Currency Issues and Options for an Independent Scotland

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Abstract

In this paper we take on the role of a 'virtual consultant' to a potentially independent Scotland. What should the exchange rate regime of an independent Scotland look like? We argue that the current proposal of the Scottish government to remain part of the sterling zone is doomed to failure, both because it falls short of a full political and monetary union and because it fails to recognize the reality of the Scottish economy post independence. We argue that the only tenable solution for an independent Scotland is to have a separate currency and for this currency to have some flexibility against Scotland's main trading partners. One option offered here is a managed float or crawl against a basket of currencies.

[1] This is a revised and amended version of MacDonald (2010)

The issue of the appropriate currency for an independent Scotland seems to have become the defining issue in the independence debate. The options discussed usually consist of joining the European monetary union, and therefore adopting the euro as the currency, staying with the sterling zone and having the pound sterling as the currency or creating a new currency which could then float or be managed in some way against other currencies. In this paper we review the critical issues concerning the currency choice. Although some of this ground has recently been covered by others, we intend covering new ground and also making a new recommendation with respect to how a new currency regime could work for an independent Scotland. Our perspective on the appropriate exchange rate regime for an independent Scotland is taken from the literature on the costs and benefits of fixed versus floating exchange rates.

This paper is not of course about arguing the case for an independent Scotland. Rather, it takes the perspective of a consultant's report – what if Scotland were independent what should the exchange rate regime look like? Would it look like the sterling zone regime that the Scottish Government is currently running with at the time of writing, or would it look different? In this regard, it is critically important to recognize that if Scotland were to become independent it would be a net exporter of hydrocarbons and this would have crucial and important implications for Scotland's exchange rate, irrespective of the actual exchange rate regime adopted (fixed to sterling or the euro or floating) and this must, we would argue, be taken into account in the design of any exchange rate regime.

In thinking about exchange rate regime issues for any country it is important to recognize the distinction between a real and a nominal exchange rate. The latter is simply the exchange rate we observe on currency markets – for example the sterling dollar exchange rate, currently around 1.57 – while the former is the nominal exchange rate adjusted for prices in the home country relative to the foreign country.[2] Although Scotland currently does not of course have a separately defined nominal exchange rate at the moment, it does have an implicit real exchange rate that would be defined simply as the home price relative to the comparable price of our trading partner(s) price. Although nominal exchange rates are usually defined on a bilateral basis, real rates are commonly defined on an effective basis; that is the home price, relative to weighted prices all of our trading partners prices. If Scotland were to become independent we shall assume its currency would be the Scots pound.

As has now been well known since the early literature on the asset market approach to the exchange rate (see MacDonald 1988, 2007), expectations are a critically important factor for the determination of exchange rates since they link the present to the future. Since a currency is a long-lived asset (potentially infinite) and although current events, such as monetary and fiscal movements, can have an important bearing on the currency, expected future events can have a very powerful effect on today's exchange rate. For example, the market's expectation of the development of monetary policy/ inflation and the course of commodity prices, for a net commodity exporter, can have an important an

[2] In formal terms it would be defined as $Q=SP/P^*$, where Q is the real exchange rate, S is the nominal exchange rate.

powerful effect on today's exchange rate, with little or no change in the current values taking place. We believe this aspect is crucially important in the context of the current debate since market sentiment and the underlying expectations will punish a country severely for making inconsistent statements regarding its choice of a currency regime.

Resource shocks are likely to be extremely important for the behaviour of the exchange rate of a politically independent Scotland if, as the SNP has argued, the oil off Scotland's maritime coast is indeed Scotland's oil, although this is contested by some (see, for example, Prof John Patterson Aberdeen University May 13). Indeed, although no accurate data are currently available on what Scotland's net oil and gas exports will be, it is nonetheless clear that Scotland would be a net exporter of hydrocarbons. As we shall see below, this will have a profound effect on Scotland's real exchange rate in an independent Scotland and must be taken into account in the design of an appropriate exchange rate regime.

As Bordo and MacDonald (2012) make clear, the essence of an effective and well-designed exchange rate regime is that it should be a credible regime and it should offer an effective adjustment mechanism to relevant shocks. For example, in an independent Scotland the real exchange rate is likely to move in a very different way to its movement today. This is because oil would be a significant part of the budget of an independent Scotland and as a resource dependent economy so-called oil shocks could move the real exchange rate around a lot with important consequences for the competiveness of the non-oil sector, and output and employment in that sector and more generally inflation relative to

our trading partners. Normally in a resource dependent economy the government would let the nominal exchange rate adjust and take at least some of the strain. So this would seem to imply that the choice of an exchange rate regime that did not allow some flexibility for the Scots pound would not be regarded as credible by financial markets. This is an issue we turn to in more detail below.

The outline of the rest of this paper is as follows. In the next section we consider the various exchange rate regimes options open to an independent Scotland. Before discussing the macroeconomic issues regarding exchange rate regime choice, in Section 3 we consider the microeconomic costs and benefits of participating in a currency union. We then go on in Section 4 to use the optimum currency area literature to have a first pass on what a sensible exchange rate regime would look like for an independent Scotland. In section 5 we build on this by considering the classic case for fixed versus floating exchange rates. The practical implementation of various currency options available to an independent Scotland is considered in Section 6. Section 7 concludes.

2. Variant Exchange Rate Regimes.

In this section we outline the various exchange rate regime options available to an independent country and we note that the distinction between rigidly fixed and floating exchange rates in reality is not as stark as this polarisation suggests, as there are a number of shades of grey between the polar cases – or corner solutions. The IMF has usefully fleshed out the rich variety of

intermediate cases between the so-called corner positions of a pure float and an irrevocably fixed exchange rate. In the context of our discussions of the appropriate regime for an independent Scotland, it is worth listing what these are and we do this in Table 1, where we have 9 intermediate cases between the two extreme corners of a pure float and participation in a full blown monetary union, each of which can have numerous further variants.

Table 1. Exchange Rate Regime Classifications

Floating corner	**Intermediate Regimes**	**Rigidly Fixed Corner**
Pure float	Band	Currency board
Managed or dirty Float	Crawling Peg	Dollar- Sterling-and Euro-isation
	Basket Peg	Commodity Standard
	Adjustable Peg	Monetary Union without Political Union
		Monetary Union with Political Union

In the first cell we have the most flexible exchange rate regime and in the bottom right cell we have the least flexible and most rigid regime, in the form of a monetary union combined with a political union. These are the two extreme corner cases. In between the corner cases there are a range of options distinguished by the degree of exchange rate flexibility. A managed float can be very close to a pure float, if the monetary authorities only intervene occasionally and in small amounts, or it can approximate something closer to an intermediate regime if the authorities intervene on a more or less continuous basis to, say, satisfy an inflation target (such as has been the case in Singapore). Banded regimes are designed to capture the target zone arrangements of Bergsten-

Williamson (in which the band is defined around the Fundamental Equilibrium Exchange Rate, or FEER) and Krugman (in which the band is defined around a fixed central parity). A crawling peg system is one in which the peg changes, usually to accommodate inflation – an indexed crawl – or is a preannouced crawl to maintain competitiveness.

A basket peg is where a currency is fixed relative to a basket of its trading partner currencies and an adjustable peg is one in which the currency has a fixed central rate but it can be changed to, say, accommodate disequilibria such as those occurring in the balance of payments (such as occurred in the Bretton Woods system). In the rigidly fixed corner we have the currency board solution that usually involves a country pegging to another currency (usually the dollar and the euro but perhaps also sterling) and allowing the home currency to be transferred into the foreign at the going rate. A Commodity standard is where a country fixes its exchange rate to the price of a commodity, which is traditionally taken to be gold (i.e. from the various gold standard experiences) and, finally, we have the monetary union cases that we have differentiated with respect to whether or not they involve a political union or not. This we believe is an important distinction because, and as the recent European experience has made clear, the absence of a political union means that the fixed parity cannot be regarded as irrevocable and this means what is being considered is a form of a fixed exchange rate, but as we shall see below it has few if any of the advantages of a properly designed fixed exchange rate.

As Svensson (1994) made clear most historical fixed exchange rate regimes were not truly fixed but had some flexibility built into them. This was so even in the classical Gold standard system, which is often taken to be an example

of fixed rates par excellence. Bordo and MacDonald (2012) have argued that the classical gold standard was a highly credible exchange rate regime because it offered a country a realistic adjustment mechanism, in the form of an escape clause, in times of crises (a currency could suspend its participation in the gold standard for a limited period of time to deal with a crises as long as it was committed to returning at the previous parity). Furthermore, and as Bordo and MacDonald (2005) have demonstrated, the existence of the so-called gold points imparted enough flexibility into the operation of the gold standard to allow participating countries some flexibility in the operation of their monetary policy on a day-to-day basis.

In contrast, however, the Bretton Woods system of fixed but adjustable exchange rates was not a credible system. This was because despite there being some exchange rate flexibility built into the system there was not an effective rule for exchange rate adjustment in terms of a crisis. The same tensions are currently seen in the Euro area where the need is for there to be a real appreciation of the German exchange rate relative to crises countries and this appreciation cannot be affected through a nominal exchange rate adjustment. It remains to be seen if the euro area will be resilient enough to this tension. We believe that the current proposal of the Scottish government for Scotland to be part of a sterling zone arrangement is not a credible system because it does not offer an appropriate adjustment mechanism in the face of economic shocks. We consider this point in more detail below.

3. Microeconomic costs and benefits of participating in a monetary union.

Before turning to the macroeconomic discussion of the fixed versus floating exchange rates, we first consider some of the microeconomic benefits of participating in a monetary union versus have an independent currency.

The first microeconomic benefit of participating in a monetary union is the transaction cost savings. One of the primary functions of money is to act as a medium of exchange and this medium is subject to a network externality (Buiter (2000)): that is, the usefulness of a medium of exchange increases in the number of other economic agents accept it in exchange for goods, services and other financial assets. So by eliminating the need for the exchange of one currency for another, a monetary union saves real resources. Of course given that Scotland is already part of a monetary union additional costs would be incurred if it moved to its own currency. Such costs would be one off up front costs that could be substantial at both the wholesale and retail money market levels. Since there is no recent experience of a Scottish currency it is likely that many goods and services would still be invoiced in terms of sterling post independence.

The transaction costs savings of Scotland's continued participation in the sterling zone monetary are hard to estimate but if we take the euro zone experience as a guide, in its report *One market, one money* (European Economy, 1990), the Commission of the European Communities estimated the permanent flow of exchange transaction costs savings at about 0.5% of GDP for the 15 member Community as a whole. But this involved the abolition of 14 national currencies and their replacement by a single currency. In the case of Scotland sticking with the sterling zone there is effectively

only one currency to consider and so the cost savings are likely to be lower than the 0.5% figure. But the foreign exchange transaction costs savings should need to be augmented by the transaction costs saved in not having to provide financial instruments denominated in the national currency to hedge exchange risk considerations. For example, in an independent Scotland with a separate currency, an investor would have the ability to switch from Scottish Treasury bills to UK Treasury bills.

The magnitude of the so-called switching costs from sterling to the Scottish pound are even harder to estimate. For the UK experience of considering joining the euro, competing estimates differ by one and sometimes two orders of magnitude. The switching costs do not just involve the administrative, legal and hardware cost of re-denominating all contracts, changing vending machines etc., but also the psychological costs of having to compute prices with a new numéraire. With boundedly rational individuals, these costs will always be there and are likely to be significant for a country moving to a new currency (Buiter (2000)).

The final microeconomic benefit that a common currency achieves is the greater price transparency it creates. Price discrimination and market segmentation are supposedly discouraged when buyers can more easily engage in shopping where they can compare prices as is now common with online shopping so competition is enhanced. Although the costs of Scotland having a separate currency could well be large and significant we would argue that the dynamic costs of getting the exchange rate regime would easily dominate the microeconomic costs.

4. The determinants of exchange rate regimes: the optimum currency area criteria

If in the design of an exchange rate system for an independent country a policy maker is trying to choose between the two corner cases noted above how would she choose? From a theoretical perspective, perhaps the best-known guide to what is the most appropriate exchange rate regime for a country is the so-called optimal currency area (OCA) literature. The OCA literature considers the following kind of issue. Consider two countries - the RUK (an oil importing country) and Scotland (an oil exporting country) – with each country having an independent monetary policy (that is, they have independent central banks, interest rates and exchange rates). The countries are considering relinquishing this monetary independence and forming a monetary union. Should they? The following characteristics have been argued to favour having a national currency, and the associated scope for nominal exchange rate flexibility.

(1) A high degree of nominal rigidity in domestic prices and/or costs (Mundell (1961)). (2) A relatively low degree of openness to trade in real goods and services (McKinnon (1963)). (3) A less diversified structure of production and demand (Kenen (1969). (4) A low degree of real factor mobility (especially labour mobility) across national boundaries (Mundell (1961). (5) Absence of significant international (and supra-national) fiscal tax-transfer mechanisms.

Much of the debate in the context of the Scottish currency has focused on these different criteria for staying as part of the sterling zone. For example, both the Scottish Governments Fiscal Commission and HMT refer to the close trade links and labour mobility between Scotland and RUK as key reasons why the Sterling zone is an OCA and therefore for maintaining the fixed link between the

Scots pound and sterling. Others (for example, Jim and Margaret Cuthbert), however, have cited the differing industrial / economic structure in Scotland compared to the SE of England and argued that this alone implies that Scotland does not form an optimum currency area with the rest of the UK

However, the recent focus in the OCA literature has turned from these single criterion approaches to an analysis of the shocks affecting economies or regions, since 'shock absorption' is seen to combine the *net* influence of several of the traditional criteria. There are a number of different aspects to this approach, for example: are the shocks facing a country symmetric or asymmetric, that is, do they have a common or differential effect?; are the shocks temporary or permanent?; what are the origins of the shocks – are they supply side or demand side shocks?; even if the shocks facing two countries /regions are symmetric, or common, do they have seriously asymmetric impacts on employment and output? A high incidence of asymmetric (nation-specific) shocks rather than symmetric or common shocks and/or dissimilarities in national economic structures or transmission mechanisms that cause even symmetric shocks to have asymmetric consequences.

If Scotland were to become an independent nation it would in all likelihood be a net exporter of hydrocarbons whereas its near neighbour, RUK, would remain a net importer of oil. Hence if there are shocks to the price of oil, which there are bound to be, these would be classified as assymetric shock between the two areas. The policy response in an oil exporting country is likely to be different depending on the source of the oil shock (which we assume here is a positive shock) - supply (exogenous changes in production) or demand (changes in consumption). For example, in the case of a supply side shock the oil

exporting country would probably want to have a tight monetary policy to control inflation, while the oil importing country would want a more expansionary monetary policy to maintain demand for its other goods and services. If supply side shocks predominate this in itself would provide a convincing case for retaining exchange rate flexibility rather than entering a monetary union. In contrast, if the high price of oil represents a demand shock (i.e. an increased demand from China and India) then the policy response in both the importing and exporting currency should be the same, namely tighter monetary policy. So if demand shocks predominate, this would seem to favour pegging the currency of the oil exporter to take advantage of the benefits of a fixed exchange rate while if it is supply side shocks that dominate this would favour more flexibility.

It is, of course, often difficult in practice to gauge how much of an oil price change is coming from the supply side or the demand side, just as it is often difficult to gauge how much of a price change is due to permanent forces and how much is temporary (temporary changes would not necessitate the kind of real exchange rate response we have advocated above and therefore would not have implication for the regime choice). For example, a permanent increase in the price of oil requires reduced levels of consumption and investment in the oil importing country and a real depreciation of its currency, whereas the opposite should be happening in the oil exporting country: higher levels of consumption and investment and a real exchange rate appreciation. Despite the difficulties in unraveling permanent versus temporary and supply versus demand shocks, we would argue that the key message here is that Scotland would need to have an independent currency and we concur with the basic insight of Mundell's (1961)

seminal paper that two countries with assymetrical shocks should not have a fixed exchange rate, but should have some flexibility in their exchange rate behaviour.

It is of course possible to achieve the kind of adjustment required and noted above with a fixed exchange rate, but the problem here is that the countries in question have to wait on the appropriate inflationary mix to bring this about and this can be long drawn out and, indeed, by the time an appropriate adjustment has taken place it may be time for the opposite policy response. Having nominal exchange rate flexibility clearly makes this process much easier although a country with an important traded sector in addition to its oil sector would need to use imaginative policies to keep both sectors in balance.

In sum, we have argued in this section that an independent Scotland would not want to be on the fixed rate corner but would want to be closer to the flexible rate corner. But how close?

5. Fixed Versus Floating Exchange Rates.

To complement our discussion of the Optimum Currency Area criteria, in this section we overview the respective cases for fixed and flexible exchange rates, with a special emphasis on the needs of an independent Scotland. As we have noted, although an independent Scotland would be a net exporter of hydrocarbons, assuming the oil in Scotland's territorial waters could be negotiated for an independent Scotland, it would be unlike most other net hydrocarbon producers, who are essentially single commodity exporters, because it has an important traded sector, particularly in financial services, tourism and food and drink. The existence of this important non-oil sector has to

be taken into account in the design of an appropriate exchange rate regime for an independent Scotland.

5.1 The advantages of a fixed exchange rate

There is a long tradition in the economics literature that recognizes macroeconomic performance should be enhanced by having a fixed exchange rate. Perhaps the main perceived advantage of a fixed exchange rate, and the one that is emphasized most in the recent exchange rate literature, is that it prevents a country that would otherwise have a profligate monetary policy pursuing an independent monetary policy. In other words, it allows the country to buy into the monetary credibility of the country it is pegging to. Indeed, if a central bank puts a premium on fighting inflation it may find it advantageous to peg its exchange rate to a hard currency with a strong anti-inflationary reputation (for example, the DM was seen in this light for much of the post war Bretton Woods period) and so 'import' the credibility and low inflation environment. The idea being that in the presence of a credible peg, workers and managers will set wages and prices on the basis of an expected low inflation environment in the future (because the currency peg prevents the central bank from expanding the money supply, especially if it is an irrevocable peg), thereby allowing the country to attain a lower inflation rate for any given level of output. In this context the harder the peg the more effective it is seen in enhancing credibility.

As the IMF has made clear in a number of its Article IV documents, the issues of a credible peg, along with the familiarity argument, have been seen as one of the key arguments as to why certain Gulf countries have chosen to peg their currencies to the US dollar for long periods of time. The Scottish Government's Fiscal Commission report suggests it is this credibility aspect that

is one of the key arguments behind the Scottish governments decisions to opt for being part of the sterling zone monetary union.

However, pegging the exchange rate to a currency which is inappropriate, and one which pursues monetary policies which do not meet domestic needs, is clearly a recipe for potential disaster for the home country's monetary and exchange rate policy. Also, such a peg is of limited usefulness when the home country needs to pursue a monetary policy that is at variance with that pursued in the foreign country. For Scotland this, as we have seen, may occur in the presence of asymmetric shocks that affect the Scottish economy differently to the rest of the UK (RUK), or symmetric shocks that are transmitted differently to the Scottish economy because of the underlying economic/ industrial structure.

A second supposed advantage of fixed rates is that when exchange rates are flexible they are highly volatile and such volatility can impart uncertainty into trade and investment decisions, thereby having a negative influence on a country's international trade and investment. Removing this source of uncertainty should therefore encourage international trade and investment and again this seems to be a key plank in the Scottish Governments decision to adopt sterling as its preferred currency. However, an alternative response to this argument is to say that trade and investment should be unaffected by exchange rate volatility since agents can hedge the exchange rate volatility in the foreign exchange market. Forward markets, though, are notoriously incomplete – being non-existent for some developing countries and only existing at very limited maturities for all countries. Initially, empirical studies failed to reveal a link between exchange rate volatility on trade and investment, but more recent estimates do in fact show an important link (see for example MacDonald, 2007).

Given that Scotland has a diversified industrial and service structure this points suggests that it would unlikely be in the interests of an independent Scotland to move to a purely flexible exchange rate (i.e. the top left corner of Table 1).

Related to the trade and investment effects of exchange rate volatility, is the issue of exchange rate misalignment and its effects on international trade and investment. Misalignment occurs because exchange rates when they are flexible can often spend long periods away from their fundamentals-based equilibrium due to purely speculative influences. For example, the long swings in the dollar in the 1980's – its appreciation down to 1985 and the subsequent depreciation – are generally regarded as being driven by speculative factors. By fixing an exchange rate, such misalignments may be removed and the deleterious effects on trade and investment also removed, assuming a country locks its exchange rate at the correct rate in the first place. However, even if a peg is locked in at the correct rate to start with, relative (unfavourable) price movements away from the starting point can generate misalignment over time and this is likely to be particularly so if Scotland suffered asymmetric shocks relative to RUK.

The above two points have a particular resonance for a hydrocarbon exporting country and they can be bundled into the 'Dutch disease case' for pegging to the dollar. For a commodity exporter considering floating its currency, it is not just the flexible exchange rate that is potentially volatile - the price of its commodity is also likely to be volatile. For an oil producer, the price of oil is volatile and its currency would generally be expected to appreciate when the price of oil is high, but this would imply an exchange rate misalignment for its non-oil sector that is unlikely to be desirable. By pegging to the dollar the country, in principle, avoids the consequences of Dutch disease for its non-oil

sector. But the Dutch disease phenomenon is really about an inappropriate fiscal policy – i.e. it is the spending from oil that creates the Dutch disease phenomenon and so, if like Norway, you only spend the income stream from the oil fund you will only have a limited effect on the real exchange rate.[3] Also, in fixing to Sterling when the price of oil is low could also be equally damaging to the oil producer. For example, if sterling appreciates this will appreciate the home currency against its other trading partners, further exacerbating the deflationary consequences of the low price of oil.

A further perceived advantage of a fixed exchange rate is in preventing competitive, or beggar-thy-neighbour, devaluations. Looking back at the inter-war experience of exchange rate flexibility, this was one of the key motivating factors for the architects of the Bretton Woods system who saw a system of fixed exchange rates as a means of obtaining a cooperative solution to the competitive devaluation issue. As Frankel (2003) points out, a recent update of this kind of argument is seen in the currency crises and contagion that occurred in the 1990s, where devaluation in one country immediately spread to neighbouring countries because they felt at a competitive disadvantage, but ultimately they did not gain from this. Again this may be an important issue for Scotland in the context of its relations with its near neighbour, RUK.

To sum up, how would fixing the Scottish exchange rate to RUK in the form a monetary union impact on an independent Scotland? Fixing of the exchange rate, in the form of being a part of the sterling monetary union, can be argued to have conferred on the country a credible and familiar nominal anchor

[3] Additionally though there are wealth effects on private sector consumption and the separate effect of investment in the oil industry both of which are likely to the impacted by changes in the price of oil

and to have reduced the deleterious consequences of exchange rate volatility on trade and investment (although sterling itself is a flexible exchange rate this is by no means eliminated in terms of non RUK trade). However, to set against this the continuation of such a policy in an independent Scotland would imply that Scotland would be facing the well known Trilemma, or incompatibility of a fixed exchange rate, high capital mobility and an independent monetary policy. Since the one sized fits all monetary policy of the Bank of England has inevitably to give most weight to the economic heartland of the UK - the South East of England (just as the ECB has to focus on the economic heartland of Europe) - it is unlikely this would be appropriate for an independent Scotland, even with some voting power on the Bank of England monetary Committee, and this would seem to apply *a fortiori* once the effects of North Sea Oil on the real and nominal exchange rate are recognized. Furthermore, since the kind of peg proposed by the Scottish government cannot be irrevocable (since there would by definition be an absence of a political union with independence) it would not be regarded as a credible peg by the markets, for the reasons noted above.

5.2 The advantages of a flexible exchange rate

The original, traditional, case for flexible exchange rates was made by Milton Friedman in his classic 1953 essay 'The Case for Flexible Exchange Rates' and there are a number of strands to this case. The existence of a flexible exchange rate breaks the well-known trilemma, referred to above, and allows a country to have an independent monetary even if capital is perfectly mobile. This could have clear advantages for an independent Scotland in any attempt to control inflationary/ deflationary pressures that were different from RUK and

other trading partners and from inflationary shocks driven by NSO shocks. It would also mean that fiscal policy in an independent Scotland would not be subject to the constraints that it would face in a sterling monetary union.

Second, a fixed rate system fails to provide a country with an effective adjustment mechanism for its balance of payments, whereas a flexible rate offers an automatic adjustment mechanism; i.e. fluctuations in a country's terms of trade, particularly adverse movements, are automatically reflected in a country's currency movement. This argument is seen as of special importance for a net hydrocarbon exporter since it means that as the price of oil rises, the currency will appreciate and as the price of oil falls the currency can depreciate. In other words, as the terms of trade changes the currency moves in the appropriate direction. This stabilising role of a floating rate system is often taken to be the key element in favour of a flexible exchange rate (see Machlup (1972)), although, of course, such movements may not be entirely satisfactory for a country, such as Scotland, that has a diversified non-oil sector.

The third supposed advantage of a flexible exchange rate is in terms of its insulating properties with respect to real shocks that show up in the form of trade shocks. For example, a fall in demand in the rest of the world for the home country's exports would automatically be countered by an exchange rate depreciation and a fall in the terms of trade which produces an offsetting stimulus to demand.

However, to set against the last two points, others have argued that rather than being a stabilising influence and an absorber of shocks a flexible exchange rate can have the opposite effect and itself be a source of shocks (see, for example, Artis and Ehrmann (2006)). On this point we would subscribe to the

Firedmanite view that an unstable flexible exchange rates are caused by unstable underlying macroeconomic policies and the Norwegian experience shows how a resource dependent small open economy can handle exchange rate flexibility.

A fourth advantage of a flexible rate system is that it allows a central bank to maintain two potentially important advantages of an independent central bank, namely it can take advantage of any seigniorage and act as a lender-of-last resort. The latter may be important in a banking crises where the ability of the central bank to create unlimited funds is likely to be important in baling out banks although as has pointed out the scale of Scottish banks may be so large that even an independent Scottish Central bank would be unable to bale them out. The former advantage is likely to be 'small beer' since as Buiter (2000) notes in the context of the UK potentially giving up monetary control to participate in the Euro, the loss of seigniorage would only been .24% of GDP since 1994

A fifth advantage of a floating rate system is in terms of its ability to let a country, and more generally the world economy, function without recourse to trade barriers and tariffs, the idea being that if the exchange rate is free to equilibriate a country's balance of payments the need for protectionist devices – such as tariffs and quotas – is likely to be limited.

A sixth argument in favour of flexible exchange rates is in terms of the need to hold foreign exchange reserves. In principle with a floating exchange rate, the change in official reserves is zero. Since reserves earn a zero, or low, return compared to a longer-term investment there would be some, perhaps small, savings for the national economy (a central bank would still hold reserves in a free float to pay for official commercial transactions).

To sum up the discussion here, the main advantage for a country which is an important commodity producer, of having a flexible exchange rate is that it would allow the key element of providing a rapid exchange rate appreciation (both real and nominal) when the price of the commodity (oil) rises and an appropriate depreciation when the price of the commodity falls. Although a fixed rate system can provide the real aspects of such appreciation, and as we shall see below, the process is likely to be long drawn out and indeed this can create its own problems and tensions. Some flexibility would also be good for misalignment reasons, and to stave off potential future misalignments, and to help in tackling the inflationary process. A flexible exchange rate address the so-called trilemma and allows a country to pursue an independent monetary policy and an independent fiscal policy, both of which are precluded in a monetary union. Some for of flexible rate for the Scottish pound would therefore be seen as a credible exchange rate arrangement by financial markets

The down side, of course, in moving to a more flexible exchange rate regime is that if there is a stable nominal anchor component pegging to another currency that would most likely be lost. This is something we consider again in more detail below when we consider the various monetary and exchange rate regime options available. Additionally, care would have to be taken in recognising the needs of the non-oil sector in designing the appropriate exchange rate regime and this is something we also return to later in the next section. So what kind of exchange rate flexibility could work for a separate Scots pound? In the next section we consider what these might look like, along with a discussion of the

kind of fixed rate options that have been discussed elsewhere (see, for example, Kay (2013)).

6. Alternative exchange rate regimes options.

In this section we expand on our previous discussions to consider a number of potential exchange rate regimes that an independent Scotland could consider, ranging form pegging to the pound sterling pegging to a basket of currencies that could have some flexibility.

A fixed, or pegged, exchange rate (unilateral option). Instead of continuing in a full-blown monetary union with RUK, Scotland could simply choose to peg its exchange rate to the pound sterling. The main advantages of such a regime are that it offers potential exchange rate stability, credibility and familiarity. Indeed, Denmark, a country of similar size to an independent Scotland, has, despite refusing to participate in the European Stability Fund, successfully pegged its exchange rate (at a rate of 7.5 Danish krone) to the euro since its inception. A somewhat different non-European currency peg is that of the Hong Kong dollar which has successfully pegged its currency to the USD since 1983. Of course the implications of such pegging, as we have noted above, is that a country foregoes having an independent monetary policy. That is clear for example in the Danish case where refusal to be a full member of the eurozone means that it is unable to influence decision taking on the European Central Bank. However, to set against this given the Danish economy represents a very small proportion of the overall European economy it is unlikely that it would have much influence over the setting of monetary policy in the Euro area even if it were a member.

Another interesting set of examples of currency unilaterally pegging their currencies to another currency is that of the majority of the Gulf state countries who have chosen to peg their currencies to the USD for a prolonged period of time and have thereby been able to buy make their own currencies credible by association with the dollar. However there have been a number of periods of extreme tension when some of the countries were considering abandoning the peg (Kuwait in fact abandoned its USD peg in 2007) because of its inappropriateness for domestic monetary policy on a number of occasions. Indeed one of the reasons the pegs described for Hong Kong and for Denmark has been successful is that the countries in question and the countries they are pegging their currencies to are all net importers of oil and therefore resource shocks are likely to have a similar impact across the two countries.

As we noted in our discussions of the optimum currency area criteria, oil exporters and oil importers generally need different macroeconomic policies: a permanent shock to the price of oil requires a different adjustment in the oil exporting and oil importing country. For example, a permanent increase in the price of oil requires reduced levels of consumption and investment in the oil importing country and a real depreciation of its currency, whereas the opposite should be happening in the oil exporting country: higher levels of consumption and investment and a real exchange rate appreciation. The ball-park figure for an oil exporter is that a 100 per cent increase in the price of oil should generate a currency appreciation of 50 per cent.

With a fixed exchange rate, clearly all of the inflation adjustment comes from changes in the price level. This process is slower than it should be and it can often still be working its way through the economic system after the oil price

has stabilised. Furthermore, this process can create inflationary expectations which gives the inflationary process its own momentum and will probably push up the real exchange rate even after oil prices have turned down, implying a misalignment in the form of a real overvaluation. The inflationary process can lead to dramatic swings in the real interest rate - in the inflationary boom real rates become zero or negative, further boosting the inflationary process. Equally, a fall in the price of oil needs a fall in domestic prices and this can produce a similar set of problems to the inflationary environment with the process being long drawn out, perhaps more so than the inflationary case, given the common consensus that there is an important asymmetry between rises and falls in prices.

A further twist is introduced into the operation of a pegged regime since sterling and the US dollar are themselves flexible currencies. If the pegging currency has significant trade relations with countries other than the sterling or US areas then the capricious changes in the pegged currency could well have a deleterious effect on Scotland's trade since it will import the implied volatility from third country trading partners.

For the Gulf countries, for example, they have faced long swings of depreciation and appreciation of the USD – mid 1980s, late 1990s and mid noughties – completely unconnected with the pegging country's currency. These kinds of movements can have a dramatic an unpleasant side effect on the non-oil sector of a diversified economy.

An alternative anchor / numeraire. Instead of sticking with the pound sterling fix, Scotland could peg to an alternative numeraire currency, such as the euro. There are however a number of pitfalls in such a strategy. First, since the

euro zone is a net oil-importing region, in pegging to the euro, Scotland would suffer from similar problems to pegging to the US dollar, noted above. Second, an independent Scotland would unlikely satisfy the so-called Maatsricht criteria for membership since its budget deficit and debt ratio would be above those necessary for membership of the eurozone. Third, given the majority of Scotland's trade is with the rest of the UK it would not make sense for Scotland to lock its currency to the euro. Fourth, the euro zone is a much bigger one-size fits all monetary policy area than the sterling zone and it is now clear that the Irish decision to move from a relationship with sterling was not a sensible decision, nor would it be for an independent Scotland. Finally, the euro area is a net importer of oil and therefore the same kind of arguments noted above with respect to a sterling union would apply here.

A basket peg may be a useful alternative to pegging against a single currency. For Scotland one key advantage of this would be in constructing a basket which better reflected its trade overall trading patterns, in addition to those with RUK; i.e. with the euro area and Asia. In principle, by pegging to a basket of currencies a country should be able to gain the nominal anchor advantages of a straight fixed peg, discussed above. In practice, though, basket pegs seem to be less credible than a peg to a single currency and this could be due to the fact the basket itself is not traded and it is difficult for market participants to infer the true credibility of the currency. Nonetheless, there are some successful example of such pegs including the Kuwaiti dinar and Thai bat

Rather than fixing to a basket, a **crawling peg of the basket** is a possibility where the peg is allowed to change, usually to accommodate inflation – an indexed crawl – or is a preannounced crawl to maintain competitiveness.

For an independent Scotland, the crawl could be linked to the price of oil to ensure the requisite adjustment takes place as the price of oil changes. An appropriate designed crawl could therefore allow Scotland to have a more appropriate monetary policy and, crucially, it would play the key role of providing appropriate real exchange rate changes in response to permanent changes in the price of oil. Since the peg would not be changing on a daily basis it would still provide the stability and credibility of a sterling peg, but of course without the very evident disadvantages such a peg. Our proposal could be viewed as a more sophisticated variant of a **managed float,** which has in fact been the preferred option of many oil producers. For example, Canada and Norway have deliberately not joined monetary unions with their close trading partners because of their large oil exports. Brazil and South Africa also have substantially more flexibility of their currencies than is the norm in oil exporters and these regimes appear to have been successful (although admittedly they do intervene quite frequently in their foreign exchange markets)

Peg the export price. This can be seen as a variant of inflation targeting, only now the price pegged in terms of domestic currency (or set the value of domestic currency in terms of that commodity) is the export price (Frankel (2003). PEP is seen of most interest to countries that are heavily specialised in the production of a particular mineral or agricultural export commodity. The rule under this proposal is that oil-producing countries would peg their currency to oil, gold producers to gold and coffee producers to coffee etc. This could be implemented operationally in one of two ways. First, the government could hold reserves of oil and intervene whenever it is necessary to keep the price fixed in terms of the local currency. Or, alternatively, the central bank could on a day-to-

day basis announce an exchange rate in terms of the dollar and during the day ensure that rate moves precisely in proportion to the days price of oil.

However, this raises the key disadvantage of this approach, namely that by pegging directly to the price of oil would result in volatility of the exchange rate as it swings in line with the volatile underlying asset (like a derivative). If the non-oil sector is important as would be the case in an independent Scotland the PEP policy could potentially destabilise the local currency price of other goods and services, which could be seen as a form of Dutch disease. So for such countries may need a modified version PEP. Potential alternatives would be to define a band around the central parity, much as in a crawling peg, or to move to a basket which includes the price of oil.

Pegging to a Basket and the price of oil. An alternative to pegging to a either a basket of currencies or simply to the price of oil is to define as the parity the basket that includes the export commodity as well as a weighted average of currencies of major trading partners.

A key advantage of this variant of PEP, which we label PBO, is that it delivers one of the main advantages of a fixed exchange rate, namely the nominal anchor function through pegging to the basket of currencies, plus one of the main advantages of a floating rate regime, automatic adjustment in the face of fluctuations in the prices of the countries' exports on world markets: under a PBO system when the dollar price of oil rises (falls) the currency appreciates (depreciates). Such accommodation of terms of trade shocks is exactly what is required and this is why this variant of the PEP is regarded as so attractive relative to conventional (CPI) targeting which would not react to movements in the terms of trade (more on). For instance, the terms of trade criterion suggests

that a rise in the import price should be addressed by a local currency depreciation and although neither the PBO or CPI targeting regimes would deliver on that, the CPI inflation targeting regime would actually produce a tightening of monetary policy (because of the inflationary implications) and therefore an exchange rate appreciation. This kind of policy would be expected to exacerbate swings in the trade balance and output.

Fixing the currency to the price of a unit of gold has historically been popular and has been popularised recently by Robert Mundell and Richard Cooper amongst others. Many have argued that the so-called Classical gold standard worked well and conferred on countries the credibility which seems to be so lacking on a fiat based system (see Bordo and MacDonald (2009)). The Gold standard system, which is often taken to be an example of fixed rates par excellence, worked both because it offered a country an escape clause in times of crises (a currency could suspend its participation in the gold standard for a limited period of time to deal with a crises as long as it was committed to returning at the previous parity). Additionally as Bordo and MacDonald (2005) have demonstrated the existence of the so-called gold points imparted enough flexibility into the operation of the gold standard to allow participating countries some flexibility in the operation of their monetary policy.

However, the key problem with the gold standard type of arrangement is that it was and is crucially dependent on the world gold market and specifically the production of gold. For example, in the period 1873 to 1896, countries had linked their money supplies and exchange rates to the price of gold had falling prices due to the absence of major discoveries of gold during this period. In contrast, the major gold rushes of the nineteenth century (California, 1849, and

Alaska and South Africa in the late 1890s) led to increases in liquidity with resulting inflationary pressures. However, although we do not believe participating in a Gold standard arrangement is appropriate for countries today we do believe there are important lessons to be learned from the gold standard episodes, namely that even in a regime of fixed exchange rates there has to be some form of credible exchange rate flexibility in order to allow them to function efficiently.

7. Concluding Comments

In this paper we have taken on the role of a virtual consultant to a potentially independent Scotland. What should the exchange rate regime of an independent Scotland look like? We note that the current proposal of the Scottish government is close to the so-called corner solution of a monetary union with the rest of the UK. However, we note that this proposal, by definition, would fall short of a full monetary union with political union and therefore in our view is doomed to failure. There are a number of reasons for this. First, and as the recent euro crisis has amply demonstrated, there is nothing irrevocable about an exchange rate that is part of a monetary union but where a political union is absent: there will always be the probability that a currency will leave the union in times of crises. Second, the probability of leaving a monetary union will be greatly increased if the kind of shocks hitting the two countries are different, or with common shocks having a differential impact on the two economies.

We have argued that the latter is highly likely to be the case for an independent Scotland since it would become a net exporter of hydrocarbons and the important influence of this on both the real and nominal exchange rate must be taken into account in the design of an exchange rate policy. By failing so to do the current proposal of the Scottish Government simply cannot be a long run solution to the needs of an independent Scotland. And since it cannot be a long-term solution neither can it be a short-term solution since, as we have seen in this paper, expectations exert such a powerful influence over exchange rates and other asset prices/ yields that the long term becomes the short term very rapidly. Indeed, the issue of the credibility of the proposed regime has clearly not

been helped by the Scottish Government's statement issued on the 23 April 2013: 'The Scottish Government is clear that post-independence it will always be up to the people of Scotland, and their elected government, to decide what our currency should be' (Currency Choices for an Independent Scotland, April 2003). In other words, this is a clear statement to financial markets that although the people of Scotland may vote for independence with a sterling currency union, post independence the Scottish government may pick a different regime.

We have argued in this paper that recognising the important implications of North Sea Oil on Scotland's real and nominal exchange rates leads us inevitably to the conclusion that an independent Scotland should have a separate currency and this should be flexibly related to other currencies and we have considered a number of options in that case. In sum, we have argued that Scotland should have some form of a managed float, as has been the case in Norway, perhaps by allowing the Scots pound to crawl against a basket of currencies. Only exchange rate choices which recognise the diversified trading nature of the Scottish economy and the importance of the hydrocarbon sector are going to be seen to be credible by financial markets and offer Scottish policy makers the adjustment mechanism they will clearly need in an independent country. History clearly demonstrates that fixed exchange rates that are not tied down by a political union and do not offer a country an appropriate adjustment mechanism will not survive.

References

Artis, M and M. Ehrmann, (2006). "The exchange rate - A shock-absorber or source of shocks? A study of four open economies," *Journal of International Money and Finance*, 25(6) 874-893.

Bordo, M.D. and R. MacDonald (2005), "Violations of the 'Rules of the Game' and the Credibility of the Classical Gold Standard, 1880-1914", *NBER working paper No 6115,* and *Journal of Monetary Economics,* 52, 307-327.

Bordo, M.D. and R. MacDonald (2012), *Credibility and the International Monetary Regime: A Historical Perspective*, Cambridge University Press.

Buiter, W. (2000), 'Optimal Currency Areas: Why Does the Exchange Rate Regime Matter? With an Application to UK Membership in EMU', *mimeo*.

Her Majesty's Treasury (2013), 'Scotland Analysis: Currency and Monetary Policy'

Hallwood, C.P., R. MacDonald, and I.W. Marsh (2000), "Realignment Expectations and the US Dollar: the World's Longest 'Peso' Problem, 1879-1897?", *Journal of Monetary Economics*, 46, 605-620.

Kay, J. (2013), 'Currency and Monetary Options for an Independent Scotland', in A. Goudie (ed.), *Scotland's Future*, Dundee University Press.

MacDonald (1988) *Floating Exchange Rates: Theories and Evidence*, London: Allen & Unwin.

MacDonald (2007), *Exchange Rate Economics: Theories and Evidence*, Routledge, 2007.

MacDonald, R. (2010), "International Experiences in operating exchange rate regimes: drawing lessons from the United Arab Emirates." *Exchange rate regimes and monetary union for the Gulf States*, Edward Elgar.

MacDonald, R. and Stein (1999), *Equilibrium Exchange Rates*, Kluwer.

MacDonald, R. and A. Al Farisal (2010) *Exchange rate regimes and monetary union for the Gulf States*, Edward Elgar.

Scottish Government (2013), 'Fiscal Commission Working Group Report. First Report – Macroeconomic Framework'

Svensson, L. (1994), 'Why Exchange Rate Bands?', *Journal of Monetary Economics*, 33, 157-199.