (to provide supervision of institutions that do not meet the relevant threshold conditions and to ensure that all other EU and international obligations regarding financial services regulation are met).

Conclusion

5.37 As part of the negotiations of its EU membership, an independent Scottish state would need to resolve the question of euro membership. **All new Member States admitted to the EU since 1993 have been formally required to commit to euro membership.**

5.38 This analysis shows that joining the euro area would create **significant one-off costs to the Scottish economy,** from the change-over of notes and coins and changes to business accounting and payment systems.

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[7] See Stiglitz (2010) "Can the Euro be Saved".

5.39 Adopting the euro would reduce transaction costs with other members of the euro area, but this gain would be likely to be small relative to the costs of **increasing transaction costs with the rest of the UK,** by far Scotland's main economic partner.

5.40 At a macroeconomic level, euro area monetary policy would be set for the euro area as a whole. Scotland's size means that its economic conditions would have limited influence on euro area monetary policy. **Less well adapted monetary policy could put more pressure on an independent Scottish state's fiscal policy** to compensate for the poorer suitability of monetary policy. The recent experience of the euro area is that **national level fiscal policy alone has not been able to provide effective counter-cyclical support to the economy in response to a severe economic shock.**

5.41 **The euro area is currently moving towards greater integration** – developing mechanisms for cross country fiscal support, tougher rules on fiscal rigour, and a stronger banking union. These are necessary steps to ensure greater stability in the euro area economy in the future.

5.42 If an independent Scottish state were to join the euro area, it would benefit from this stronger macroeconomic framework, but it would face the same constraints in ensuring economic stability as other small euro area Member States.

Chapter 6:
Introducing a new independent Scottish currency

An independent Scottish state could choose to introduce its own currency. The new currency would replace sterling in Scottish circulation and a number of new institutions, including a central bank, would need to be established. **This would create a number of transition costs across the economy and it would take time for the new central bank to establish its credibility**. The choice of an appropriate exchange rate regime would be important.

Opting for a floating exchange rate regime would provide more scope for an independent monetary policy. Fiscal policy would be less constrained, although it would still need to retain the confidence of the capital markets, which would be wary of the vulnerability of the finances of a small open economy with a large financial sector and a volatile tax base. However exchange rate volatility, reinforced by the exposure to volatile oil and gas prices, would increase transaction costs with all of Scotland's economic partners. In some cases, **the exchange rate may also become a source of destabilising shocks for the economy**.

Managed exchange rates and currency board regimes would help to smooth the transition process to a new currency and to establish the credibility of the central bank. It would also limit the increase in transaction costs and a credible long-term commitment to maintain the parity with the anchor currency would limit the negative effects of uncertainty on longer-term investment decisions. **Monetary policy would be assigned to maintaining the parity,** including against possible speculative attacks. This may need to take precedence over using monetary policy to stabilise the Scottish economy, despite potential economic and fiscal costs. Experience from successful currency board regimes such as Hong Kong demonstrates that these regimes can be sustainable. But they **require strong policy discipline**, especially in a crisis, and the accumulation of large fiscal surpluses in good times.

The appropriate choice of the exchange rate regime would depend on the trade-off between a more flexible monetary policy, and greater stability of the exchange rate. The experience of Ireland is that this trade-off could evolve over time.

Introduction and definitions

6.1 An independent Scottish state could choose to introduce its own currency. It would then be faced with an important decision about the choice of exchange rate regime. The broad options, in increasing order of commitment, are:

- **floating exchange rate:** where exchange rate adjustments would be driven by market demand for the Scottish currency. Current examples include the UK and the US, but also smaller economies such as Norway and Sweden;
- **managed exchange rate:** where an independent Scotland would decide to peg its exchange rate to another (anchor) currency (e.g. sterling, the euro or the US dollar), in the form of a band or a peg. Denmark, for instance, currently manages its exchange rate against the euro; and
- **currency board:** where an independent Scottish state would commit to full convertibility of its currency at a fixed parity with an anchor currency (e.g. sterling, the euro or the US dollar). The currency board would be responsible for fully backing the domestic currency with reserves in the anchor currency and for maintaining the parity. Hong Kong for example currently has a currency board with the US dollar.

6.2 The choice of the exchange rate regime would affect the international transactions of an independent Scottish state and the suitability of its monetary policy. There would also be consequences for the fiscal and financial stability frameworks. The decision to float, manage or fix the currency (and the choice of currency to manage/fix against) would depend on an economic assessment of the costs and benefits to the Scottish economy.

6.3 However, other considerations may also influence the approach to exchange rate management. The most notable is the Maastricht convergence criterion requiring EU Member States to peg their currency to the euro as part of ERMII, during the transition to membership of the euro area.

Transition costs

6.4 In all cases, an independent Scottish state would have to set up its own independent monetary authority: a central bank in the case of a floating or managed exchange rate regime, or a currency board in a currency board regime.

6.5 A new independent Scottish currency would also have to be introduced that would replace sterling. This might come with a number of transition costs for the issuing authority and for households and businesses (including the financial sector). Some of the one-off costs on businesses, individuals and the public sector were discussed in Chapter 5, in the context of joining the euro area. This section focuses more specifically on the costs of giving up sterling.

6.6 The breakup of a currency area and the introduction of one or more new domestic currencies is a relatively rare event. The dissolutions of the ruble zone, following the break-up of the USSR, and of the Czechoslovakian monetary union (described in Box 3B) are the primary recent examples. The experience of the introduction of the euro in 11 countries in 1999 can also provide useful insights into transition costs.

6.7 A number of economists have also attempted to assess the likely consequences of a breakup of the euro area. For example, Eichengreen[1] discusses the practicalities of re-introducing domestic currencies in parts of the euro area. These experiences and discussions provide the basis for an assessment of the potential transition costs of introducing a new independent Scottish currency.

6.8 The macroeconomic implications of exiting a currency zone to introduce a new currency are potentially large. An important lesson of the breakup of the Czechoslovakian monetary union is that a new independent Scottish currency would probably have to be introduced very rapidly. The separation of the Czechoslovakian monetary union was officially announced on 2 February 1993, but regular Czechoslovak banknotes were temporarily used until August 1993, with a paper stamp attached to mark whether the notes were Czech or Slovak, while the new currencies were progressively introduced. Any similar process in an independent Scottish state could be further complicated by the widespread circulation of Scottish banknotes (discussed in Box 2D).

6.9 It is likely that capital controls would need to be introduced[2] during any transition period, to counter the effects of expectations of a possible appreciation or depreciation of the new currency against sterling. For example, an expected depreciation could lead to a bank run, with deposit-holders transferring their wealth from Scotland to the rest of the UK to avoid deposits being redenominated into a less valuable currency. The reverse would occur if the new Scottish currency was expected to appreciate against sterling. The risks of these controls being required may be reduced if the Scottish authorities could credibly commit to a managed exchange rate approach to the new currency, thereby limiting uncertainty over its value against sterling.

6.10 Capital controls were required following the dissolution of the Czechoslovakian monetary union. In this case, a less sophisticated financial system at the time of the breakup made some of the practicalities of the breakup easier to implement. For example, the České Spořitelna bank was still a state-owned monopoly, allowing for a more straightforward implementation of capital controls.

6.11 For similar reasons, Eichengreen[3] argues that referring to historical experiences of currency transitions (breakup of the ruble zone or replacement of mark with reichsmark in 1920s Germany) would tend to understate the costs and risks of breaking up a modern currency union (in his analysis, the euro area). In a worst case scenario a bank run could occur during the transition before either a central bank has been created or the fiscal authority is able to borrow. With no lender of last resort and no fiscal backstop to stop the bank run, this could potentially lead to a large financial crisis.

6.12 The redenomination of existing contracts would also be problematic, including the denomination of private and public sector debt. This would be a particular problem for contracts between Scottish and foreign firms which may potentially be subject to foreign law. It could result in an increase in litigation and an extended period of uncertainty.

6.13 Overall, the transition costs of introducing an independent Scottish currency are not inconsequential. However, the experience of the introduction of the euro, which was a much larger logistical exercise, covering many countries, makes clear that while there would be costs involved in the transition, they are not insurmountable.

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1 See Eichengreen (2007) “The breakup of the euro area”.

2 See Fidrmuc and Horvath (1998) “Stability of Monetary Unions: Lessons from the Break-up of Czechoslovakia”.

3 See Eichengreen (2007) “The breakup of the euro area”.

Transaction costs

6.14 The introduction of an independent Scottish currency would increase transaction costs for all Scottish businesses (and households) that trade or operate outside of Scotland, and for all businesses (and households) located in the rest of the UK that currently trade with Scotland. The exact implications would depend on the choice of the exchange rate regime.

Floating exchange rate

6.15 Under a floating exchange rate regime the value of the Scottish currency relative to other currencies, including sterling, would be subject to fluctuations. One immediate effect would be the introduction of exchange rate risk between an independent Scottish state and the continuing UK. Larger businesses, with access to capital markets, would be able to "hedge"[4] this exchange rate risk, limiting its cost, but smaller companies, and households will not. The result would be an increase in transaction costs and, over time, less economic integration between an independent Scottish state and the continuing UK (currently its main economic partner).

6.16 The volatility of these exchange rate fluctuations would also be likely to be more pronounced given the economic characteristics of an independent Scottish state. Scotland would be a small open economy with a large exposure to the volatile oil sector and a large financial sector. Therefore an independent Scottish currency, trading in a relatively illiquid market, and with an exposure to volatile trade and capital flows, might be expected to be volatile.

6.17 This means that the degree of exchange rate volatility between an independent Scottish currency and other non-sterling currencies would be likely to be higher than currently between sterling and other currencies. Hence costs for transactions between Scotland and other currency zones (the euro and US dollar in particular) would be greater than under the current arrangements.

6.18 The negative effects of greater exchange rate volatility could particularly affect the non-oil traded sector. Box 1C in Chapter 1 describes the potential effects of exposure to oil on the exchange rate and consequences for the rest of the economy.

Managed exchange rate

6.19 Transaction costs could be reduced if the independent Scottish state were to adopt a managed exchange rate regime. More constraining forms of peg (with a fixed peg rather than a band) would help reduce exchange rate risks. A stronger commitment to parity and convertibility (as with a currency board) would reinforce the long-term credibility of the regime, limiting convertibility risks and encouraging long-term transactions and investment decisions.

6.20 In this case, the choice of the anchor currency (the currency against which the independent Scottish currency would be managed) would affect the degree to which transaction costs are reduced with different partners, and the total gain from these lower costs. Given Scotland's strong integration with the rest of the UK, sterling would appear to be the most obvious option for an anchor currency with respect to transaction costs. But this is not the only consideration, the resulting suitability of monetary policy would also be important.

[4] Using financial instruments to reduce the costs of adverse movements in the exchange rate for future transactions.

Monetary policy and the exchange rate

Floating exchange rate

6.21 Introducing a fully floating currency would allow an independent Scottish state to gain the benefits of an independent monetary policy and flexible exchange rates to help to stabilise its economy. But the improvement in macroeconomic policy flexibility would come at the microeconomic cost of increasing transaction costs with the UK (and potentially other countries). The assessment presented in Chapter 1 concluded that Scotland and the rest of the UK are economically well suited to share a common currency under the current arrangements. This means that with a floating currency, the benefits of an independent monetary policy would be unlikely to offset the impact of higher transaction costs with the rest of the UK relative to the current arrangements.

6.22 This conclusion is strengthened by the possibility, discussed earlier, that exposure to the volatile oil sector may introduce additional volatility into the exchange rate fluctuations of the new Scottish currency. An important point is that this effect would not just increase costs with the rest of the UK but with all of Scotland's trading partners. There is also risk, again discussed in Chapter 1, that a volatile exchange rate, determined by broader developments in international capital markets rather than fundamentals of the economy, could have destabilising effects on the Scottish economy rather than the expected stabilisation role.[5]

6.23 International economic developments, unrelated to domestic economic conditions, can have powerful influences on a country's exchange rate (especially small open economies). Box 6A describes the experience of Switzerland in the 1970s and more recently. It illustrates the significant effects that developments in the international capital markets can have on currencies, their unintended consequences on the real economy and the limited tools available to policy makers to try to counteract these effects.

Box 6A: Switzerland and the appreciation in the Swiss franc

In the late 1970s, safe haven flight to the Swiss Franc (CHF) resulted in a sharp appreciation of the currency. The appreciation damaged competiveness and reduced Swiss exports. Therefore the authorities responded by introducing a currency ceiling against the Deutsche Mark, with the Swiss National Bank (SNB) buying foreign exchange to defend this ceiling. This purchase of foreign currency increased the domestic money supply (the monetary base increased by over 30 per cent in 1978) and led to an increase in inflation. Inflation reached a peak of 7 per cent in 1981, before the ceiling was broken and the franc left to float again. The SNB was then free to set monetary policy aimed at the domestic economy and inflation fell.

In 2011, the CHF once again appreciated significantly, due to safe haven flows caused by the euro crisis. In September 2011, the SNB set a ceiling against the euro. However, contrary to the 1970s, this policy was set in order to combat deflation, with the interest rate at the zero lower bound. Therefore there was less concern about short term inflation (although there remained potential risks for higher medium term inflation if Switzerland were to continue to attract safe haven inflows).

[5] Artis, Ehrmann (2000) "The exchange rate. A shock absorber or a source of shocks. A study of four open economies".

6.24 Smaller economies may also face additional constraints on the implementation of monetary policy. One example is that there may be less scope for unconventional monetary policy at the zero lower bound. For example, quantitative easing might not be possible for a country with a small domestic bond market.[6]

6.25 In addition, it takes a significant amount of time for a central bank to establish credibility through its actions on fighting inflation.[7] As such, it would take time before the newly established Scottish central bank achieved full credibility. This could have an impact on the effectiveness of monetary policy in the short run and could lead to greater difficulty in keeping inflation expectations anchored.

Managed exchange rate

6.26 The choice of a managed exchange rate regime would mitigate some of the monetary policy challenges of a floating currency. In particular, a managed exchange rate would reduce the risk that high exchange rate volatility could become a source of shocks for the economy. It may also help a new independent Scottish state to establish greater credibility in its monetary policy, given the explicit commitment of the new central bank to control movements in the new currency.

6.27 This was the experience of the UK's initial entry into the Exchange Rate Mechanism (ERM) in 1990. Implied inflation expectations fell when the UK entered the ERM, as entering the peg gave an external low inflation anchor the UK had failed to achieve, increasing credibility and lowering future implied inflation. But the experience also demonstrates the economic risks if global financial markets test the authorities' commitment to a peg. When the UK exited ERM in September 1992, there was a perceived loss in policy makers' credibility and implied future inflation rose.[8]

6.28 A managed exchange rate regime would place significant constraints on monetary policy. Monetary policy would have to be set to defend the peg, rather than for domestic economic reasons. Other things equal, the Scottish central bank would mirror the monetary policy set by the anchor currency, unless differences in economic developments were to put pressure on the exchange rate and call for a different approach.

6.29 A number of EU Member States currently manage their exchange rate against the euro as part of ERMII. Their experience is discussed in Box 6B. There is a clear difference between countries with underlying economic conditions close to the euro area average – Denmark in particular – and those for which the exchange rate has been under stronger pressure from capital markets, such as Latvia. In Denmark's case policy divergences from the ECB policy have been limited, while Latvia, for example, has required more divergent monetary policy responses to maintain the peg against the euro, no matter what may have been a more appropriate stabilisation policy for the economy.

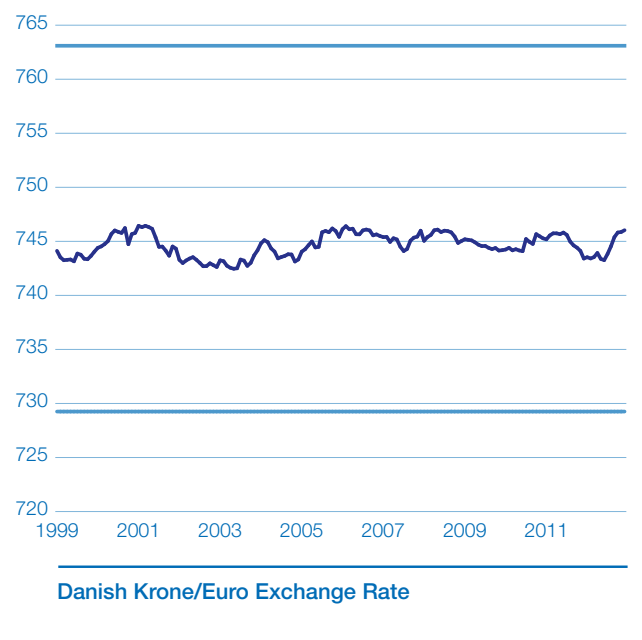
6 IMF (2012) "Switzerland: 2012 Article IV consultation".

7 Blinder (1999) "Central bank credibility: Why do we care? How do we build it?"

8 King (1995) "Credibility and Monetary Policy: Theory and Evidence".

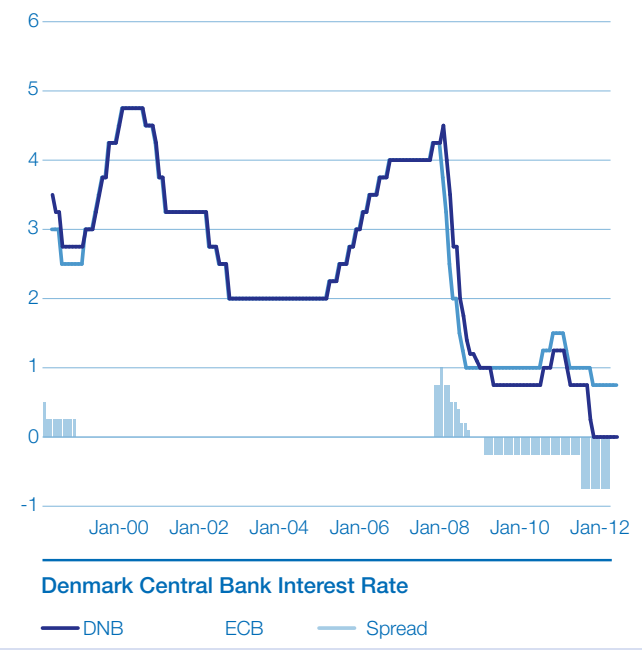
Box 6B: Monetary policy of EU Member States in ERM II

Denmark is a member of ERM II, which fixes the value of the Danish krone against the euro within a narrow target band. The sole objective of monetary policy within Denmark is to keep the krone stable vis-a-vis the euro. Denmark has successfully run a fixed exchange rate policy since 1982, firstly against the Deutsche Mark and then against the euro. Currently the target is defined as a 2.25 per cent band around the central rate of kr .746 per 100 euro, but in effect the band in which the Danish krone has fluctuated against the euro has been much narrower than this.



Source: DNB

Until the euro area sovereign debt crisis, the interest rate set by the Danmarks Nationalbank (DNB) has closely followed the interest rate set by the ECB.

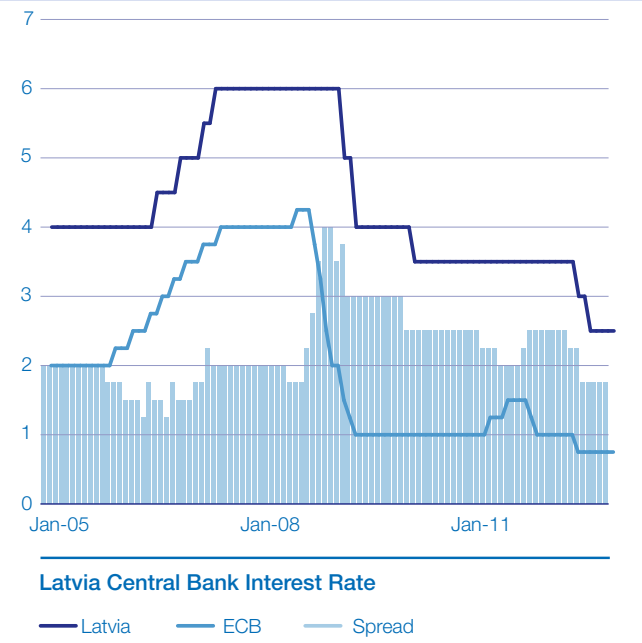


Source: DNB, ECB

Box 6B (continued): Monetary policy of EU Member States in ERM II

During the euro crisis, Denmark has attracted significant capital inflows as a relative safe haven. This has led to upwards pressure on the exchange rate. To counter the pressure, the DNB has set the main policy rate at an historic low of zero per cent. It has also set a negative deposit rate to further deter capital inflows. While negative interest rates are an extreme example, this highlights the unusual actions monetary policy may occasionally have to take in order to defend the fixed exchange rate.

Latvia has also been a member of ERM II since May 2005. It had previously targeted a SDR basket of currencies. The Latvian economy suffered a deep recession in 2008, with the Government requiring an IMF-EU programme between 2008 and 2011. To maintain the exchange rate peg during the period, the spread between the ECB and Latvian interest rate increased (although Latvian rates fell, they fell by less than the ECB rate), while economic conditions would have warranted looser monetary policy.



Source: Eurostat

6.30 This suggests that the choice of the anchor currency would also have important implications for the suitability of the monetary policy for Scottish economic conditions. Evidence presented in Chapter 1 suggests that managing the exchange rate of the new Scottish currency against sterling would provide the most suitable framework, given the similarities and integration between the Scottish economy and the rest of the UK.

Currency board

6.31 Under common definitions of a currency board regime, foreign reserves must be retained to ensure full backing of notes and coins as well as banks' creditors account with the currency board (monetary base). Convertibility between the domestic currency and the anchor currency is absolute and unlimited. Monetary policy is entirely committed to maintaining the parity and convertibility between the domestic and the anchor currency, although there is some scope for modern day currency boards to smooth balance of payment shocks through open market operations and the use of excess reserves (foreign exchange reserves accumulated beyond the backing requirement of the monetary base).[9]

6.32 Replacing the central bank by a currency board with legal responsibilities to ensure the parity and convertibility of the currency strengthens the degree of commitment relative to more standard forms of peg described above. This is usually intended to emphasise the credibility of domestic monetary policy and reinforce confidence in the long-term convertibility into the anchor currency.

6.33 However, this would come at the cost of even more constraining monetary policy than observed with less extreme forms of managed exchange rate regimes. In particular, a currency board would make it particularly difficult for an independent Scottish state to rely on changes in the nominal exchange rate (devaluation or revaluation) to help adjust to large shocks, especially terms of trade shocks.

6.34 In cases of severe economic pressure, the currency board regime can be broken, letting the currency float to facilitate the required economic adjustment. This would limit the need for adjustment to take place internally, via changes in wages, employment and prices, but could create large exit costs for the economy. These exits costs are unavoidable, but intentional.

6.35 A large part of the benefits of a currency board derive from the strength of the economic and political commitment to maintaining the exchange rate parity. In particular, confidence in the long-term commitment to parity and convertibility creates an incentive for both the private and the public sectors to undertake long-term transactions (including taking on debt) in the anchor currency. Exiting the board and devaluating the currency, while helping to restore the competitiveness of the economy, could increase the cost of debt denominated in the anchor currency.

6.36 In responding to a large shock, policy makers would need to trade off the costs of maintaining the currency board and forcing the economy to undergo the necessary internal adjustments against the costs associated with exiting the currency board to facilitate the adjustment. Maintaining the board could require very strong policy discipline, as well as market confidence in the commitment to this discipline. As pressure from financial markets intensifies, there are cases where it may not be economically and politically feasible to maintain the required degree of discipline.[10]

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[9] J. Hawkins and P. Masson, "Economic aspects of regional currency areas and the use of foreign currencies", in *Regional currency areas and the use of foreign currencies*, BIS Papers, May 2003

[10] "Currency boards are at one end of the spectrum between monetary policy credibility and monetary policy flexibility. They maximize the commitment to stable policy at the expense of all ability to tailor monetary conditions to macroeconomic and financial circumstances (...) A currency board is appropriate only under the most exceptional economic and financial circumstances, but also only when there exists broad-based political support for moving to one extreme on the trade-off between policy credibility and policy flexibility." (Eichengreen, (1997) "Comment on Yum K. Kwan and Francis T. Lui, *Hong Kong's Currency Board and Changing Monetary Regimes*")

6.37 Hong Kong has run a successful currency board since 1983. This has required the building up of very large excess foreign reserves in "good times" to provide some self-insurance against shocks. Policy decisions to defend the board against speculative attacks have also been needed, despite incurring costs on the domestic economy. A number of countries that have adopted currency boards have failed to stay the course (most notably Argentina). Box 6C illustrates these experiences.

Box 6C: Currency boards, the experience of Hong Kong and Argentina

Hong Kong currency board

Hong Kong has run a successful currency board since 1983, with the Hong Kong dollar linked to the US dollar. From its inception until 1988, the currency board used a rules based regime. However, from 1988-1998, the regime allowed discretionary interventions. This culminated in the Government spending US$8.8bn of Hong Kong's foreign reserves for large stock market interventions in August 1998. The currency board came under severe pressure during the Asian financial crisis in 1997. This led to the board becoming more disciplined and reverting to following a rules based regime.[1]

Fiscal policy remained relatively tight both before and throughout the crisis. Overall, Hong Kong ran on average a three per cent surplus between 1982 and 2005 and has built fiscal reserves amounting to 30 per cent of GDP.

Argentine currency board

The currency board in Argentina was set up in 1991, with the peso linked to the US dollar. It was introduced in order for Argentina to import a credible monetary policy from the US after a period of very high inflation. This was successful, as inflation was low through the 1990s. However, the credibility of the board started to wane in the late 1990s.

Fiscal policy was too loose during the 1990s, to the point that when recession hit in 1998 (due to the Asian financial crisis and Russian default) it necessitated a sharp procyclical fiscal adjustment. The ability for monetary policy to offset the fiscal tightening was constrained by the need to maintain the value of the peso in the currency board. External imbalances (caused by an appreciation in the US dollar/devaluation of the Brazilian real) that had built up through the 1990s required internal adjustment because of the fixed exchange rate. However, wage and price flexibility was insufficient to achieve the adjustment. This exacerbated the build up of external debt.

These factors led to an adverse debt dynamic, where the public debt to GDP ratio grew unsustainably, and eventually to a sovereign default and devaluation on 6 January 2002. There were widespread defaults in the private sector, as a large proportion of debt was valued in dollars, which had now become much more expensive relative to pesos. Ultimately the currency board was not seen as credible given the domestic economic conditions.[2]

[1] Kwan et al (1999) "The credibility of Hong Kong's currency board: The role of institutional arrangements".

[2] The 2004 report by the Independent Evaluation Office (IEO) into the role of the IMF during the crisis discusses the reasons behind the failure of the currency board in more detail. See IEO (2004) "The IMF and Argentina, 1991-2001".

Fiscal policy

6.38 The choice of the exchange rate regime could have an impact on stabilisation role played by monetary policy, and the extent to which fiscal policy would be required to complement it.

6.39 A floating currency would allow the independent Scottish state to have its own independent monetary policy and flexible exchange rate adjustment. This could help ensure that monetary policy was well suited to economic conditions and plays its own stabilisation role. However, the exchange rate of an independent Scottish currency would be expected to be volatile and could also become a source of shocks for the Scottish economy. Fiscal policy would then be needed to offset the economic impact of these unwanted exchange rate movements.

6.40 Under a managed exchange rate regime, monetary policy would be focused on maintaining the parity and would not help stabilise the Scottish economy in response to an asymmetric shock. This would require a stronger role for fiscal policy to support the economy.

6.41 In addition, maintaining the parity of a currency could have important fiscal implications, as countries may have to run fiscal surpluses and balance of payments surpluses in order to accumulate foreign reserves. Countries with large financial sectors may have to accumulate even more foreign reserves, as excess reserves could potentially be used to support their financial sector (explained in detail in the following section). Currency boards are prohibited from lending to the Government, ensuring strong fiscal discipline, but also potentially increasing the perceived risk of default and the constraints on borrowing from market discipline.

6.42 As discussed in Box 6C, Hong Kong has been running large fiscal surpluses to accumulate the reserves needed to demonstrate its ability to intervene in the event of a crisis (Hong Kong has built fiscal reserves amounting to 30 per cent of GDP). The substantial level of these reserves therefore has a stabilising effect on the financial system. Given the potential size of its financial sector relative to is economy, an independent Scottish state may also need to establish large levels of reserves to self-insure against financial sector risk.

6.43 The experience of the UK exiting the ERM on 16 September 1992 showed the risks and potential fiscal costs of speculative attacks against managed exchange rates. The UK undertook a defence of sterling within the ERM system. However, there was an unwillingness to raise interest rates due to the domestic economic situation. Speculators sold sterling holdings in such quantities that the Bank of England had to make very large currency interventions. As the policy was not credible long term, markets continued to sell sterling. Therefore the peg to the Deutsche Mark was broken and sterling depreciated significantly, with the Bank of England making a large loss on its intervention. Costs to the taxpayer, estimated by HM Treasury and published in 2005, were estimated at £3.3bn.[11]

[11] HM Treasury (2005) "The costs of Black Wednesday reconsidered".

6.44 The currency denomination of public debt would have important implications for the fiscal scope available to the independent Scottish state:

- for the **existing** stock of public debt: a new independent Scottish state would receive a share of existing UK debt (that would have to be negotiated with the continuing UK). Current UK public sector debt is denominated in sterling. Evidence suggests that outstanding debt – both for the public and the private sectors – should be re-dominated to avoid adverse balance-sheet effects of revenues and liabilities being denominated in different currencies.[12]

- for **new** debt: it is unclear whether a new independent Scottish state, with no track record for sound monetary and public finances management, and a small illiquid market for public debt, would be able to borrow in the new Scottish currency at an acceptable cost from the outset. The evidence is that many countries have faced problems using their domestic currency to borrow abroad or even to borrow domestically on the longer term.[13] While this conclusion is largely drawn from the experience of emerging economies, empirical analysis of advanced and emerging economies suggests that the size of a country might be an important part of the explanation for this effect.[14] In any case, it would take a number of years before a full Scottish bond market could be developed. If an independent Scottish state were not able to issue debt in its own currency, at least from the outset, it would have to bear the exchange rate risk (and the cost of hedging against it) and may face more constraining market discipline given the potential higher risk of default.

6.45 Under any exchange rate regime, an independent Scottish state, as a small economy with a large financial sector and a strong reliance on revenues from the volatile North Sea oil and gas sector, would be likely to have a greater need for fiscal stabilisation, while being exposed to fiscal shocks and subject to market discipline. At the same time, the effectiveness of its fiscal policy would be reduced by its openness and the leakages of stimulus into imports. In light of these characteristics, the OECD concluded in 2010 that "fiscal safety margins need to be significantly larger to assist stabilisation in a small, open economy".[15]

Financial stability

6.46 The introduction of a new Scottish currency would have immediate transition and transaction costs for the financial sector, regardless of the choice of exchange rate regime. A competent authority to regulate financial services would need to be established. On independence, Scotland may wish to adopt the existing body of UK law in this area. Thereafter, an independent Scottish state would be responsible for ensuring this legislation was compatible with EU law and would be able to change the legislation for reasons of Scottish domestic policy. Coordination between macro-prudential policy and fiscal policy is particularly important for a country with a large financial sector. Beyond regulation, the independent Scottish state would also have the responsibility for crisis management in response to a financial crisis.

[12] Eichengreen, (2007) "The breakup of the euro area".

[13] A phenomenon Eichengreen and Hausmann have described as the "original sin" (Eichengreen, Haussman, (1999), "Exchange rates and financial fragility").

[14] Haussman and Panizza (2003) "The Mystery of original sin".

[15] OECD (2010) "Counter-cyclical economic policy".

6.47 Under a floating or managed exchange rate regime, the new Scottish central bank would be the lender of last resort for commercial banks registered in the independent Scottish state. The credibility of crisis resolution procedures would depend on the coordination between the role of the new independent Scottish central bank as a lender of last resort and the ability of the independent Scottish government to commit public funds for non standard lender of last resort operations. Crisis management procedures for an independent Scottish state, with a large financial sector and a smaller, more volatile fiscal base, may not be seen as credible as the current UK-wide procedures.

6.48 In addition, in a managed exchange rate regime, very large lender of last resort interventions might create a trade-off between financial stability and maintaining the parity. For example, to defend the Swedish peg against the Deutsche Mark in 1992, Sweden introduced a 500 per cent overnight interest rate. This weakened the economy and further weakened the already fragile Swedish banking sector.[16] This is an extreme example but shows how changes to the interest rate aimed at defending the currency peg may have to ignore what would be needed to accommodate domestic financial and economic conditions.

6.49 For financial stability as for monetary and fiscal policies, currency boards would offer an independent Scottish state less flexibility than other forms of managed exchange rate regimes. As mentioned in Chapter 4 in the case of sterlingisation, currency boards are meant to have no direct control on money supply. In principle, they are unable to print money in the absence of similar increases in foreign reserves and for this reason cannot act as a standard lender of last resort. In practice, modern day currency boards (or the government) might be able to use excess foreign reserves to lend to the financial sector. The Hong Kong Monetary Authority, for example, has a mechanism for providing liquidity assistance to its financial sector.

6.50 Currency boards can therefore have a limited role as lender of last resort (in the form of temporary financial assistance) but would not be able to deal with a larger-scale systemic financial crisis. In practice, this requires the running of large fiscal surpluses and balance of payment surpluses to accumulate enough foreign reserves to provide support to the financial sector.

6.51 This again illustrates that currency boards (and, as described in Chapter 4, unilateral use of a foreign currency), through the very strong constraints they place on monetary policy, offer very limited flexibility for the macroeconomic policy framework. As a counterpart, they help maintain a stable exchange rate and ensure credibility in the institutions as well as strong policy discipline. The experience of Ireland, described in Box 6D (and in Box 1B), illustrates this trade-off.

[16] Obstfeld, Rogoff (1995) “The mirage of fixed exchange rates”

Box 6D: History of the Irish currency board and the link to sterling

Following the creation of the Irish Free State in 1922, Ireland retained sterling as its currency with no formal agreement with the UK. Notes and coins issued by the Bank of England continued to circulate and to be exchanged one-for-one for Irish bank issued notes which were backed by deposits held at the Bank of England.

The formal Irish currency regime began as a currency board in 1927. The currency board was set up to maintain parity between the Irish pound and sterling. The currency regime gradually evolved over the next 50 years. This evolution happened only slowly. In 1943, Ireland replaced the Currency Commission with the Irish Central Bank. However the central bank behaved as a de facto currency board until the 1970s. Its use of its extended powers was limited for two reasons: a continued backing requirement for the currency, and a banking system that did not require lender of last resort support.

By 1965 lending activities by the Central Bank had begun and currency backing rules had been relaxed to include the US dollar. By 1975 reserve requirements were placed on banks. However the Irish regime still retained many features of a currency board until the link to sterling was broken in 1979 when Ireland joined the ERM (Box 1B provides more detail on Ireland's currency choices from the 1920s).

Honohan[1] concludes that the currency board was ultimately successful as a transitory device in Ireland. However, there were a number of special factors which explain why it was successful:

- the existence of an obvious anchor currency (sterling);
- the choice of a 1:1 peg with no margin that reduced transaction costs; and
- the absence of a tradition of lending to the financial system.

An independent Scottish state could potentially fulfil the first two requirements. But the complexity of the Scottish financial sector would make it difficult for Scotland to follow a similar approach.

[1] Honohan (1995) "Currency Board or Central Bank? Lessons from the Irish Pound's Link with Sterling, 1928-79".

6.52 Introducing an independent Scottish currency may also tend to exacerbate the links between monetary decisions and financial stability. First, because in managed exchange rate regimes and currency boards, maintaining the parity may require large fluctuations in the overnight interest rate, which would have direct consequences on the financial sector. Second, because the currency denomination of private sector debt could also have important consequences on the sector.

6.53 Introducing a floating currency could affect the value of existing financial sector liabilities if they remain denominated in sterling. International experience of managed exchange rate regimes and (even more so) currency boards show that the financial sector would be more likely to take on new liabilities denominated in the anchor currency, leading to a risk of currency mismatch that could become very costly in case of a devaluation.

Conclusion

6.54 Introducing a new Scottish currency would require the creation of a number of new institutions (including a central bank) and the replacement of sterling in Scottish circulation with a new currency. **This would create some potentially destabilising transition costs across the economy and could require the use of capital controls. It would also take time for the new central bank to establish its credibility**. Managing the exchange rate against sterling would help limit some of these transition costs.

6.55 **In the longer-term, the choice of the exchange rate regime would depend on the trade-off between a more stable exchange rate and more credible institutions that a managed exchange rate would provide, against the flexibility and increased sovereignty over macroeconomic policies offered by a floating exchange rate**. The experience of Ireland shows that this trade-off may evolve over time. A number of other factors, such as EU requirements, may also have to be considered.

Conclusion

The current currency and monetary policy arrangements within the UK serve Scotland well. The analysis in this paper concludes that all of the alternative arrangements would be likely to be less economically suitable for both Scotland and the rest of the UK.

The current UK's macroeconomic framework provides for a full coordination of fiscal, monetary and financial stability policy. The recent global crisis has demonstrated the benefits of an integrated macroeconomic framework. This framework has enabled UK institutions to respond swiftly and flexibly to the crisis and to evolve to manage risks better in the future.

Monetary arrangements are closely linked to existing political arrangements. If Scotland were to become independent, just as it would change fundamentally the political relationship between the new independent Scottish state and the continuing United Kingdom, it would completely transform the monetary relationship between the two countries.

The analysis in this paper concludes that Scotland is economically well placed as an integral part of the UK. It also considers the four main alternative currency arrangements for an independent Scottish state: to continue to use sterling, with or without the agreement of the UK, join the euro, or introduce a new Scottish currency.

A formal sterling union would be a profound economic change for Scotland and the rest of the UK. But in the event of Scottish independence, the economic rationale for the continuing UK to agree to enter a formal sterling union with another state is not clear. And an independent Scottish state would have to cede sovereignty of the levers it has to guide its economy. The recent experience of the euro area has shown that it is extremely challenging to sustain a successful formal currency union without close fiscal integration and common arrangements for the resolution of banking sector difficulties.

An independent Scottish state could continue to use sterling as its currency without the formal agreement of the UK. A number of smaller countries have opted for this approach, but it would be likely to be too constraining as a long-term choice for a country the size and financial complexity of an independent Scottish state.

The Scottish economy differs significantly from the euro area and is less well integrated with the EU than with the UK as a whole. Monetary policy set by the European Central Bank would therefore likely be less well suited to Scotland's economy than that currently set by the Bank of England.

Introducing a new independent Scottish currency would have one-off transition costs. It would introduce higher transaction costs with all of Scotland's trading partners. But this would be the only option under which an independent Scottish state would not have to cede sovereignty over some or all of the levers to guide its economic performance. The similarity of economic structures between Scotland and the rest of the UK means that these higher costs would be likely to outweigh the benefits of an independent currency relative to the current arrangements.

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Annex B: Glossary

Adjustment mechanisms – The ways in which an economy responds to changing economic circumstances.

Anchor currency – The foreign currency used to fix the exchange rate of a domestic currency in a fixed exchange rate regime.

Asymmetric shock – An economic shock whose impact is significantly stronger in one state than in others.

Automatic stabilisers – Elements of the tax and spending regime that automatically act to stabilise the economy. For example, during a downturn, unemployment benefit payments will tend to rise and tax receipts to fall, dampening the economic cycle.

Bank run – When a large number of a bank or another financial institution's customers withdraw their deposits simultaneously.

Balance of payments – A record of the economic transaction between a country and the rest of the world. It includes the difference between a country's exports and imports as well as financial transactions.

Business cycle – The fluctuation in the level of national output around its trend. The business cycle is a well-observed economic phenomenon, though it has a variable time span.

Capital – Money or assets put to economic use.

Capital controls – Government imposed restrictions on the ability to move capital in and out of the country.

Capital flight – When capital rapidly leaves a country.

Central Bank –The most common kind of monetary authority within an economy, it is responsible for the implementation of monetary policy. Central banks are often also given remits over financial stability.

Collateral – Property provided by one party to a loan or other financial transaction to the other to provide protection against default. If the party providing collateral does default, the other party retains the collateral.

Consumer Price Index (CPI) – A measure of the price level observed on a representative basket of goods.

Credit rating – An evaluation of the relative credit risk of a country or company.

Credit risk – The risk that a borrower will default on debt repayments.

Currency board – A fixed exchange rate regime where the domestic currency has a fixed exchange rate and full convertibility with a foreign currency and is fully backed by foreign currency reserves; the monetary authority responsible for managing the exchange rate regime.

Currency peg – A fixed exchange rate regime. The value of the exchange rate is fixed/ pegged against a foreign currency or basket of currencies.

Debt management – Actions taken by a government to manage its borrowing and stock of debt in order to minimise costs and risks.

Dutch disease – The negative impact from an appreciation of the exchange rate caused by capital inflows. These capital inflows are often caused by the discovery of natural resources. The currency appreciation can leave the non-resource tradable sector uncompetitive and lead in particular to deindustrialisation. This phenomenon was named after the economic crisis that followed the discovery of North Sea gas in the Netherlands in the 1960s.

Endogenous convergence – Convergence that occurs over time as a result of being part of a currency union.

Euro area – Collective term for the 17 states that have formally adopted the euro as their common currency and the European Central Bank as their central bank: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain.

Exchange rate – The price at which one currency can be converted into another.

Financial regulation – Laws and rules that govern the financial sector. Covers both micro-prudential regulation (that aims to ensure the soundness of individual financial institution) and macro-prudential regulation (that focuses on the stability of the financial system as a whole against systemic risk).

Financial sector – The sector of the economy that provides financial services to the rest of the economy. Includes commercial banks and other financial institutions (e.g. insurance companies, investment funds).

Financial stability – A measure of the stability of the financial sector.

Financial stability framework – The set of institutions and policies that seek to preserve financial stability. This includes a crisis prevention arm (covers mostly financial regulation) and a crisis management arm (in particular the role of lender of last resort to the financial sector).

Fiscal authority – A governmental institution that oversees fiscal policy. The institution will therefore have the power to raise taxes and engage in government spending.

Fiscal policy – Government economic policy in which changes in taxation, spending on welfare payments, public services and capital, and government borrowing are used to influence the economy.

Floating exchange rate – An exchange rate regime where the value of the exchange rate is allowed to move freely depending on the supply and demand of the currency.

Formal currency union – Where two or more states agree to formally share a single currency, with the attached common institutions and policy setting.

Gross Domestic Product (GDP) – A measure of the total flow of goods and services produced by an economy - known as 'output' - over a specified time period, normally a year. It is equal to GVA at basic prices plus taxes (less subsidies) on products.

Gross National Income (GNI) – A measure of the income received by residents of a country. It is equal to GDP minus income sent abroad plus income received from abroad.

Gross Value Added (GVA) – A measure of the total flow of goods and services produced by an economy - known as 'output' - over a specified time period, normally a year. It is a measure of GDP in basic prices, before taking account of taxes and subsidies on products.

Indemnity – A guarantee to repay a loss to a third party should the original party be unable to do so in the future.

Inflation – The rate at which the prices are rising within an economy (generally measured as an annual growth rate in the CPI).

Interest rate – The price at which money is lent. Traditionally, this is the key variable through which monetary policy is transmitted.

Lender of last resort – An institution willing to extend credit when no other institution would. See Box 2B for more detail on the role of lender of last resort to the financial sector.

Liquidity – A measure of how readily an asset, or a portfolio of assets, can be bought or sold in the market without affecting its price. Liquidity in a market is characterised by a high level of trading activity. Assets that can be easily bought or sold are known as liquid assets.

Macroeconomic framework – The framework within which macroeconomic policy is set. This includes both the policies and the institutions the government uses to influence the economy. It comprises monetary policy, fiscal policy and financial stability.

Macroeconomic stability – A situation where key macroeconomic variables are stable and free from any unexpected shocks or are able to respond quickly and effectively to such shocks.

Macroeconomy – A description of the economy taken as a whole.

Managed exchange rate – An exchange rate regime where the value of the exchange rate is pegged or set within a band against a foreign currency or basket of currencies.

Monetary authority – The institution responsible for the implementation of monetary policy. The most common form of monetary authority is a central bank.

Monetary policy – Process through which the monetary authority controls the supply of money in order to reach its policy objectives (which often include objectives for price stability and wider objectives for economic stability and growth). The main policy instrument is generally a target interest rate.

Monetary stability – Maintaining both price stability and confidence in the currency.

Monetary transmission mechanism – The process by which the changes in monetary policy affect the economy.

Moral hazard – 'Moral hazard' arises when a party has incentives to alter its behaviour because it is not fully exposed to the consequences of its actions, which will also affect another party.

Nominal exchange rate – The exchange rate as quoted on financial markets, expressing the value of a currency in another currency in value terms (rather than real, inflation-adjusted, terms).

Price stability – When prices are kept stable or rise at a low, expected rate. This is a stated objective of most central banks.

Productivity – The relationship between the output of goods and services and the inputs of resources used to produce them. Higher productivity enables higher output from the same quantity of inputs.

Real exchange rate – Nominal exchange rate adjusted for differentials in price levels or costs levels in each country.

Seigniorage – Revenues gained from the issuance of banknotes, where banknotes cost less to produce and distribute than the interests earned on the assets used to back the value of the banknotes.

Shock – An event which has an impact on an economy, in either a positive or negative way. Shocks may come from a source inside or outside the economy.

Sterlingisation – The unilateral adoption of sterling; using sterling without a formal agreement with the UK.

Transaction costs – The costs associated with buying and selling, particularly in financial transactions. An example is the fee charged for foreign exchange trade between sterling and euro transactions.

Transition Costs – One-off costs to the economy of moving to a new policy framework.

Unemployment – The proportion of the working age population actively seeking work but unable to obtain a suitable job.

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