

# The Irish Pound: From Origins to EMU

by John Kelly\*

## ABSTRACT

The history of the Irish pound spans seventy-five years, from the introduction of the *Saorstát* pound in 1927 to the changeover to euro banknotes and coin in 2002. For most of this period, the Irish pound had a fixed link to sterling. It was only in the 1970s that this link was seriously questioned when it failed to deliver price stability. This article provides a brief overview of the pound's origins, before looking in more detail at the questioning of the sterling link and events leading up to Ireland joining the EMS. Although early experiences in the EMS were disappointing, membership eventually delivered low inflation, both in absolute terms and relative to the UK, and laid the foundations for the later move to EMU. The path to EMU is followed in some detail. This covers practical preparations, assessment of benefits and costs and necessary changes in monetary policy instruments and legislation. Finally, the completion of the changeover encompasses the huge tasks of printing and minting sufficient amounts of euro cash, of distributing this to banks and retailers, and of withdrawing Irish pound cash, as well as the efforts of all sectors to ensure that the final changeover from the Irish pound to the euro was smooth and rapid.

## 1. Introduction

The Irish pound ceased to be legal tender on 9 February 2002. This brought down the final curtain on a monetary regime which had its origins some 75 years earlier with the introduction of the *Saorstát* pound in 1927. Although the Irish pound had ceased to be an independent currency when it was irrevocably fixed to the euro three years earlier in 1999, it was the withdrawal of Irish pound banknotes and coin that marked the currency's departure for most people.

A theme running through the history of the Irish pound is a search for stability – stability in financial conditions and stability in prices. In the first instance, this stability was provided by a fixed one-for-one link to sterling, with the credibility of the new currency being ensured by a full backing with sterling assets in a currency board. The sterling link also provided a stable environment for trade, which was almost exclusively with the UK in the early years and was relatively slow to diversify in subsequent decades.

The sterling link remained largely unquestioned for almost half a century. It was only in the 1970s, when high inflation in the UK threatened price stability in Ireland, that alternatives were seriously considered. Before a decision was made on an alternative regime, however, proposals for a “zone of monetary

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stability'' emerged in Europe. The upshot was that the Irish pound joined the European Monetary System (EMS) at its inception in March 1979. Sterling remained outside and appreciated sharply; this resulted in a breaking of the sterling link within a couple of weeks.

The expected price stability did not come immediately but was eventually delivered by EMS membership. Our experiences in the EMS had brought us some way down the road towards monetary union and Ireland approached proposals for Economic and Monetary Union (EMU) with a positive attitude. The balance of advantage lay in joining other EU Member States in this venture and, on 1 January 1999, Ireland became one of the eleven founder members of EMU.

It is not possible to provide a comprehensive history of the Irish pound in the space of this article. The approach therefore is selective, with the emphasis being placed on major developments. The article begins with some background to the Irish pound's origins. Next, it traces the steps leading up to the establishment of the Central Bank and the gradual expansion of its functions. Change is the theme for the 1970s, which began with decimalisation and ended with EMS membership and the breaking of the link with sterling. With the exception of the 1992/93 currency crisis, the EMS years do not receive a detailed treatment. This is reserved for the many facets of preparations for EMU: from the rationale for membership to changes in monetary policy implementation; from business and public information campaigns to legal convergence.

No epitaph to the Irish pound would be complete without mention of the unprecedented challenges of producing and distributing sufficient euro banknotes and coin to facilitate a smooth changeover and then withdrawing Irish pound cash. These are dealt with in the final two sections, along with other aspects of completing the changeover from the Irish pound to the euro.

## 2. Origins of the Irish Pound

Although a separate Irish currency, which fluctuated in value against sterling, had existed during the eighteenth and early nineteenth century, the Act of Union in 1800 provided for the eventual assimilation of the Irish pound with that of the UK. This process was completed in 1826, so that by the time Saorstát Éireann (the Irish Free State) was established, in December 1922, the fixed link with sterling had been in existence for nearly a century. Given that Ireland's external trade at the time was almost completely dominated by trade with the UK<sup>1</sup>, it is perhaps

<sup>1</sup> The first official statistics of the Irish Free State showed that in 1924 Great Britain and Northern Ireland together accounted for 98 per cent of Irish exports and 80 per cent of imports.

not surprising that the establishment of an independent currency was not uppermost among the tasks of the newly independent state.

The first tentative steps towards an Irish currency began with coinage. Under the *Coinage Act, 1926*, the Minister for Finance was authorised to issue token coins of silver, nickel and bronze. The denomination of these coins would be the same as those of British coins already in circulation. One small difference was that Irish silver coin would have a 75 per cent silver content, as opposed to 50 per cent for British coins. It is suggested that this might have been seen as a means of “securing a good reception” for the new Irish coins (Moynihan, 1975). All the new coins, issued on 12 December 1928, were to be legal tender for limited amounts (forty shillings for silver coins and one shilling for bronze coins), while British coins issued under the *Coinage Acts, 1870 to 1920* also retained legal tender status for the same amounts.<sup>2</sup>

The decision to produce coins of the same value and denominations as British coins might suggest an unquestioning acceptance that the future currency of Saorstát Éireann should be tied to sterling. This was not so. The sterling link was, in fact, considered in discussions preceding the drafting of the Coinage Bill. The extensive trading and financial relations with the UK and the pure convenience of the arrangement, however, were seen as overwhelming arguments in its favour, at that stage.

In 1922, three types of banknotes were in circulation in Ireland: British Treasury notes, Bank of England notes and notes issued by Irish banks, with only the first of these having legal tender status. While this situation may have been less than satisfactory, no serious inconvenience was involved in a temporary continuance of the *status quo* (Brennan, 1931). Moreover, it was widely accepted that a careful preliminary review was essential before legislation on a new currency could be framed. This review was initiated with the appointment of a Banking Commission in 1926, under the chairmanship of Prof. Henry Parker-Willis of Columbia University, who had previously been Director of Research at the US Federal Reserve Board. The Commission’s terms of reference were “to consider and to report to the Minister for Finance what changes, if any, in the law relative to banking and note issue are necessary or desirable, regard being had to the altered circumstances arising from the establishment of Saorstát Éireann”.

The *First Interim Report* of the Commission dealt with banking and currency. Its recommendation was that, while it was desirable for the State to establish its own currency system, this might best be done through the adoption of a fixed relationship

<sup>2</sup> The position of British coins remained anomalous until the passing of the *Coinage Act, 1950*, which reserved legal tender status for Irish token coins (Moynihan, 1975, p30).

to sterling. It also recommended that responsibility for banknote issue should be given to a non-political independent Currency Commission, to be established by an Act of the Oireachtas.

All the essential points of the Banking Commission's recommendations were included in the *Currency Act, 1927*. The Act provided for a new unit of value, to be known as the *Saorstát* pound<sup>3</sup>, which would be maintained at parity with the pound sterling. Convertibility to sterling would be ensured by a full backing by British Government securities, liquid sterling balances and gold, under the control of the Currency Commission, and was underpinned by a guarantee that Irish banknotes would be paid at par in sterling (without fee, margin or commission) at the Bank of England.

While the question of establishing a central bank was within the scope of the Banking Commission's terms of reference, it decided against recommending it "at the present time". The State, it considered, had a sound banking system with direct access to the London money market, the Government's banking business was being satisfactorily dealt with and there was no local money market through which a central bank might operate. Moreover, the currency board system, operated by the Currency Commission, had the advantages of generating credibility in the currency through the fully-backed sterling link and providing seigniorage through the holding of British Government securities. In the context of later developments, it is of interest that "parity of price level" between the *Saorstát* and Britain was included with freedom of trade and payments and the retention and possible return of investment funds, in the list of benefits flowing from the fixed link with sterling.

### 3. From Currency Board to Central Bank

A further and more comprehensive discussion of the appropriate basis for the Irish currency took place in the *Commission of Inquiry into Banking, Currency and Credit*, which was established in 1934. This second banking commission took considerably longer in its deliberations than the first; it did not report until March 1938 when a majority report and three minority reports were produced. Central banks were in vogue at the time, following a recommendation in favour of their establishment by the World Economic Conference in 1933<sup>4</sup>, and the question of whether one should be set up in Ireland was explicitly examined by the Commission. In the end, the recommendations of the majority report might best be described as to "hasten slowly" towards setting up a central bank. A major drawback, the report

<sup>3</sup> After the 1937 Constitution came into force, the currency was known as the *Irish pound*.

<sup>4</sup> Central banks were established in New Zealand in 1934 and in Canada and India in 1935.

considered, was that in Irish conditions the scope for open-market operations would be limited.

As a first step, it suggested that the monetary authority be given power to rediscount bills and to make advances to banks on the collateral of Government securities. The authority should also be authorised to buy and sell fixed-interest gilt-edged securities. The name of the Currency Commission should be changed to emphasise the fact that, once these powers had been conferred on it, it would become a central bank. On the wider functions of a central bank, the report considered that the existing banking service provided to the Exchequer (by the Bank of Ireland) was satisfactory and no change was recommended.

With regard to the currency, maintaining the link with sterling was regarded as fundamental, in view of the close economic relations between the two countries and the need to maintain international confidence in the Irish pound. The existing one-for-one parity was also considered to be appropriate. The view was that any change in this parity “would introduce an element of uncertainty for the future, as it would be impossible to prevent the anticipation of further changes . . . .” which would be “a grave deterrent to enterprise” (para. 211).

Movement towards the establishment of a central bank did not come until March 1942, when the Central Bank Bill was introduced in the Dáil. This bill gave effect to the enhanced powers and functions recommended by the Commission of Inquiry, and was signed by the President on 4 November. The *Central Bank Act, 1942* came into effect on 1 February 1943 and, amongst other things, committed the Bank to “safeguarding the integrity of the currency”. The scope of the Act was limited in some aspects, however, and a number of characteristic central banking functions were not assigned to the Central Bank of Ireland at this time:

- it was not given custody of the cash reserves of the commercial banks;
- it was given no statutory power to restrict credit, though it could promote its expansion;
- the Bank of Ireland retained its position as banker to the Government;
- the conditions for influencing credit by open-market operations still did not exist; and
- Ireland’s external monetary reserves continued to be held largely in the form of the external assets of the commercial banks (Doherty, 1993).

This seriously constrained the Central Bank's ability to conduct an independent monetary policy. The Bank broadened its activities slowly in the decades which followed, leading to the charge that it remained, to all intents and purposes, a currency board until at least the early 1970s (Honohan, 1995).

Exchange rate arrangements, as set out in the *Currency Act, 1927* were not changed by the 1942 Act, despite some strong criticism of retaining the fixed parity link to sterling in the Dáil debate (Moynihan, 1975; *The Economist*, 1942). Nor was the link with sterling seriously questioned over the next 30 years or so, even though Ireland departed from the Commonwealth and declared a Republic in 1948 and sterling was devalued within the Bretton Woods system in 1949, and again in 1967.

#### 4. The 1970s: A Decade of Change

The decade began with the decimalisation of the Irish pound, in line with a similar move in the UK. Provision for this was made under the *Decimal Currency Acts, 1969 and 1970*, and the system formally commenced on 15 February 1971. Prior to this, however, the Central Bank had released 5 and 10 new pence coins for use as one and two shillings, respectively, and a new 50 pence coin for use as ten shillings in order to help the public to become familiar with the new currency.

Decimalisation was a much more limited exercise than the later changeover to the euro, since the denomination for larger value transactions – the pound – and the institutional basis for the Irish pound – the link to sterling – did not change. Nevertheless, decimalisation was seen as a major innovation and a Decimal Currency Board was established to educate and assist the public in making the transition. This Board provided a model for the Euro Changeover Board of Ireland (ECBI), which was established in 1998 with a similar mandate (see p 108).

The public perception of decimalisation was that it gave rise to a substantial rise in prices. World inflation was rising at the time, however, and any additional effect from decimalisation may have been comparatively small. But the view that “decimalisation caused inflation” became embedded in folk history and many believed that “history” would be repeated a generation later with the introduction of the euro.

Decimalisation would have provided a unique opportunity to break the link with sterling and introduce a new Irish currency. There was little support for such a radical move at the time but, as the decade progressed, a number of related developments led to a questioning of the appropriateness of continuing the fixed parity link with sterling. First, there was the breakdown of the Bretton Woods System of fixed exchange rates, with sterling

departing from this to float in 1972. Second, inflation in the UK rose rapidly in the wake of the first oil crisis and more modern strands of economic theory suggested that a small economy operating a fixed peg to a larger country's currency would experience that country's inflation rate. Third, attempts to establish a common European currency and moves by Scandinavian countries towards a policy of stabilising their nominal effective exchange rate indices focused attention on alternative exchange rate arrangements. In addition, moves towards establishing a money market in Dublin, the transfer by the commercial banks of their sterling assets to the Central Bank in 1968 and the extended powers provided in the *Central Bank Act, 1971* made it possible to contemplate a more independent exchange rate policy for the Irish pound.

The Central Bank had set up a committee "to consider and report on the functions that might be performed by an active money market in Ireland, the methods of operation of such a market and the practical steps that might be taken to facilitate its development" in April 1967. The Committee's Report (The Money-Market Report), published in May 1969, recommended that a dealership-based money market should be encouraged and that the Bank should take the initiative to improve the functioning of the short- and medium-term bond markets to support this. In response, the Bank announced two-way dealing in short-dated Government securities and later, in 1974, extended its dealings to securities with up to five years to maturity. This, together with the transfer of some £40 million of the Associated Banks' external reserves to the Central Bank, arising from the Basle Arrangements for the Support of Sterling<sup>5</sup>, provided the foundations for the development of an Irish pound money market. [See Kelly (1993) for a fuller discussion of the development of money and foreign-exchange markets in Ireland].

The *Central Bank Act, 1971* expanded the Bank's monetary policy powers, gave it responsibility for licensing and supervision of banks and provided for the transfer of the Exchequer Account to the Bank. More significantly with regard to the currency, the Act provided for changes to be made in the exchange rate of the Irish pound by Government Order, after consultation with the Bank<sup>6</sup>.

Changing currents of economic theory also contributed to a lively debate on the appropriateness of maintaining the sterling link. In the early 1970s, the accepted wisdom was that a significant proportion of Irish inflation was influenced by domestic factors. This view drew empirical support from an influential input/output study by Geary, Henry and Pratschke

5 Under these Arrangements, the UK offered to guarantee the value, in terms of US dollars, of **central banks'** holdings of sterling reserves in the event of a devaluation of sterling.

6 This was done by repealing Section 4 of the *Currency Act, 1927*.

(1970) but, as the decade progressed, Irish economists began to move towards the small open economy (SOE) view of the inflationary process. Many contributed to this debate. McDowell and Murray (1975) outlined alternative policy options; Geary (1976), Geary and McCarthy (1976) and Bradley (1977) provided empirical support for the SOE view; while Ryan (1978) presented a comprehensive analysis of the link between the exchange rate and inflation.

The appropriateness of the sterling link was also being examined within the Central Bank during this period. This questioning was sparked off by the UK's decision to withdraw from the "snake" and allow sterling to float in 1972 and received further impetus from fears of pressure on sterling following rising inflation and the change of government in the UK in 1974. Some of the internal deliberations were reflected in the public discussion, by Governor Whitaker, of the costs and benefits of the link with sterling. In 1973, he looked at Ireland's situation in the context of the theory of optimal currency areas, developed by Mundell in the previous decade (Mundell, 1961). His conclusion at that time was that Ireland did not meet the criteria for an independent currency area and that there was sufficient justification for maintaining the sterling link (Whitaker, 1973). The Governor returned to the issue in 1976 in a talk entitled "Should the Sterling Link be Broken?" (Whitaker, 1976).<sup>7</sup> Once again, the conclusion was in favour of maintaining the *status quo*, partly because of a fear that domestic inflationary discipline might prove difficult after a break with sterling. Reflecting the SOE literature of the time, the favoured path, should the sterling link be broken, was for a revaluation of the Irish pound in order to curb inflationary influences from abroad.

Subsequent work within the Bank, however, suggested that the Irish pound's fixed link with sterling was becoming less and less appropriate. Sterling was depreciating and there had been a steady fall in trade with the UK.<sup>8</sup> Amongst the alternatives considered, the favoured choice was the adoption of a trade-weighted exchange rate objective; specifically, a policy of zero change in the pound's effective exchange rate (EER) index. Discussions on a change in the exchange rate regime took place with the Department of Finance in 1978 but by that stage a new option was emerging.

Parallel to the questioning of the sterling link in Ireland, discussions on closer exchange rate arrangements were progressing in Europe. In April 1978, the European Council in Copenhagen decided in principle on the creation of a "zone of monetary stability" in Europe and Community institutions were invited to examine the mechanics of implementing such a

<sup>7</sup> This talk was given to Ghaeleagras na Seirbhíse Poiblí and was published as "An Ceangal le Sterling: An Cheart é a Bhriseadh?"

<sup>8</sup> In the five years to December 1978, sterling's trade-weighted exchange rate index fell by almost 25 per cent (Murray, 1979).

system. At the next Council meeting in Bremen in July 1978, the main features of the EMS were outlined. These included the introduction of the ECU – a basket of the Community’s currencies, which would be used as the denominator for fixing exchange rates – and financial support mechanisms. Finally, in December 1978, the European Council meeting in Brussels agreed to set up the EMS, as a system of “fixed but adjustable” exchange rates.

It was against this background of monetary co-operation in Europe and dissatisfaction with the sterling link at home that Ireland was faced with the decision of whether or not to join the EMS. The arguments were put succinctly in the Bank’s 1979 Annual Report (Murray, 1979). An EMS, which included all EEC countries, promised stability for 75 per cent of Ireland’s external trade. The problem emerged when it became clear that the UK might not join. Without the UK, only 25 per cent of our trade would be covered.

In the event, the decision was to join without the UK. The factors, which influenced this decision, were:

- (i) the inappropriateness of an indefinite prolongation of the sterling link;
- (ii) the benefits in terms of a reduction in inflation to be obtained from adherence to a hard currency regime<sup>9</sup>;
- (iii) a commitment to a major Community initiative; and
- (iv) Community support in the form of resource transfers.

In the EMS negotiations, it was recognised that a change to a hard currency regime might cause problems for high inflation countries like Ireland (and Italy). To compensate, subsidised loans from the European Investment Bank (EIB) were agreed. The net present value of this subsidy was estimated to be about 3 per cent of GNP (Honohan, 1995).

It was also recognised that the success of the venture in reducing Irish inflation depended on support from appropriate domestic policies. The White Paper on the EMS, issued in December 1978, acknowledged that “the discipline involved in membership of a zone of monetary stability acts as a powerful aid in the fight against inflation”, while Murray (1979) made it clear that although the new exchange rate regime held out the prospect of reducing imported inflation, “that prospect will not be realised unless domestic policies are geared to achieve it”. Unfortunately, domestic policies did not adjust in the early years, when the Exchequer Borrowing Requirement (EBR) actually rose as a percentage of Gross National Product (GNP).

9 Implicit in this was the widely held view that sterling would continue to depreciate against other EEC currencies. At the start of 1979, all major UK forecasters were expecting the currency to weaken in the course of the year. In fact, sterling appreciated by over 3 per cent against the DM during 1979 and by 21 per cent in 1980.

## 5. Participation in the EMS

On 15 December 1978, the Taoiseach announced the Government's decision that Ireland would participate in the EMS. At the same time, the Minister for Finance extended exchange controls to transactions between Ireland and the UK. Member States were given the option of 2.25 per cent or 6 per cent margins of fluctuation within the EMS exchange-rate mechanism (ERM).<sup>10</sup> The narrower margins were chosen for the Irish pound; it was feared that the wider margins might attract the attention of currency speculators. While it was recognised that EMS membership would probably entail a break in the link with sterling at some stage, it was considered desirable to maintain the one-for-one parity for as long as possible (Murray, 1979).

In fact the break came sooner than expected. The system began on 13 March 1979. Towards the end of March, sterling gained support from rising oil prices and appreciated strongly against all EMS currencies. By 30 March, sterling breached the upper fluctuation limit against the Belgian franc. As an EMS member, the Irish pound could not follow. Just over fifty years after its formal adoption, the link between the Irish pound and sterling was broken.

Fundamental changes in foreign-exchange market arrangements in Ireland were required to deal with the new situation. Initially, the Bank administered the exchange rate within a narrow spread in order to avoid volatile market conditions. The Bank applied a dealing spread of 0.25 per cent between its buying and selling rates for sterling and US dollars, at first. This spread was gradually widened until June 1980, when the pound was allowed to fluctuate within the full 2.25 per cent margins.

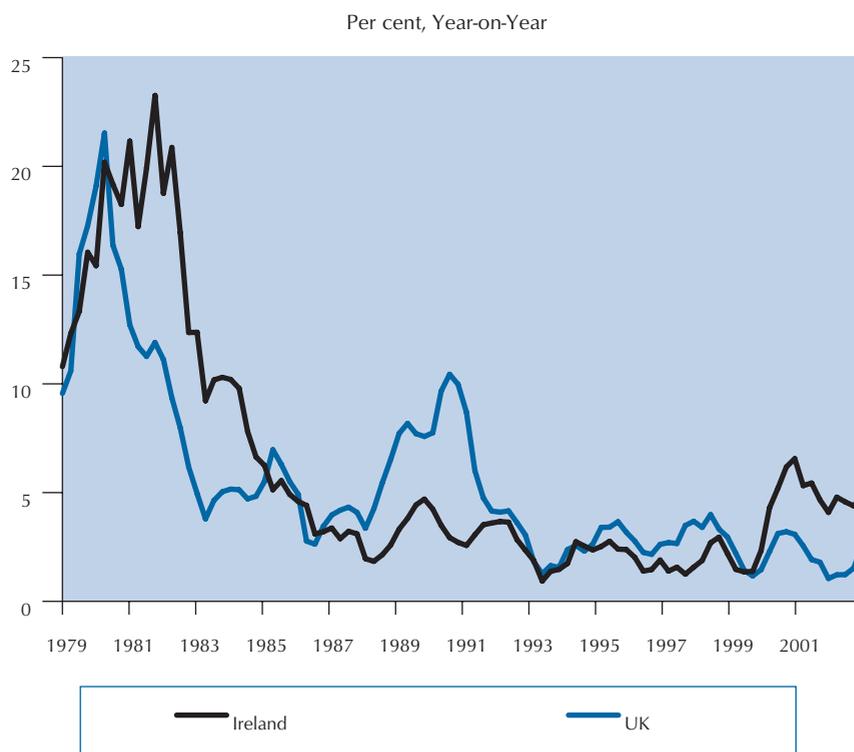
In the absence of a developed forward market, the Bank also agreed to quote sterling forward for trade-related transactions. This support for the forward market continued for over a year but was phased out between July and November 1980. Thereafter, the Bank withdrew to play a supporting role (Kelly, 1993).

For policy makers, the initial experience within the EMS was disappointing. First, the expectation had been that when the sterling link was broken it would be as a result of an appreciation of the Irish pound, which would help reduce inflation here. Sterling, however, drew support from a tight monetary stance in the UK and from the effects of North Sea oil and strengthened considerably during 1979-1981. In fact, having broken the link on the downside, the pound depreciated to under 80p sterling by the fourth quarter of 1980 and the Irish inflation rate exceeded that of the UK (see Chart 1). Second, stability in the EER index was not achieved either. Macroeconomic policy in

<sup>10</sup> For details of the features of the ERM see "A Guide to the Arithmetic of the EMS Exchange-Rate Mechanism", *Central Bank Quarterly Bulletin*, Autumn 1979.

Ireland remained inconsistent with a 'hard currency' regime and, in addition to the decline against sterling, the Irish pound also failed to hold its initial central rate against the DM, although it did rise against some other EMS currencies. This led to both a fall in the EER index, of some 15 per cent in the first two years of membership, and to greater volatility in day-to-day movements in the index than under the sterling link. Third, this exchange rate uncertainty imposed costs on the external sector of the economy in two areas: it made planning more difficult and it increased the cost of trade and other foreign transactions, since buy/sell spreads had to be paid on **all** currencies after March 1979. Such transactions costs were estimated at the time to be equivalent to about 2.5 per cent of 1979 GNP (McCarthy, 1980). Two decades later, the elimination of these transactions and other costs on a portion of Ireland's external trade were to be listed amongst the benefits of joining monetary union, but with a much lower estimated size (see Table 1).

Chart 1  
Inflation in Ireland and the UK, 1979-2002



While the Irish pound's experiences within the EMS are not without interest, there were no changes in institutional arrangements between 1979 and 1999 and a detailed analysis of developments is outside the scope of this article. Suffice it to say that EMS membership eventually delivered low inflation – both in absolute terms and relative to the UK (see Chart 1) – and that pressure on the Irish pound for the most part emanated from sharp movements in the DM/sterling exchange rate. This was particularly true of the two occasions when Ireland sought unilateral devaluations of the pound within the system – in

August 1986 and in January 1993. Given the unprecedented nature of events during “the currency crisis” leading up to this latter move, a brief comment is necessary.

“With the benefit of hindsight, the currency crisis within the EMS should not have been allowed to happen” (Ahern, 1993). Imbalances had built up within the system, however, and warning signs were ignored. When sterling left the ERM on 16 September 1992, pressure on the Irish pound quickly emerged. Initially, this was based on fears of a unilateral devaluation of the Irish pound to reverse its sharp appreciation against sterling. As the crisis within the ERM widened, these gave way to expectations of a general realignment, in which the Irish pound would be involved. In the event, Spain requested an EMS realignment over the weekend of 21/22 November 1992. In this, the bilateral central rates of the peseta and escudo were devalued by 6 per cent but the Irish pound held firm.

Although tensions remained high in the ERM, there was some respite for the Irish pound in December 1992, following a sharp appreciation of sterling. Exchange controls were terminated on schedule at the beginning of January 1993 and there was relief that no immediate outflows ensued. Pressure, however, emerged from a different source. The Financial Times, on 6 January 1993, interpreted a statement attributed to the Minister for Finance, to the effect that:

“ I said I was prepared to hold the line until the end of the year. That has now passed. If the system does not correct itself . . . the pressures on industry are something that cannot be lived with indefinitely”

as an indication that the defence of the Irish pound might soon be abandoned. This unleashed a wave of speculation and over the following days there were substantial outflows. When sterling weakened later in the month, following an unexpected cut in UK official interest rates, the pressure became unsustainable. The Irish authorities reluctantly decided on a downward realignment of 10 per cent in the Irish pound’s bilateral central rates against other ERM currencies on 30 January.

One of the most notable features of the currency crisis was the unprecedented levels to which Irish interest rates were increased in defence of the currency. Initially, the Central Bank refrained from increasing its Short Term Facility (STF) rate but, as it became clear that pressure on money-market rates would persist, the STF rate was raised by three percentage points to 13.75 per cent on 28 September 1992. The Bank later suspended the STF and provided overnight support at rates of up to 100 per cent – see Chart 2. Official rate increases were reflected in short-term money-market interest rates and were passed on to business borrowers who had DIBOR-related contracts. Higher interest

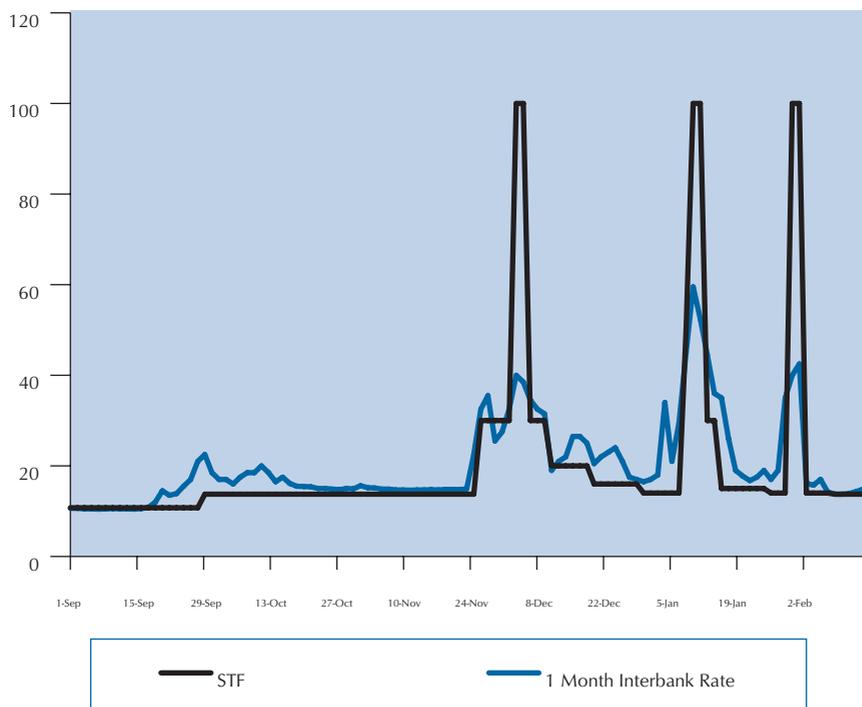
rates and intense competition for funds in the retail deposit market made depositors more aware of potential returns and resulted in a substantial switch from demand to higher yielding fixed-term deposits.

While defence of the Irish pound had been costly, reflows in early 1993 were substantial and interest rates soon dropped back to normal levels. The markets had been impressed by the determination to hold the exchange rate over an extended period and there was renewed confidence in the Irish pound. Interest-rate differentials over Germany narrowed and between mid-1993 and end-1996 averaged about a percentage point lower than if they had retained their pre-crisis relationship (Fitzgerald and Honohan, 1997). This underpinned efforts to meet the convergence criteria and paved the way towards membership of EMU.

Chart 2

**Central Bank and Money-Market Interest Rates 1992-93\***

Per cent, Per Annum



\* On 23 November 1992, the Bank suspended the STF and, instead, offered secured overnight advances, initially at 30 per cent. The STF was restored on 5 February 1993.

## 6. The Path to EMU

The idea of a single currency goes back to the Schuman Plan of 1950. Although the first blueprint – contained in the Werner Report of 1970 – was not proceeded with, the goal was always kept in sight. The setting up of the EMS almost a decade later was intended to be a move towards monetary union, but it was not until the mid-1980s that the “Single Market” programme gave the project renewed life. Support gathered pace following

the signing of the Single European Act in 1986, with a single currency being seen as a logical complement to a market without frontiers. Action followed at the Hanover Summit in June 1988, when a committee under the chairmanship of Commission President, Jacques Delors, was established to propose concrete steps towards the realisation of EMU. The *Delors Report*<sup>11</sup> was endorsed by the Madrid Summit in June 1989. It envisaged three stages on the path to EMU. These were later given a legal basis in the Treaty on European Union (Maastricht Treaty), which was signed in February 1992. The Treaty also specified the EMU convergence criteria and set dates for the achievement of the various steps along the way (see Central Bank, 1995).

Briefly, the three stages of EMU were as follows:

- **Stage One:** Completion of the single market; the abolition of exchange controls; reduction of regional disparities; and increased macroeconomic policy co-ordination. This stage began on 1 July 1990.
- **Stage Two:** Fiscal and monetary convergence in Member States and closer policy co-ordination were the main goals of this stage, which began on 1 January 1994. The European Monetary Institute (EMI), the forerunner of the European Central Bank (ECB), was established and given the task of specifying the organisational and logistical framework for a common monetary policy.<sup>12</sup> During this stage, the decision on which countries would participate in EMU was made.
- **Stage Three:** This marked the start of full monetary union and commenced on 1 January 1999 with the irrevocable fixing of exchange rates between the currencies of participating Member States. The euro became the currency of these States and the ECB began to operate the single monetary policy. The euro existed only as a “virtual” currency at the start. Production of banknotes and coin began, and EMU was completed with the introduction of these on 1 January 2002.

While initial discussions on EMU were taking place in Europe, Ireland was beginning to reap the benefits of EMS membership. Inflation fell below 5 per cent in the mid-1980s; short-term interest rates fell below those in the UK for the first time in 1987; and, towards the end of the decade, economic growth recovered. It was against this background that the Government signed the Maastricht Treaty. The Treaty was the subject of a referendum in Ireland on 18 June 1992. There was widespread political support and the leaders of the four main political parties

11 “Report on economic and monetary union in the European Community”, Committee for the Study of Economic and Monetary Union, Luxembourg 1989.

12 For further details see “Establishment of the European System of Central Banks and of the European Central Bank”, *Central Bank Quarterly Bulletin*, Autumn 1998.

joined in urging a “Yes” vote. The result was that just under 70 per cent of those who voted supported the Treaty.

Thus, Ireland was committed to the EMU process and Government policy was that we should be eligible to participate from the outset. There was, however, surprisingly little public debate about the implications at this time. Perhaps this is because subsequent events appeared to call into question the feasibility of monetary union. The “No” vote in the Danish referendum on the Treaty on 2 June 1992 signalled the start of concern about prospects for EMU. In September of the same year, sterling and the lira departed from the ERM and depreciated sharply, leading to pressure on other ERM currencies, not least the Irish pound; and in 1993 the ERM experienced further serious strains, culminating in the widening of fluctuation margins to +/- 15 per cent in August of that year. At the time, many assumed that the whole EMU project was dead. It was not until late 1994, according to one Irish economist, that “faint signs of life in the beast” were discerned and that it was “beginning to dawn on people that a whole lot of public servants and central bankers are labouring away as if nothing has happened” (McArdle, 1994).

This was certainly true in Ireland and preparatory work quickly spread from the public sector to the financial and business communities, which were to have a leading role in the changeover from the Irish pound to the new single currency.<sup>13</sup> The Department of Finance led the way with the establishment of the Single Currency Officers Team (SCOT) in Autumn 1995, to coordinate the public sector’s preparations for the changeover. Preparatory work gathered momentum after December 1995, when the European Council meeting in Madrid confirmed 1 January 1999 as the starting date for Stage Three of EMU. This work was formalised by the establishment of a number of bodies specifically focusing on EMU preparations. In 1996, the Irish Bankers Federation (IBF) and the Irish Mortgage and Savings Association (IMSA) jointly established an EMU Steering Committee, in which the Central Bank participated. In the same year, the Departments of Enterprise, Trade and Employment and Finance co-operated in setting up the Forfás EMU Business Awareness Campaign to provide information and assistance to the business sector. Later, in May 1998, after it was confirmed that Ireland had qualified for EMU, the Euro Changeover Board of Ireland (ECBI) was established with two tasks: to oversee the detailed implementation of the changeover to the euro and to provide public and consumer information. The Board included representatives from a wide range of public and private sector organisations; for details see Appendix 1 of ECBI (2002). Official efforts to assist business preparations were amplified by

13 The name “euro” was not adopted until December 1995, at the Madrid European Council meeting.

presentations throughout the country by individual banks, the Irish Business and Employers Confederation (IBEC) and the Chambers of Commerce of Ireland.

While practical preparations for EMU were progressing, debate was also taking place on the economic rationale for Irish membership. Some of the benefits were clear. These included the removal of exchange rate uncertainty and the elimination of foreign currency transaction costs on trade and financial transactions with other Member States. There would also be gains from lower interest rates, transparency in pricing and the promotion of price stability and sound public finances, in addition to the increased attractiveness of Ireland for foreign investment. The main costs were seen as loss of exchange rate flexibility and an independent monetary policy. Since the latter had “been greatly circumscribed by our membership of the ERM”, it was felt that any further loss of freedom would be “balanced by our acquiring an equal voice in the formulation of European monetary policy” (Doyle, 1992).

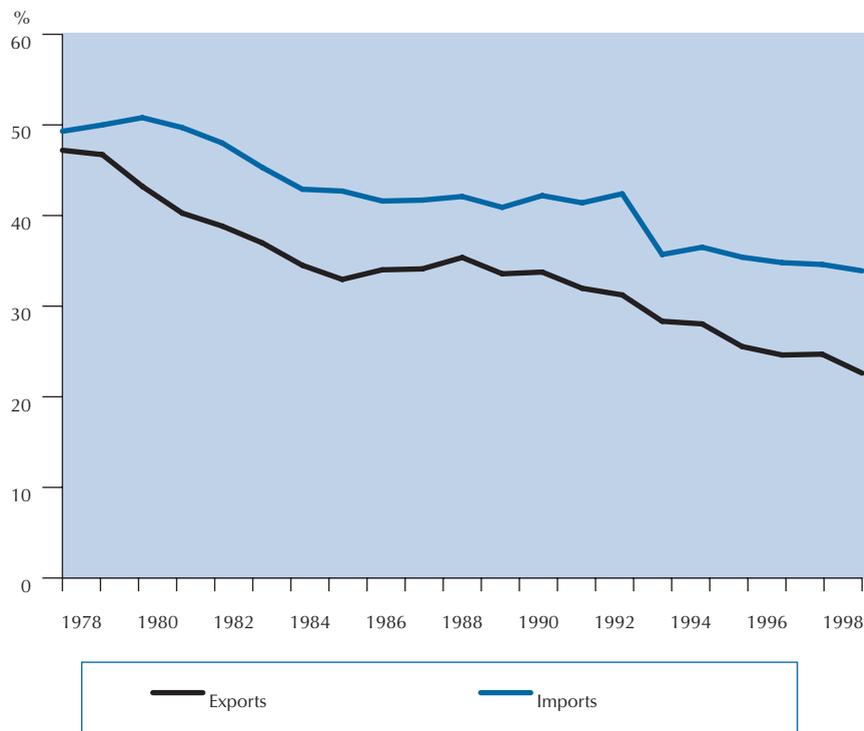
There was general agreement that the EMS as we knew it would cease to exist, so maintenance of the *status quo* was not an option. The decision, therefore, was either to join EMU or to remain outside and adopt a floating exchange rate regime.<sup>14</sup> The theoretical attractions of the latter in terms of the ability to attain domestic inflation and stabilisation targets were considerable (Lane, 1997). But remaining outside EMU could also give rise to significant costs, especially in terms of higher and more volatile interest rates and greater exchange rate uncertainty. There was a danger that non-members’ commitment to low inflation might be in doubt and this, together with an exchange-rate risk premium, could lead to a widening of interest-rate and bond-yield differentials vis-à-vis the core EU countries.

As in the debate on EMS membership, the UK position was not without relevance. Although the proportion of trade with the UK had diminished significantly in the intervening decades (see Chart 3), clearly the benefits would be greater with the UK in. Even in this case, some economists felt that the benefits might not provide adequate compensation for giving up the exchange rate (Eichengreen, 1993). If this option was not on offer, others, such as Barry (1997), felt it would be better to remain outside EMU until the UK joined. Some opponents of EMU membership produced analysis based on optimal currency area theory to argue that membership without the UK would not be in Ireland’s best interests (Neary and Thom, 1996). Interestingly, this was the same theory on which arguments used to justify maintaining the sterling link a quarter of a century earlier were based.

<sup>14</sup> It was, of course, open to the Irish pound to join ERM 2 but the wide fluctuations of +/- 15 per cent around the euro central rate meant that, in economic terms, this was little different from a managed float.

Chart 3

## UK Share in Ireland's Trade, 1978-98



Sterling “in” and “out” of EMU provided the basis for the two main scenarios examined in an in-depth study of the likely implications of membership for Ireland by the Economic and Social Research Institute (ESRI). This study was commissioned by the Minister for Finance in January 1996 and looked at the prospects for the overall operation of EMU, as well as the Irish economy’s ability to respond. The economic effects of EMU were expected to flow through three main channels: the level of interest rates; competitiveness effects; and the cost of foreign exchange transactions. The study’s objective was to quantify the likely economic effects of these three factors (along with some others) in order to arrive at an overall estimate of the likely economic impact of the change to EMU.

**Table 1: Medium-Term Effects of Irish Membership of EMU**

	UK Out	UK In
<i>Average Impact on GNP, %</i>		
Transaction Costs	0.1	0.1
Interest Rates	1.7	1.7
Competitiveness – steady state	-0.4	0.0
Cumulative Effect – Tranquil Scenario	1.4	1.8
Risk of Shocks – Competitiveness etc.	-1.0	-0.4
Net Effect	0.4	1.4
<i>Change in Employment, (000)</i>		
Net Effect	10,000	20,000

Source: *Economic Implications for Ireland of EMU*, ESRI.

The medium-term effects are summarised in Table 1. The largest benefits were expected from lower interest rates. Obviously, the most favourable scenario was where the UK joined, as that would minimise exchange rate shocks and provide greater savings on foreign exchange costs. Even with sterling out, however, the balance of quantified effects was still found to be favourable, though only to the extent of about 0.4 per cent of GNP. The Report also noted a number of other potential but unquantifiable effects of joining EMU, some of which could be substantial. These included the convenience of a common currency and the impact of commitment to Europe and increased currency stability on business confidence and the investment plans of Irish and overseas investors. Similar conclusions had also been reached by an earlier unpublished Central Bank study, which also pointed to the possibility of increased inflows of foreign direct investment from the US. Given these findings, there appeared to be little to be gained from not joining EMU at the outset, provided Ireland satisfied the convergence criteria.<sup>15</sup>

As the start of Stage Three drew nearer and it appeared almost certain that Ireland would qualify, there were a number of technical issues to be addressed. First, it was necessary to decide on the level at which the Irish pound's exchange rate would be irrevocably fixed against other member currencies. During 1997 and 1998, the Irish pound had been trading well above its central rate in the 15 per cent ERM band. To have linked to the euro at its central rate, in these circumstances, would have entailed a substantial depreciation in the market exchange rate, which could have fuelled inflation in the early years of EMU. This problem was addressed in March 1998, when the Irish pound's central rate was revalued by 3 per cent. The result was that the market exchange rate against the DM depreciated by over 3 per cent during 1998. While this was seen as providing some insurance against a loss of competitiveness should sterling weaken against the euro after the start of EMU, what actually happened was that the Irish economy received a double boost from both lower interest rates and a weaker exchange rate.

Second, monetary policy instruments in Ireland had to be brought into line with those proposed for EMU Member States (the Eurosystem), so as to prepare Irish credit institutions for the new regime. This process began in November 1997, when averaging was introduced for credit institutions' required reserve deposits and there was a move to a weekly tender for the provision of liquidity. Further changes were made in early 1998, when quotas on the use of the STF, through which banks had automatic recourse to the Central Bank for liquidity, were abolished and the day-count convention for monetary policy operations was changed from actual/365 to actual/360. Backing

<sup>15</sup> For details of these criteria, see Central Bank (1995).

up these changes, new documentation was introduced covering repurchase agreements and the provision of collateral to the Central Bank. Prior to their introduction, all these changes were discussed with banks in the Dublin Interbank Money Market Committee (DIMMC), where it was also agreed that EURIBOR (Euro Interbank Offered Rate) should replace DIBOR as the standard for the Dublin money market.

Finally, changes to national legislation were necessary. Most of these were covered in the *Central Bank Act, 1998* and the *Economic and Monetary Union Act, 1998*, with provision for taxation changes required for the introduction of the euro being made in the *Finance Act, 1998*. The Central Bank Act brought Irish central banking legislation into line with the Maastricht Treaty and underpinned the independence of the Central Bank. The fate of the Irish pound was sealed by the Economic and Monetary Union Act, which declared that from 1 January 1999 the currency of the State would be the euro.<sup>16</sup>

## 7. From “Virtual” to Physical Euro

The conversion rates to apply between the euro and the currencies of the eleven Member States joining EMU were irrevocably fixed by the ECOFIN Council on 31 December 1998 (see Table 2). The euro was launched on the following day and became the currency of the participating countries. At this stage, the euro existed only in “virtual” or cashless form. Irish pound banknotes and coins continued to circulate and, in common with other national currencies, the Irish pound became a sub-division of the euro. In the wholesale financial markets the euro immediately replaced the national currencies and common interest rates (EONIA and EURIBOR) replaced national rates. Although bank accounts could be opened in euro, few availed of these. For the vast majority of people little changed. But a period of intense preparation had begun, leading up to the cash changeover in 2002 and the last days of the Irish pound.

**Table 2: Euro Conversion Rates 31-12-98**

Units of currency per €1	
13.7603 Austrian schillings (ATS)	1936.27 Italian lire (ITL)
40.3399 Belgian francs (BEF)	40.3399 Luxembourg francs (LUF)
5.94573 Finnish markkas (FIM)	2.20371 Dutch guilders (NLG)
6.55957 French francs (FRF)	200.482 Portuguese escudos (PTE)
1.95583 Deutsche marks (DEM)	166.386 Spanish pesetas (ESP)
<b>0.787564 Irish pounds (IEP)</b>	

<sup>16</sup> This Act also provided the legal underpinning for the switch from DIBOR to EURIBOR for interest-rate quotations.

In order to provide a framework for these preparations, the ECBI published a *Cash Changeover Plan* on 19 April 2000.<sup>17</sup> This plan had four sections: it outlined what individuals should do to make the changeover to the euro as smooth as possible; it set an end date for the period in early 2002 when the euro and Irish pound would both have legal tender status; it described how the changeover would be implemented; and it provided details of the plans of those sectors and organisations which would be most closely involved in its implementation.

The Madrid European Council had provided for a period of up to six months during which the national currencies, such as the Irish pound, and the euro would both be in circulation.<sup>18</sup> Individual countries were free to decide on the length of this period and most decided on a considerably shorter time span of about two months. In Ireland, the organisations involved in drawing up the *Cash Changeover Plan* decided that the dual circulation period should be relatively short and that at midnight on 9 February 2002 legal tender status should be withdrawn from Irish pound banknotes and coin.

The conversion of accounts with financial institutions was dealt with in the section of the Plan on implementation. Banks and building societies had already promised to carry out once-off conversions into euro of accounts denominated in Irish pounds free of any conversion charges.<sup>19</sup> For customers who had not availed of this option earlier, accounts would be automatically converted to euro at end-December 2001. While banks in other Member States began their account conversion as early as June 2001, Irish institutions saw advantages in a “big bang” approach. In order to facilitate this by giving a clear four days for conversions, they agreed that 31 December would be a “non-value day” during which bank staff would work behind closed doors.<sup>20</sup>

Amongst the plans of individual organisations, the Central Bank undertook to ensure that sufficient quantities of euro banknotes and coins would be produced, and made available to be put into circulation, for the changeover. Production of these euro had to take place simultaneously with the continued production of Irish pound banknotes and coin, which posed a formidable challenge for the Bank’s Currency Centre. At the same time, plans had to be made and facilities developed for the eventual withdrawal of Irish pounds (Central Bank, 2001).

17 *The Introduction of the Euro: Ireland’s Cash Changeover Plan for 2002*, Euro Changeover Board of Ireland, April 2000.

18 ‘The Scenario for the Changeover to the Single Currency’, Annex 1 of Presidency Conclusions, European Council, Madrid, December 1995.

19 *Standard of Good Practice on Bank Charges for Conversion to Euro and Dual Display of Accounts*, IBF/IMSA, 1998.

20 A legal basis for this non-value day was provided in the *Euro Changeover (Amounts) Act, 2001*.

Chart 4

**Euro Coin Production in Ireland (millions)**

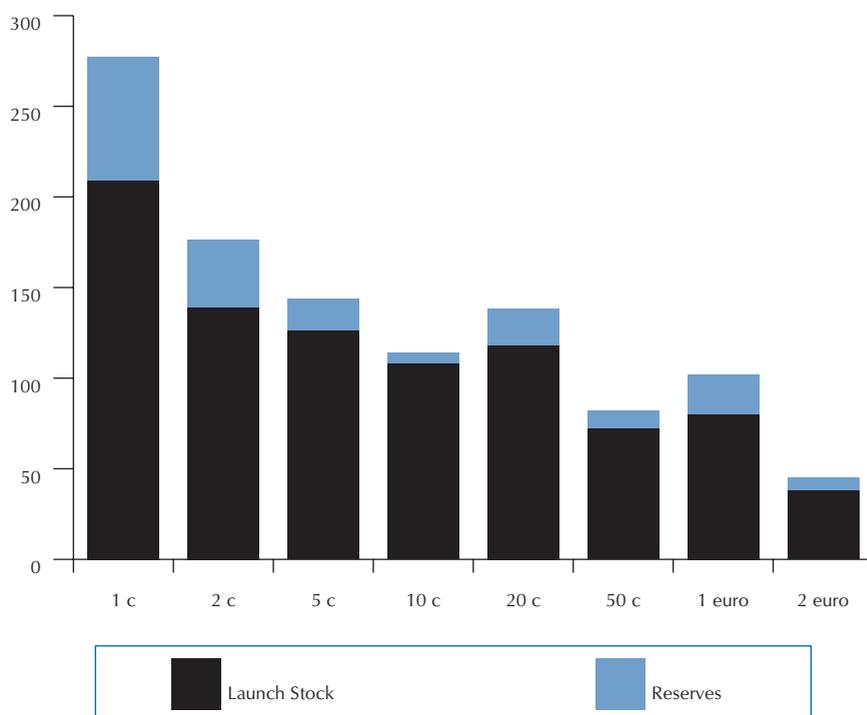
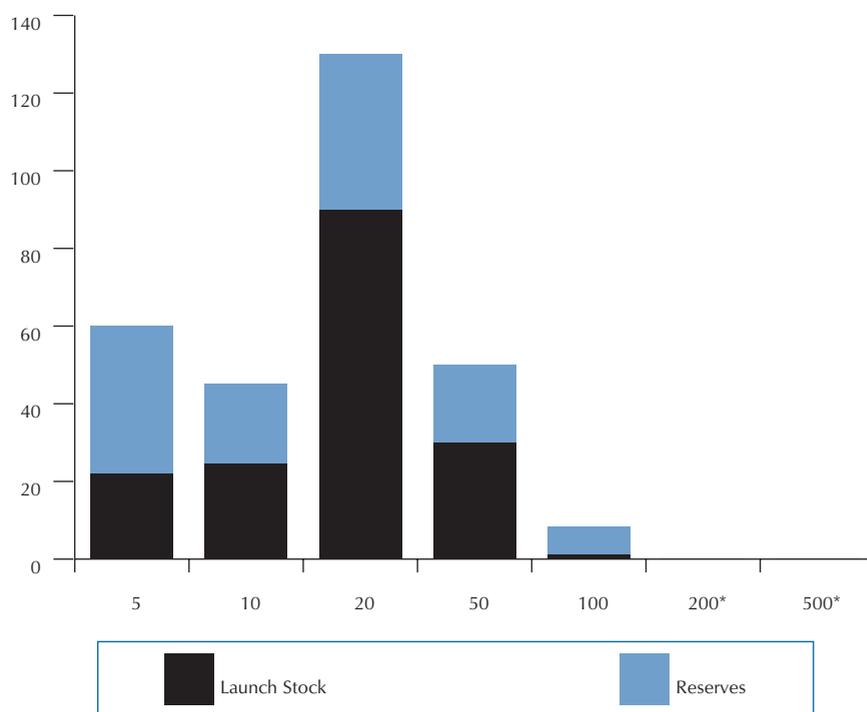


Chart 5

**Euro Banknote Production in Ireland (millions)**



\*A small stock of these denominations was purchased from another EU printworks.

Production of euro coins commenced in the Bank's mint in September 1999. In all over 1 billion coins, with a value of €230 million and weighing about 5,000 tons, had to be produced (see Chart 4). Banknote production began some months later, in June 2000. Here the target was to produce almost 300 million notes, with a value of about €4 billion (see Chart 5).

To effect the changeover, this euro cash had to find its way from the Central Bank into the hands of the public. This was achieved by a process of *frontloading* credit institutions and *sub-frontloading* retailers with euro. The Bank commenced delivering coin to bank branches and to large retailers in September 2001, making a total of about 1,700 drops. The *frontloading* of banknotes began in November and was largely completed by mid-December. In addition, "Starter Packs" containing 19 coins to the value of €6.35 and costing £5 were made available to the public through Post Offices and credit institutions from 14 December.

Another key task during this transition period was to ensure that all citizens were adequately prepared to operate in euro. Information campaigns aimed at the business community and the general public had started as early as 1996. These were stepped up progressively as the final changeover date approached and reached a peak in the final quarter of 2001. A key focus of the ECBI public information campaign was on establishing a scale of values in the new currency. Thus, considerable emphasis was placed on promoting familiarity with the Irish pound/euro conversion rate of 0.787564 and the value of €1 = 79 pence. In the largest single public information project undertaken by the Board, a Euro Handbook – containing information about most changeover issues – was sent to all adult citizens in October 2001. This was followed in November/December by the distribution to every household of an electronic converter, capable of euro to Irish pound and Irish pound to euro conversions. In addition, as part of the Eurosystem's *Euro 2002 Information Campaign*, the Central Bank conducted a public information campaign on euro notes and coin, with particular emphasis on security features (see Central Bank, 2002).

Surveys conducted during 2001 revealed that the small and medium-sized business sector was slow to tackle planning for the changeover. This sector became a particular target for the Forfás business campaign. It was also recognised that retailers would be in the "front-line" in effecting the changeover. As an aid to small retailers in particular, Forfás produced a Retail Training Kit, some 60,000 of which were distributed to help with staff training. Forfás also distributed a total of 10,000 training kits to taxi and hackney drivers during December 2001.

Inspired by the folk history that decimalisation had caused inflation, fears were voiced that the changeover to the euro

would also be inflationary. Two main reasons for this were put forward: first, that costs associated with the changeover would be passed on to consumers; second, that prices would be rounded up on conversion from Irish pounds to euro. In order to combat these fears, the Office of the Director of Consumer Affairs (ODCA) introduced a national code of practice on the changeover. Firms who signed up to this code were entitled to display its logo and promised not to seek any advantage from the changeover in the form of unwarranted price increases.

## 8. Saying Goodbye to the Irish Pound

According to outside commentators, the final changeover to the euro in Ireland took place quickly and was remarkably smooth (Bank of England, 2002; Bie, 2002). The cash changeover began on 1 January 2002, when euro notes and coin became legal tender. ATM conversion had commenced overnight and about 85 per cent of ATMs were dispensing euro that day. The Central Bank provided a cash exchange service at its Dame Street office and was the only bank in Ireland open on 1 January. Demand for the service far outstripped expectations and by mid-morning a long queue had formed. Long queues became the order of the day in the commercial banks during the following week also, as the general public displayed an eagerness to exchange their Irish pound cash for euro. Within a week, almost 90 per cent of cash transactions were being carried out in euro and the cash changeover was virtually complete for the general public. The rapid switch to euro by the public meant that Irish cash flowed back to banks more quickly than anticipated. Returning this cash to the Central Bank presented an even greater logistical challenge than the distribution of euro, as it was difficult to predict when, where and in what quantities the Irish pound would be lodged to banks. Given their greater value, precedence was given to the return of Irish pound notes and stories of bank branches being cluttered with bags of Irish coin abound.

The total value of Irish pound banknotes in circulation on 31 December 2001 was €4,343.8 million, while total coin was valued at €387.9 million. The withdrawal operation worked efficiently and by 14 January 2002 some 56 per cent of the banknote circulation had been returned to the Central Bank. This figure rose to 83.4 per cent by 9 February, when the Irish pound lost its legal tender status. Coin withdrawal was noticeably slower, with some 45 per cent of the total value of coin withdrawn by 9 February.<sup>21</sup>

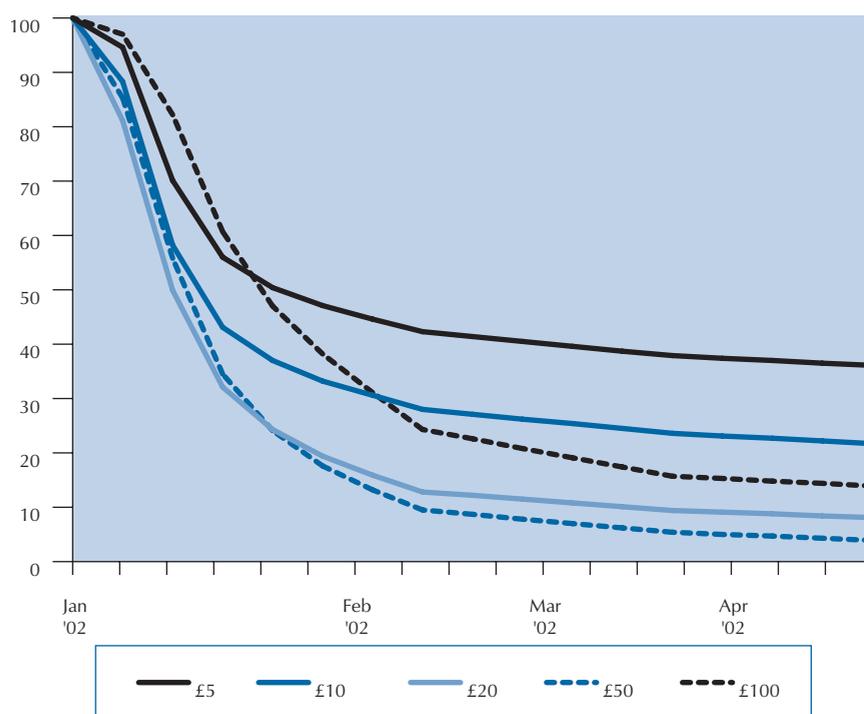
21 By January 2003, €456 million in Irish pound banknotes and coin of all issues was still outstanding. In line with an agreed accounting practice for Eurosystem countries, this was reclassified from currency in circulation to other liabilities at that time. The Central Bank, however, will continue indefinitely to give value in euro for Irish pound banknotes and coin.

Details of the reflow of banknotes are shown in Chart 6. The most frequently used notes – £10, £20 and £50 – flowed back most rapidly, as having been spent with retailers these were quickly lodged at bank branches. The £100 note was slow to return initially, but speeded up as cash savings were gradually converted. However, almost 15 per cent of these were still outstanding at end-April. Over one-third of £5 notes issued failed to return but, as the lowest value denomination, a high proportion of these may have been kept as souvenirs of the Irish pound.

Chart 6

**Irish Pounds Outstanding**

Index, 31 December 2001 = 100



In order to facilitate the reflow of Irish pounds, credit institutions agreed not to charge retailers for lodging Irish pound banknotes and coin during the dual circulation period and for a short time thereafter. In return, the Central Bank paid a lodgement fee to credit institutions according to the value of notes and number of full bags of coin returned.

Did the cash changeover cause inflation to rise? Certainly, Irish inflation rose – from 1.6 per cent in 1999 to 4.6 per cent in 2002 – and many blame the introduction of the euro for this. The truth is that a range of factors contributed to the rise in prices over this period and it is difficult, if not impossible, to single out the euro’s contribution. A study commissioned by Forfás found that the changeover to the euro did not appear to lead to increased inflation at the aggregate level and that there was no evidence of widespread “euro-profiteering” (Forfás, 2002). More rapid price

increases were identified in a number of sectors – largely services or non-tradeables – but, while these provide anecdotal material, their impact on the overall price level was not large. If the euro did have a role in causing higher inflation, it may be its weakness on foreign-exchange markets up to early 2002, rather than its physical introduction and the repricing of goods and services to euro, which should bear most of the blame. Given that Ireland is more open than most other euro-area economies and has a higher proportion of trade with the US and the UK – Ireland has roughly twice as much trade with the US and three times as much with the UK as is generally the case for the rest of the euro area (Kelly and Golden, 2001) – the euro's weakness might be expected to have had a larger impact on inflation here than elsewhere. Now that the euro has strengthened, it may have a positive effect in dampening future price increases. Perhaps with EMU, as with the EMS, the benefits in terms of price stability will just take a little longer than expected to materialise.

## References

- Ahern, B. (1993), 'An Irish Perspective' in Paul Temperton (Ed.) *The European Currency Crisis*, (Cambridge: Probus Publishing Company).
- Baker, T., J. Fitzgerald and P. Honohan (1996), *Economic Implications for Ireland of EMU*, (Dublin: The Economic and Social Research Institute) Policy Research Series No. 28.
- Bank of England (2002), *Practical Issues Arising from the Euro*, May.
- Barry, F. (1997), 'Dangers for Ireland of an EMU without the UK: Some Calibration Results', *Economic and Social Review*, Vol. 28, No. 4.
- Bie, U. (2002), 'From Irish Pounds to Euro', Danmarks Nationalbank, *Monetary Review*, 2<sup>nd</sup> Quarter.
- Bradley, J. (1977), 'Lags in the Transmission of Inflation', *Economic and Social Review*, Vol. 8, No. 2.
- Brennan, J. (1931), 'The Currency System of the Irish Free State', Paper read to the *Statistical and Social Inquiry Society of Ireland*, 5 March.
- Central Bank of Ireland (1979), 'A Guide to the Arithmetic of the EMS Exchange-Rate Mechanism', *Autumn Quarterly Bulletin*.
- Central Bank of Ireland (1995), 'The Path to Economic and Monetary Union', *Annual Report*.
- Central Bank of Ireland (1998), 'Establishment of the European System of Central Banks and of the European Central Bank', *Autumn Quarterly Bulletin*.

- Central Bank of Ireland (2001), 'The Cash Changeover to the Euro in 2002', *Autumn Quarterly Bulletin*.
- Central Bank of Ireland (2002), *Annual Report 2001*, June.
- Doherty, J. (1993), 'The Evolution of Central Banking in Ireland', Central Bank of Ireland, *Summer Quarterly Bulletin*.
- Doyle, M. (1992), 'European Monetary Union: An Irish Perspective', Central Bank of Ireland, *Spring Quarterly Bulletin*.
- The Economist (1942), 8 August.
- Eichengreen, B. (1993), 'European Monetary Unification', *Journal of Economic Literature*, Vol. 31.
- Euro Changeover Board of Ireland (2000), *The Introduction of the Euro: Ireland's Cash Changeover Plan for 2002*, April.
- Euro Changeover Board of Ireland (2002), *Fourth Annual Report*, April.
- Fitzgerald, J. and P. Honohan (1997), 'EMU – Reaching a Narrow Verdict', *Irish Banking Review*, Spring.
- Forfás (2002), *Comparative Consumer Prices in the Eurozone and Consumer Price Inflation in the Changeover Period*, June.
- Geary, P. (1976), 'World Prices and the Inflationary Process in a Small Open Economy – the Case of Ireland', *Economic and Social Review*, Vol. 7, No. 4, July.
- Geary, P. and C. McCarthy (1976), 'Wage and Price Determination in a Labour Exporting Economy: The Case of Ireland', *European Economic Review*, Vol. 8, No. 3.
- Geary, R.C., E.W. Henry and J. Pratschke (1970), 'The Recent Price Trend in Ireland', *Economic and Social Review*, April.
- Honohan, P. (1995), 'Currency Board or Central Bank? Lessons from the Irish Pound's Link with Sterling, 1928-79', *Centre for Economic Policy Research, Discussion Paper No. 1040*.
- Kelly, J. (1993), 'The Development of Money and Foreign-Exchange Markets in Ireland', Central Bank of Ireland, *Summer Quarterly Bulletin*.
- Kelly, J. and B. Golden (2001), 'Trade Weighted Competitiveness Indicators for Ireland', Central Bank of Ireland, *Winter Quarterly Bulletin*.
- Lane, P. (1997), 'EMU: Macroeconomic Risks', *Irish Banking Review*, Spring.
- McArdle, P. (1994), 'How many Currencies does Europe need?', *Kenmare Economic Policy Conference*, 14-16 October.

- McCarthy, C. (1980), 'EMS and the End of Ireland's Sterling Link', *Lloyds Bank Review*, No. 136, April.
- McDowell, M. and S. Murray (1975), 'Economists analyse the causes of Irish inflation and outline policy options', *The Irish Times*, 23 May.
- Moynihan, M. (1975), *Currency and Central Banking in Ireland 1922-1960*, (Dublin: Gill and Macmillan).
- Mundell, A. (1961), 'A Theory of Optimum Currency Areas', *American Economic Review*, 51.
- Murray, C.H. (1979), 'The European Monetary System: Implications for Ireland', Central Bank of Ireland, *Annual Report*.
- Neary, J. Peter and D. Rodney Thom (1996), 'Punts, Pounds and Euros: in Search of an Optimum Currency Area', *Kenmare Economic Policy Conference*, 18-20 October.
- Ryan, T. (1978), 'An Economic Analysis of Irish Exchange Rate Policy', *Irish Council of the European Movement*, Research Paper No. 2.
- Whitaker, T.K. (1973), 'Monetary Integration: Reflections on Irish Experience', Central Bank of Ireland, *Winter Quarterly Bulletin*.
- Whitaker, T.K. (1976), 'An Ceangal le Sterling: An Cheart é a Bhriseadh?', Central Bank of Ireland, *Annual Report*.