

Money Supply in Ireland

by Sharon Donnery¹

ABSTRACT

Economic analysts find it useful to identify indicators of both contemporaneous and future economic developments, in particular, where such indicators are available in advance of standard measures of economic activity, for example, GNP. One such indicator, which is published by most central banks, is a broad measure of money supply. In general, money supply comprises currency and deposit type liabilities of domestic banks.

This article reviews a number of issues in relation to money supply in Ireland from the 1980s to date. Before giving consideration to money supply as an indicator of economic activity, both before and after the introduction of the euro, the reasons for, and the method of, measuring money supply are reviewed. The importance of money supply in the ECB's monetary policy strategy is recalled along with a number of practical problems which have arisen regarding the measurement of money supply in the euro area. The article concludes by considering whether the measure of Irish money supply currently compiled, the 'Irish contribution to euro-area money supply', is a good indicator of domestic economic activity given our membership of the single currency.

Introduction

Money supply, which is defined, in broad terms, as currency plus deposit liabilities of domestic banks, is widely believed to be a good indicator of economic activity and may also be a leading indicator of future inflation. As a result, most central banks compile and publish a money supply series. It is now almost five years since the Central Bank² ceased calculation and publication of the Irish broad money supply M3E and began publication of the Irish contribution to the equivalent euro-area aggregate M3. Given this, it is timely to review the calculation of money supply in Ireland over the period from the early 1980s to date, focusing on its properties as an economic indicator and a number of more recent developments which may have impacted on its usefulness as such an indicator.

The first section of the article recalls the reasons for measuring money supply and the significance of its relationship with economic activity, including its properties as a leading indicator. It then sets out the role of money supply in Irish monetary policy (up to the end of 1998) and the ongoing role of euro-area money supply in the European Central Bank's (ECB) monetary policy strategy.

1 The author is Deputy Head of the Consumer Information Department of the Irish Financial Services Regulatory Authority (the 'Authority') and was formerly a Senior Economist in the Statistics Department of the Central Bank & Financial Services Authority of Ireland (the 'Bank'). The views expressed in this article are not necessarily those held by the Authority, the Bank or the European System of Central Banks (ESCB) and are the personal responsibility of the author. She would like to thank John Kelly, Peter Charleton, Michael Casey and colleagues in the Statistics Department for helpful comments.

2 The Central Bank of Ireland restructured as the Central Bank & Financial Services Authority of Ireland on 1 May 2003. The term 'the Bank' is used throughout this article to refer to both entities.

Section 2 moves on to consider measurement issues. These include issues such as what instruments to include in money supply and where money supply begins and ends. The differing properties of narrowly versus broadly defined measures of money supply are also considered.

The purpose of the third section is to review the definition and calculation of Irish M3E and the collection of data on, and compilation of, euro-area M3 focusing on the major conceptual differences between the two. Consideration is also given to the calculation of a national contribution to euro-area M3, which could be considered an 'Irish M3' and whether such a series is a useful indicator.

The fourth section focuses on recent issues in relation to the compilation of euro-area M3. Particular emphasis is given to the adjustments to euro-area M3 published in 2001, and the factors which led to them. The part which the Irish data played in some of these adjustments is also recalled. A more recent change to the method of calculating euro-area M3 due to the changeover to the euro and the accounting treatment of legacy currencies, in this case the Irish pound, is also documented.

In light of these issues and the dramatically changed policy environment, the article concludes by considering whether the national contribution to euro-area money supply is a meaningful economic indicator for Ireland or not.

Section 1: Why Measure Money Supply?

When conducting economic analysis there is a need to identify indicators which provide information on economic developments and the general state of the economy and which in some cases can act as indicators of future economic developments, a so-called leading indicator. Such indicators should be economically meaningful and are preferably available on a timely and regular basis. The focus of this article is on money supply, changes in which are theoretically closely related to the long-term price level or inflation and which may be both an indicator of current developments and a leading indicator of future events.

Research for Ireland indicates that monetary aggregates (private-sector credit and money supply) "appear to be excellent indicators of economic activity" (Fagan & Fell, 1992, page 78). Indeed, the analysis showed that from the 1960s to 1991, money and credit are better indicators of trends in GNP than any other variables (such as, exports, imports or unemployment). As a result, both money supply and credit were included in a monthly coincident indicator, i.e., an indicator which provides information on current developments but which is available well in advance of standard measures of these developments, such as quarterly GNP. Another subject of the same research was a composite leading indicator. However, money supply was not included in

this. In fact, almost all of the indicators included in the composite leading indicator “reflect the external environment in some way” (Fagan & Fell, 1992, page 83). This was consistent with the application of a small open economy theory to the Irish economy. Indeed, research in the Bank prior to joining the European Monetary System (EMS), had indicated that in a small open economy with a fixed exchange rate with a major currency (in this case sterling) control of the money stock was not possible and the authorities “should concern themselves with controlling the domestic counterparts of money, i.e., the credit of all domestic credit-creating financial institutions” (McEvoy, 1984, page 72).

This small open economy view continued through the 1990s. The objective of monetary policy remained price stability which was considered to be served by “preserving a stable currency relationship with other low-inflation countries”³. This was emphasised in various monetary policy statements in the 1990s which recognised the exchange rate as an intermediate target but noted that the Bank also “monitored” the growth of money supply and credit.

In summary, while money supply appears to have been a good contemporaneous indicator of economic activity, there were some doubts about its usefulness as a leading indicator for Ireland. In addition, given the policy environment, money supply was not a major focus of domestic monetary policy.

The scope for independent monetary policy declined as the start date for EMU approached and as preparations were being made for a single monetary policy for the euro area.

— *The Role of Money Supply in Euro-Area Monetary Policy*

The Maastricht Treaty⁴ sets price stability as the primary objective of the European System of Central Banks (ESCB), which comprises the ECB and the national central banks (NCBs) of the 15 member states of the European Union (EU)⁵. When choosing the monetary policy strategy which would be pursued in the euro area, a number of options were considered by the European Monetary Institute (EMI)⁶. These included⁷:

- monetary targeting – a specific target for the growth rate of money is announced and pursued using changes in official interest rates (the target rate is intended to be consistent with a price stability objective);

³ Statement on Monetary Policy 1994, Central Bank (1994).

⁴ The Treaty on European Union.

⁵ The Treaty referred to the ESCB on the presumption that all member states would eventually adopt the euro. The term the Eurosystem is used to refer to the ECB and the NCBs which have adopted the euro.

⁶ The EMI was established on 1 January 1994 to prepare for the establishment of the European System of Central Banks (ESCB) and the creation of the single currency. It was replaced by the European Central Bank on 1 June 1998.

⁷ See ECB, 2001 (1), page 48, for a detailed discussion of these strategies.

- inflation targeting – focuses on developments in inflation relative to a pre-announced target inflation rate. The central bank’s forecast for inflation is at the heart of its policy analysis; and
- exchange rate targeting – since the exchange rate can have a significant effect on the price level (via trade prices), the exchange rate itself is targeted.

In the end, rather than choose a single target as the basis of monetary policy the so-called ‘stability oriented’ strategy was chosen which comprises a quantitative definition of price stability and ‘two pillars’⁸. The Governing Council adopted the following definition of price stability: “a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2 per cent.” The two pillars were: a prominent role for money; and a broadly based assessment of other economic data, such as output, demand, unemployment, etc. The role of money in the strategy derives from the belief that, over the long term, there is a stable relationship between the price level and the broad money stock. The prominence of this pillar of the strategy is highlighted by the announcement of a reference value for the growth rate of the broad money supply M3, currently 4½ per cent. While this reference value is considered to be consistent with price stability, it is not a target. Rather, deviations from the reference value are studied closely to ascertain information on possible risks to price stability and to analyse possible special factors, such as changes in the tax treatment of certain financial instruments (ECB, 2001:1, page 47).

The Governing Council reviewed the ECB’s monetary policy strategy in early 2003 and announced the outcome of the review at its meeting of 8 May. The Council agreed that “in the pursuit of price stability it will aim to maintain inflation rates close to 2 per cent. over the medium term” (ECB, 2003:1, page 8). The Council also clarified the role of the two pillars in the strategy, indicating that economic analysis which forms the second pillar is used for short to medium term analysis while the monetary analysis is mainly a crosscheck from a medium to long-term perspective. This more medium term view is based on the “close relationship between money and prices over extended horizons” (ECB, 2003:1, page 8). The reference value for the growth rate of M3, described above, had been reviewed on an annual basis since the time of its announcement. However, the Council agreed that this annual exercise was no longer necessary and that instead it would focus on assessing underlying conditions and assumptions.

⁸ The chosen strategy was announced on 13 October 1998. See ECB 1999 (1), page 44, for a discussion of the criteria used in selecting the strategy.

Section 2: Measurement Issues

There is no standard or harmonised definition of money supply which is used by all central banks. Rather central banks usually define several measures of money supply so that the aggregate which is the most suitable for analysis or policy can be considered. The availability of a number of aggregates takes into account the purpose of the measure, substitution between financial instruments and changing transaction methods, e.g., the use of e-money. Before considering any particular measure of money supply it is worthwhile considering a number of general issues relating to the components of money supply which are related to its role as an indicator of domestic economic activity.

Money supply includes a range of financial instruments and can be defined on the basis of residency or currency. For example, Table 1, shows a possible definition based on the inclusion of the holdings of financial instruments by domestic residents, denominated in any currency. While various combinations of positions could form the basis of the definition, it is usual to focus on residents only, as balances of non-residents are probably determined by external factors and are unlikely to affect domestic economic developments (see Section 4 for a discussion of the potential impact of non-residents on a money supply aggregate). In addition, foreign currency positions are generally included in a broad money aggregate as they are close substitutes for domestic currency instruments. (Foreign currency denominated deposits can be quickly converted to domestic currency deposits at little or no cost.)

Table 1: Residency/Currency Definition of Money Supply

Instruments denominated in	Domestic currency	Foreign currency
<i>vis-à-vis</i>		
Domestic residents	X	X
Foreign residents		

It is worth noting that all of the permutations in Table 1 refer to instruments, e.g., deposits, issued by financial institutions in the state to which the aggregate refers. It does not consider deposits of domestic residents with foreign banks, e.g., deposits of Irish residents with banks in the UK. It is often difficult to compile data on such balances, e.g., the Bank would have to depend on central banks in other jurisdictions or the Bank for International Settlements (BIS) to compile such data. Historically, it has been argued that such holdings are related to international factors and are unrelated to domestic activity (McEvoy, 1984, page 75). The removal of exchange controls and financial market integration in more recent years means that this may be less valid.

Having considered the residency and currency criteria to be used in defining money supply the next stage is to consider the instruments included in the series. In dealing with this issue, this article focuses on the euro-area aggregates M1, M2 and M3. The issues which arose when defining euro-area money supply, for example, the degree of liquidity of a measure of money supply, etc., are relevant to any general discussion of money supply and similar issues applied in the work carried out by the Bank when defining the Irish aggregates M1, M2, M3 and M3E.

In deciding how to define money supply for the euro area, the ECB focused on a number of criteria, namely:

- stability – the chosen measure of money supply should have a stable relationship with the price level;
- leading indicator properties – the money supply should contain information which will assist in the prediction of the price level;
- controllability – the growth rate of the chosen aggregate can be controlled by the central bank's use of monetary policy instruments.

Broader aggregates tend to meet the first and second requirements, as they are not affected by substitution between instrument categories. For example, money-market fund shares/units⁹ could be included in a broad money supply measure because such shares/units are close substitutes for deposits (due to their high degree of liquidity and price certainty). The inclusion of such instruments would make the aggregate more stable in that it would be less affected by substitution between various instrument categories (ECB 1999: 2, page 35). However, narrower aggregates have better controllability features as they can be controlled using official interest rates, e.g., a narrow measure of money supply might include current accounts which are non-interest bearing – as official interest rates increase, these accounts are less attractive, implying a fall in demand for such instruments (ECB, 1999: 2, page 33).

The money supply definitions are related to the degree of “moneyness” or liquidity of the instrument, i.e., the ease with which a financial instrument can be “repurchased, redeemed or sold at limited cost, in terms of low fees and narrow bid/offer spread, and with very short settlement delay”¹⁰. This means that the easier it is to mobilise funds and convert them into cash, the greater the degree of moneyness. Moneyness is measured using a number of criteria, as follows¹¹:

9 The distinction between shares and units is based on the funds legal structure, with unit trusts issuing units while investment companies issue shares.

10 Regulation ECB/2001/13, Annex I, Part 1, paragraph 7.

11 These definitions are adapted from Regulation ECB/2001/13 and the Bank's statistical reporting instructions.

- transferability – refers to the ability to use payment facilities, e.g., cheques, direct debits, standing orders, to move funds;
- convertibility – refers to whether it is possible, and if so, the cost of converting a financial instrument into cash;
- maturity – refers to the maturity at issue (original maturity), i.e., the fixed period of life of a deposit/debt security from the contract date to the redemption date before which the deposit/debt security cannot be redeemed or before which it can be redeemed only with some kind of penalty¹²;
- period of notice – refers to the time between the moment the holder gives notice of an intention to redeem the deposit and the date on which the holder is allowed to convert it into cash without incurring a penalty.

Based on these criteria, the ECB has defined three measures of money supply (ECB, 1999:2, page 34) as follows (see also Table 2):

- narrow money (M1) comprising the most liquid liabilities such as currency and overnight deposits;
- intermediate money (M2) comprising M1 plus deposits with a maturity of less than two years or a notice period of less than three months; and
- broad money (M3) which comprises M2 plus repurchase agreements, money market fund shares/units, money-market paper and debt securities¹³ with a maturity of up to two years.

Table 2: Definitions of Euro-Area Money Supply

Liabilities	M1	M2	M3 ¹⁴
Currency in circulation	X	X	X
Overnight deposits	X	X	X
Deposits with agreed maturity up to 2 years		X	X
Deposits redeemable at notice up to 3 months		X	X
Repurchase agreements			X
Money market fund (MMF) shares/units			X
Debt securities up to 2 years			X

Source: ECB, 1999:2, page 35.

¹² This contrasts with the concept of residual maturity which refers to the remaining maturity of a deposit, i.e., the period of time from today to the redemption date before which the deposit cannot be redeemed or before which it can be redeemed only with some kind of penalty.

¹³ Securities, other than equity, which are instruments usually negotiable and traded on secondary markets or which can be offset on the market and which do not grant the holder any ownership rights over the issuing institution (Regulation ECB/2001/13, Annex 1, Part 3, Category 11).

¹⁴ Liabilities of central government agencies such as post office deposit accounts are also included.

Based on these criteria it is clear that, for example, M1 has a higher degree of moneyiness than M3. The availability of a number of measures of money supply allows for deeper understanding of economic developments in the euro area. However, in reality the focus is on M3, developments in which are understood to be closely related to the price level.

Section 3: Irish M3E and Euro-Area M3

The focus of the previous section was on where a definition of money supply could begin and end in terms of the economic rationale which underlies such a definition. The focus in this section is the actual financial instruments included in two measures of money, namely Irish M3E and euro-area M3. A number of differences between these two aggregates are also considered.

– Irish M3E

Prior to the start of monetary union, the broad aggregate used for monetary policy analysis in Ireland was M3E. The publication of M3E commenced in the Central Bank Quarterly Bulletin for Summer 1992 and was backdated to refer to data beginning December 1990. Up to this time the broad money supply series published by the Bank was money and other liquid assets (MOLA). The publication of MOLA coincided with the introduction by the Bank of a new method of data collection, when key concepts underlying money supply changed significantly.¹⁵ The statistical return used to collect data prior to 1982 had become somewhat outdated and a number of issues relating to the standard treatment of instruments by reporting agents had arisen. In addition, “Ireland’s participation in the European Monetary System (EMS) and the subsequent break in the link with sterling focussed attention on both the need for, and the possibility of, a greater role for monetary policy in Ireland” (McEvoy, 1984, page 50). Such a role for monetary policy necessitated data, in particular on money supply, which were compiled using consistent definitions. To address this, a new statistical reporting form was introduced in late 1982 which adopted consistent rules on the definition of residency (based on residency of the customer)¹⁶, the treatment of accrued interest, transit items, bad debts, etc., and which was compiled using international statistical and accounting standards¹⁷. This means that for the period 1982 to 1998, the same fundamental concepts underlie the data used to compile money supply figures published by the Bank, and the aggregates M3E and MOLA were broadly comparable with a few minor exceptions¹⁸.

¹⁵ Howlett (1995), sets out details of monetary statistics prior to 1982.

¹⁶ Previously, data on Associated Banks (AIB plc, Bank of Ireland, Northern Bank (now National Irish Bank) and Ulster Bank) were based on the residency of the branch and therefore, included non-residents deposits.

¹⁷ See McEvoy, (1984) for details of these reporting instructions.

¹⁸ O’Sullivan, (1997). The differences relating to currency and inter-institutional deposits were not of significant magnitude.

- the former did not include Government Savings Schemes while such schemes were included in the latter;
- the currency in circulation component of MOLA included holdings of currency by so-called 'other credit institutions'¹⁹. However, in the case of M3E, these holdings were treated in the same manner as holdings by licensed banks, i.e., excluded from currency in circulation;
- deposits held at licensed banks by other credit institutions and the Post Office Savings Bank (POSB) (essentially, inter-institutional deposits) were treated as non-government deposits and included in MOLA. However, in the case of M3E, these were treated as interbank deposits and therefore excluded.

In general terms, M3E comprised the public's holdings of notes and coin, current and deposit accounts at licensed banks, State-sponsored financial institutions, trustee savings banks and the POSB. Set out in Table 3 below are the definitions used with effect from the introduction of M3E.

Table 3: Money Supply Definitions with effect from December 1990

Aggregate	Items included
M1 Narrow Money Supply	Licensed banks non-Government current accounts + Irish currency outstanding less Licensed banks holdings of notes and coin
M3 Wide Money Supply	M1 + Licensed banks non-Government deposit accounts + Licensed banks accrued interest on non-Government deposit accounts + Licensed banks borrowing from other credit institutions (including accrued interest)
M3E	M3 less Licensed banks borrowing from other credit institutions (including accrued interest) + Other credit institutions non-Government current accounts + Other credit institutions non-Government deposit accounts + Other credit institutions accrued interest on non-Government deposit accounts less Other credit institutions holdings of notes and coin + Post Offices Savings Bank (POSB) deposits

In addition to publishing figures for the levels of this aggregate the Bank published simple year-on-year changes in the aggregate. The analysis of such changes was supplemented by the introduction, in the Quarterly Bulletin for Autumn 1996, of a year-on-year growth rate adjusted for effects of transactions between credit institutions and non-bank companies in the International Financial Services Centre (IFSC) and valuation effects arising from exchange-rate movements.

¹⁹ Other credit institutions comprised building societies, ACC plc, ICC plc, Cork and Limerick Savings Bank and Trustee Savings Bank Dublin. The latter two merged to form TSB Bank in 1992.

The Bank began to collect data on transactions between credit institutions and non-bank IFSC companies in September 1993. While the deposits of IFSC companies with Irish credit institutions are clearly deposits of Irish residents, they were generally unrelated to domestic economic activity. In many cases such deposits represented flows between international banks and their non-bank subsidiaries and were driven by tax and/or other accounting concerns. For this reason, the growth of the M3E aggregate was adjusted to exclude the effects of such activity. In addition, while exchange rate changes do affect the domestic purchasing power of money, particularly in periods of pronounced exchange rate movements, the pattern of money supply growth can become rather erratic, and analysts found that an exchange rate adjusted series could also provide useful insights.

– *Euro-Area M3*

The introduction of the euro in January 1999 saw the transition from a domestic to a single euro-area monetary policy environment. While the resulting monetary policy strategy has been reviewed earlier, this section focuses on the collection and compilation of data on euro-area money supply.

In reviewing the calculation of euro-area money supply it is necessary to consider:

- the institutions from which data are collected; and
- the data collected.

Data are collected from entities referred to as monetary financial institutions (MFIs) which comprise three distinct groups, central banks, resident credit institutions as defined in community law²⁰ and all other resident financial institutions which fulfil the MFI definition, irrespective of the nature of their business. This third group is predominantly composed of money market funds (MMFs).

The ECB has further clarified the definition of MMFs as collective investment schemes which issue shares/units that “are, in terms of liquidity, close substitutes for deposits and which primarily invest in money market instruments and/or in money market fund shares/units and/or in other transferable debt instruments with a residual maturity of up to and including one year, and/or

²⁰ These are defined in Article 1 of Directive 2000/12/EC of the European Parliament and the Council of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions (OJ L 126, 26.5.2000, page 1), as amended by Directive 2000/28/EC (OJ L 275, 27.10.2000, page. 37) as “an undertaking whose business is to receive deposits or other repayable funds from the public (including the proceeds arising from the sales of bank bonds to the public) and to grant credit for its own account; or an electronic money institution within the meaning of Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit and prudential supervision of the business of electronic money institutions”.

in bank deposits, and/or which pursue a rate of return that approaches the interest rates of money market instruments”.²¹

Data are collected by each NCB in the euro area from MFIs resident in its territory. They are collected using a monthly balance sheet (Table 4) analysed by residency and economic sector of the counterparty and currency and original maturity of the product/instrument.

Table 4: Monthly Balance Sheet of the MFI Sector

Assets	Liabilities
1. Cash	1. Currency in circulation
2. Loans	2. Deposits
Up to 1 year	Overnight
Over 1 and up to 5 years	With agreed maturity
Over 5 years	Up to 1 year
3. Holdings of securities other than shares	Over 1 and up to 2 years
Up to 1 year	Over 2 years
Over 1 and up to 2 years	Redeemable at notice
Over 2 years	Up to 3 months notice
4. Holdings of money market funds shares/units	Over 3 months notice
5. Holdings of shares and other equities	Repurchase agreements
6. Fixed assets	3. Money market fund (MMF) shares/units
7. Remaining assets	4. Debt securities issued
	5. Capital and reserves
	6. Remaining liabilities

Source: Adapted from Regulation ECB/2001/13 and the Bank's statistical reporting instructions.

These balance sheet data are submitted to the ECB each month and euro-area money supply is calculated from them (where relevant, deposits held with central governments agencies, such as those held with the POSB in Ireland, are also included). In addition, it is possible to use the data collected by each NCB to calculate a so-called national contribution to the euro-area aggregate, i.e., a figure which uses only one country's data to calculate the portion of the euro-area aggregate which belongs to that country.

Since its introduction, a number of issues have arisen regarding the calculation of M3. These issues and the role played by data on Ireland are considered in Section 4.

— *Conceptual Differences Between Irish M3E and Euro-Area M3*

Before considering the detailed differences between M3E and M3, it is also important to note M3E was an aggregate for Ireland and as such its purpose was to provide an understanding of economic developments in the State. The focus of euro-area M3 is economic developments in the euro area as a whole. Thus, while the Bank can compile a national contribution to the euro-area aggregate (see above), such a figure for 'Irish M3' forms only a small part of a larger policy variable and a question arises regarding what such a figure can indicate about economic

²¹ Regulation ECB/2001/13, Annex I, Part 1, paragraph 6.

developments in Ireland. This question relates in particular to the residency issue considered below.

There are a number of substantial conceptual differences between M3E and M3 as follows:

- **residency** – M3E referred to liabilities of banks *vis-à-vis* Irish residents while the Irish contribution to M3 refers to liabilities *vis-à-vis* all euro-area residents;
- **maturity of deposits** – M3E included all deposit accounts regardless of maturity or notice period while M3 includes only deposits with an original agreed maturity of up to 2 years and deposits redeemable at up to 3 months notice period;
- **maturity of debt securities** – M3E included all debt securities issued regardless of maturity while M3 includes only debt securities with an original agreed maturity of up to 2 years;
- **instruments** – M3 includes shares/units issued by MMFs due to their high degree of liquidity and price certainty which makes them close substitutes for deposits, however, M3E did not include such instruments; and
- **accrued interest** – M3E included accrued interest on deposit accounts while M3 excludes this item.

In practice, the differences between M3E and M3 arising from maturity and instruments are quite limited, as deposits of over 2 years maturity, debt securities and shares/units issued by MMFs were not significant at the time of compilation of M3E.

The type and maturity of instruments included in a money supply are relevant to issues of liquidity, substitution, etc., which were considered previously. However, the residency of the investors impacts on the usefulness of money supply as a domestic economic indicator. While both Irish and other euro-area residents are relevant to economic developments in the euro area as a whole, liabilities *vis-à-vis* residents of other euro-area countries are not directly relevant to Irish economic developments. This limits the usefulness of 'Irish M3' in what it can predict and indicate about the domestic economy.

Section 4: Issues in Relation to the Calculation of Euro-Area M3

As already outlined above, the definition of M3 was agreed in 1998. Since then a number of conceptual issues relating to this definition have arisen, namely the measurement of non-residents' holdings of negotiable instruments and the calculation of the currency in circulation figure. This section outlines these issues and recalls the part played by Irish data in the former.

Euro-area M3 refers to holdings of various financial instruments by euro-area residents, i.e., holdings of instruments by non-residents such as residents of the UK, United States, etc., are excluded. In this context a problem arises with respect to negotiable instruments. While data on the deposits of non-residents are relatively easy to collect and therefore, exclude from M3 calculations, this is not the case for non-resident holdings of negotiable instruments, such as shares/units issued by MMFs and debt securities.

When the calculation method for M3 was developed the amount of negotiable instruments issued by euro-area MFIs to non-residents was considered to be quite small and it was decided that all holdings of short-term negotiable instruments (excluding those held by other euro-area MFIs themselves) would be included in M3. However, it quite quickly became clear that the issuance of negotiable instruments by MFIs in the euro area was growing rapidly and that holdings of such instruments by non-euro-area residents could be more significant than previously thought. There was concern that such developments could give rise to an increasing distortion in the growth rate of M3. Since developments in money supply growth relative to the annual reference value have a role in the monetary policy strategy of the ECB, it was essential to ensure that M3 was calculated correctly and not distorted in this way. Given this, an alternative method of compilation became necessary. In developing this method negotiable instruments were considered in two separate categories, money market fund shares/units and short term securities (debt securities up to 2 years and money market paper).

— *Money Market Fund Shares/Units*

Holdings of money market fund shares/units by non-euro-area residents were not significant until Summer 2000. Thereafter, such holdings and the resulting distortion in the growth rate of M3 became more sizeable and by May 2001 it was estimated that M3 growth was overstated by “around half a percentage point” (ECB, 2001: 3, page 10). Much of this distortion related to the treatment of data on MMFs in Ireland.

As noted earlier, money and banking statistics in the euro area are collected from MFIs which includes credit institutions and MMFs. Prior to the start of monetary union, each EU member state drew up a list of its resident MFIs. While this was a simple exercise in the case of credit institutions, it was more difficult for MMFs. At that time Ireland distinguished mutual funds according to their legal structure, e.g., UCITS²² or non-UCITS, and not on the basis of investment policy. In addition, the definition of MMFs was not fully clear and was implemented in different ways in

²² Undertakings for Collective Investment in Transferable Securities.

different member states, e.g., some member states had a supervisory/regulatory category, and some member states used a threshold type definition such as a certain percentage of the funds investments must be held in money market instruments. Given this it was difficult for the Bank to draw up a definitive list of Irish MMFs.

In 1998, the ESCB agreed on a harmonised definition of MMFs²³ and the Bank transposed this definition into a supervisory Guidance Note.²⁴ The purpose of the Guidance Note is to ensure that all MMFs are identified and that they fulfil the requirements to submit statistical returns. Collective investment undertakings, which meet the MMF definition set out in the Guidance Note, are required to identify themselves as MMFs and submit the relevant statistics.

During 1999, all mutual funds were contacted and requested to notify the Bank if they complied with the definition. Over 100 MMFs were identified and they commenced statistical reporting in March 2000. These data were used for a ‘trial run’ of the reporting system and were not used in the ECB reporting framework. A full set of monthly balance sheet data became available in April 2000 with more detailed quarterly data available from June 2000. The instrument categories collected in the monthly balance sheet are set out in Table 5. The category relevant to the compilation of money supply is money market fund shares/units.

Table 5: MMF Balance Sheet Reporting Scheme^a

Assets	Liabilities
1. Cash	1. MMF shares/units
2. Loans to other MFIs	2. Capital
3. Securities other than shares	3. Remaining liabilities
4. Shares and other equity	
5. Fixed assets	
6. Remaining assets	

^a Instruments are reported with an analysis of residency of counterparty, and in certain cases, maturity and currency (euro/non-euro) breakdown.

By December 2000, the number of MMFs identified in Ireland had increased to almost 130 and now stands at almost 200. In terms of the relative size of the MMF sector in Ireland, credit institution total liabilities are currently €519 billion (June 2003) while MMF liabilities are approximately €145 billion, meaning MMFs represent approximately 22 per cent. of the other MFI sector, i.e., the MFI sector excluding the Central Bank. There is very little investment in MMFs by Irish resident investors. By far the largest group of investors in Irish MMFs are non-euro-area residents, which currently account for over 85 per cent. of investors (Table 6). In other euro-area countries that have large

23 Regulation ECB/1998/16 subsequently replaced by Regulation ECB/2001/13.
24 Guidance Note 2/99.

MMF sectors, such as France and Luxembourg, the majority of investors are domestic or resident in other euro-area countries. This unusual investor structure in Ireland led to a major conceptual issue in the calculation of euro-area M3.

Table 6: Money Market Fund Shares/Units Issued — by Residency of Investor €million

Date	Irish residents	Other Euro-Area residents	Rest of World residents	Total	Total – Change (%)
December 2000	254	7,489	52,002	59,744	
December 2001	1,139	12,304	94,995	108,439	82
December 2002	1,503	14,178	124,347	140,028	29
June 2003	1,801	16,339	123,925	142,066	1

Source: Central Bank & Financial Services Authority of Ireland.

While the residency data set out above were available within the Bank and were transmitted to the ECB, they were not used initially when calculating euro-area M3. Instead, the ECB's first approach was to include in M3 the total value of such negotiable instruments regardless of the residency of the holders (based on the earlier decision to include all holdings of short-term negotiable instruments). This led to the inclusion of large volumes of non-resident holdings of money market funds shares/units which should have been excluded and given the rapid growth in such holdings led to a significant part of the distortion in the growth rate of M3. (To put the Irish data in context, money market fund shares/units held by euro area residents amounted to €570 billion in June 2003²⁵. It is clear that were the non-resident holdings of Irish money market fund shares/units included in this figure, it would be subject to significant distortion.)

The decision not to use the full set of Irish data was also due, in part, to a lack of similar data in other euro-area countries. As noted earlier, accurate residency data are difficult to collect. This was resolved in early 2001 when sufficient reliable data were available from all euro-area countries to exclude holdings of money market fund shares/units by non-euro-area residents. The resulting downward adjustment to the growth rate of M3 was 0.5 per cent.²⁶

Short-term Securities

While the task of adjusting M3 for non-euro-area residents' holdings of money market fund shares/units was completed in early 2001, the equivalent issue in relation to short-term securities took longer to resolve. It was originally estimated that the impact of non-euro-area residents' holdings of short-term securities was "similar to that of non-euro-area residents'

²⁵ ECB 2003: 2.

²⁶ Average adjustment for February 2001 to April 2001, ECB 2001: 2.

holdings of money market fund shares/units” (ECB, 2001: 3, page 10). A project was undertaken in 2001 to provide a more reliable estimate of the distortion and to develop a method to ensure the distortion could be removed from the series in future.

While data on securities issued are available according to original maturity and currency, it is more difficult to analyse such data according to residency of the investor. There are a number of reasons for this. Many securities are issued in bearer form and actively traded on the secondary market and there is no record or details kept of the name and address of the current investor (details of the original investor may be maintained). In addition, many institutions issue such instruments via an agent and record the position *vis-à-vis* the country of residence of the agent only. Finally, investors may hold their securities via a custodian. The reporting institution is then aware of the country of residence of the custodian but not that of the investor. All of these factors can give rise to an incorrect classification of the country of the investor and mean that reporting agents can report only a ‘best estimate’ for the residency of the investor.

Reporting agents are required to provide data on the aggregate amount of securities issued. However, it was decided that such an aggregate approach would not solve the residency problem. Given this, the ECB sought a different solution and began to collect individual security-by-security data from commercial data providers. These data provide all relevant information on the issuer of the security. Once these data are collected there is a follow-up exercise that matches the issuer information with information on the investor/holder of the security. This information, including details of the residency of the investor, is collected from securities settlements systems. By doing this, it is possible to calculate holdings of securities by euro-area and non-euro-area residents. The non-euro-area residents’ holdings can then be excluded from M3.

The ECB tested this approach during 2001, using Ireland as one of the pilot countries for which the method was first used. The purpose of the testing was to ensure the methodology provided accurate and robust results and that the data collection could be carried out in time to allow its inclusion in the monthly M3 data production cycle. Figures for euro-area M3, adjusted for holdings of short-term securities were first published in November 2001. The downward adjustment to the growth rate of M3 amounted to 0.7 per cent. in September 2001 and 0.6 per cent. in October 2001 (ECB, 2001: 4).

As noted above, Ireland was included in the first group of countries to use the new data collection method. This was due to developments in issues of short-term securities by Irish credit institutions during 2000 and 2001 which, given their strong

growth, had a large impact on developments in the euro-area aggregate (Table 7). Issues of short-term securities in Ireland are dominated by a small number of banks, primarily based in the International Financial Services Centre (IFSC). These institutions use such securities as a cost effective method of funding strong asset growth, i.e., as a cheaper alternative to raising finance than through deposits or interbank borrowing. As in the case for money market fund shares/units, developments in the structure of the holders of these securities as well as the levels issued were relevant to the distortion in M3.

Table 7: Issues of Debt Securities by Irish Credit Institutions
€million

Date	Debt Securities up to 1 year	Change (%)	Debt Securities over 1 and up to 2 years	Change (%)	Total – Change (%)
December 1999	11,930		2,106		
December 2000	15,054	26	2,131	1	22
December 2001	27,961	86	797	–63	67
December 2002	26,050	–7	3,209	302	2
June 2003	32,264	24	3,504	9	22

Source: Central Bank & Financial Services Authority of Ireland

In terms of levels of total short-term securities issued, this increased by almost 25 per cent. in 2000 and over 60 per cent. in 2001. Debt securities issued stabilised somewhat in 2002 but have exhibited strong growth again this year. On the holders side, for example, ‘best estimate’ data for June 2003 reported by Irish credit institutions indicate that almost 80 per cent. of short-term securities are held by non-euro-area residents. By contrast data collected by the ECB using its settlements system data indicate that this figure is closer to 60 per cent., supporting the conclusion that the transition to the new data collection approach is more appropriate for Ireland.

The adjustment of M3 to exclude holdings of money market fund shares/units and short-term securities by non-euro-area residents amounted to just over 1 percentage point. However, the adjustment did not fundamentally change the definition of M3. It was simply a case of collecting more data, with respect to residency, in order to ensure M3 was calculated in line with its conceptual definition.

The Introduction of Euro Banknotes and Coin

The introduction of euro banknotes and coin, however, led to a somewhat different type of problem. The currency in circulation figure included in money supply generally includes banknotes and coin in circulation net of holdings by commercial banks

(Table 8)²⁷. With the introduction of euro banknotes and coin in January 2002, a number of issues relating to the measurement of banknotes, in particular, at national level, arose.

Table 8: Calculation of Currency in Circulation

Money Supply Series	Calculation of currency in circulation figure for Ireland
M3E (up to December 1998)	Irish currency outstanding (banknotes and coin) less credit institutions holdings of banknotes and coin
M3 (up to December 2001)	Irish currency outstanding (banknotes and coin) less other MFIs holdings of notes and coin
M3 (January 2002 to December 2002) ^a	Euro banknotes on the balance sheet of CBFSAI + euro coins on the balance sheet of CBFSAI + Irish pound banknotes on the balance sheet of CBFSAI + Irish pound coins on the balance sheet of CBFSAI less other MFIs holdings of banknotes and coin (Irish pound and euro)
M3 (January 2003 onwards) ^a	Euro banknotes on the balance sheet of CBFSAI + euro coins on the balance sheet of CBFSAI less other MFIs holdings of banknotes and coin

^a Euro banknotes as per the allocation key.

Once put into circulation euro banknotes and coin are legal tender in all member states regardless of which NCB issues them. This leads to migration where banknotes and coin issued in one member state are actually in circulation in another member state, e.g., when tourists from one member state use banknotes issued by their home NCB in another member state (in general, banknotes migrate from Northern Europe to Southern Europe). Therefore, national data for the actual issuance of banknotes and coin do not accurately reflect the true value of banknotes and coin in circulation in that member state due to migration.

In part to deal with this problem, the ECB published a legally binding Decision in December 2001 (Decision ECB/2001/15) which dealt with the allocation of banknote liabilities within the Eurosystem with effect from January 2002. This Decision allocated the total value of euro banknotes across the NCBs of the euro area and the ECB in accordance with a 'banknote allocation key'²⁸. This means that each NCB and the ECB report on their balance sheet a fixed percentage of the total issuance of euro banknotes rather than the actual value of banknotes put into circulation. The share shown on the balance sheet of the Bank is 0.9650 per cent. of the total issuance of euro banknotes and amounted to €3,648 million at end-June 2003²⁹.

²⁷ Currency in circulation includes banknotes issued by a central bank. However, coin is generally a liability of central government. To ensure that coin is included in the figure for currency in circulation, by convention, it is added to the balance sheet of the NCB with a counterpart entered in remaining assets. See Regulation ECB/2001/13.

²⁸ The total value of euro banknotes in circulation is allocated across Eurosystem members in accordance with a formula based on the percentage share of each NCB in the paid-up share capital of the ECB.

²⁹ 30 June 2003.

The total value of banknotes put into circulation and total legal issuance of banknotes are the same for the euro area as a whole, but differ in each member state, i.e., the amount of banknotes issued in a given member state and the amount on that central bank's balance sheet can differ significantly. As the Decision did not impact on euro-area M3, the main issue to be addressed related to the calculation of national contributions to M3. Clearly, the national contributions must sum-up to the euro-area aggregate. Therefore, if the banknote figure for the euro area is taken from the aggregate balance sheet of the Eurosystem, the equivalent national figure must be taken from the balance sheet of the relevant NCB. As a result, with effect from January 2002, the value of euro banknotes included in the national currency in circulation figures is the legal share according to the allocation key as opposed to the actual issuance of banknotes in each member state. The impact of this change on data for Ireland can be seen between December 2001 and January 2002 in Table 9 and means that the national currency in circulation figure may differ substantially from the actual currency in circulation in the domestic economy.

Table 9: Banknotes and Coin in Circulation €million

Date	Banknotes	Coin	Total	Net of holdings of euro by other MFIs
December 2000	4,993	375	5,368	4,221
December 2001	4,316	388	4,704	3,683
January 2002	3,025	651	3,677	2,555
December 2002	3,759	519	4,278	3,095
June 2003	3,648	389	4,036	3,303

Source: Central Bank & Financial Services Authority of Ireland

In summary there are now a number of ways of calculating a national figure for currency in circulation³⁰:

- banknotes according to the capital allocation key plus coin;
- the actual issuance of banknotes and coin by NCBs; or
- the actual issuance of banknotes and coin by NCBs adjusted for banknote migration, i.e., actual circulation.

The last of these is the ideal solution as it is the figure that best reflects the economic reality in any member state and would lead to the calculation of a money supply figure that retains its economic meaningfulness. However, while work is under way in the euro area to study banknote migration, data are not yet available and national currency in circulation figures are calculated using the capital allocation key as outlined earlier. This method has limitations in its economic meaningfulness at national level.

³⁰ In all cases, the figure is net of holdings by other MFIs.

The final issue relating to the measurement of currency arose more recently. The Irish pound lost its legal tender status on 9 February 2002 and by end-March 2002 all other former national denominations of the euro had ceased to be legal tender in their respective countries. This meant that national denominations ceased to be a medium-of-exchange. As a result, it was decided that with effect from January 2003, former national denominations of the euro, such as the Irish pound, would no longer be included in the currency in circulation figure on the balance sheet of NCBs and would, therefore, be removed from money supply. Instead such amounts are shown as other liabilities of NCBs. The resulting reclassification on the balance sheet of the Bank amounted to €456 million³¹. By end-June 2003, the value of Irish pound banknotes and coin outstanding amounted to just over €414 million³², which continues to be included in the other liabilities category. While it is highly likely that a certain proportion of old Irish pound notes and coin will never be redeemed, the Bank will continue to exchange Irish pounds for euro indefinitely. Consequently, such currency represents potential purchasing power and its exclusion from money supply gives rise to further limitations in its meaningfulness.

Conclusions

Essentially, the chosen definition of money supply is related to its purposes as an economic indicator. Between 1982 and 1998, MOLA and subsequently M3E provided a broad measure of money supply for Ireland and these aggregates were monitored by the Bank as part of its monetary policy strategy. The M3E measure, in particular, was a good indicator of trends in GNP. In 1999, Ireland joined EMU and the focus of monetary policy moved to the euro area as whole, where the equivalent broad money supply measure M3 plays an important role as an economic indicator.

A recurring theme in this article is the distinction between euro-area M3 and a national contribution to euro-area M3, in this case a measure of 'Irish M3'. While euro-area M3 plays an important part in the euro-area monetary policy strategy, a question arises regarding the role of the Irish contribution to euro-area M3, namely, can such a national money supply measure tell us anything about domestic economic activity? As set out in this article there are a number of substantive issues in relation to concepts of national money supply, such as:

- the inclusion in 'Irish M3' of the holdings of financial instruments by other euro-area residents, i.e., the measure is not confined to the national level; and

³¹ Kelly (2003), page 111.

³² This figure comprises €281.5 in Irish pound notes and €133.1 in Irish coin (see Table A4 of the Bank's Quarterly Bulletin).

- the inclusion of the legal issuance of banknotes as opposed to the actual amount of banknotes in circulation.

It is essential to note that these issues are not relevant at euro-area level, where clearly the holdings of financial instruments by all euro-area residents are relevant and where the legal issuance of banknotes and the actual issuance are identical.

The Bank will shortly publish two series on money supply data. The first will provide a consistent series on M3E from 1980 to 1998 (quarterly). The second series will relate to the Irish national contribution to euro-area M3 from January 1999 to date (monthly) and will take into account all of the conceptual issues described in this article. This will result in some revisions to previously published data. The availability of these two series will allow further work on money supply in Ireland to be carried out. This work could include a study of whether the Irish national contribution to euro-area M3 has retained any properties as an indicator of domestic economic activity and future inflation, as on a conceptual level there appears to be a case for concluding that this is no longer true.

References

- Central Bank of Ireland (1994), *Statement on Monetary Policy 1994*, Quarterly Bulletin Spring.
- Central Bank & Financial Services Authority of Ireland, *Collective Investment Scheme Guidance Note 2/99*, November 2002.
- European Central Bank (1999: 1), *The Stability-Oriented Monetary Policy Strategy of the Eurosystem*, Monthly Bulletin, January.
- European Central Bank (1999: 2), *Euro-Area Monetary Aggregates and their Role in the Eurosystem's Monetary Policy Strategy*, Monthly Bulletin, February.
- European Central Bank (2001: 1), *The Monetary Policy of the ECB*.
- European Central Bank (2001: 2), *Monetary Developments Press Release*, April.
- European Central Bank (2001: 3), *Monthly Bulletin* May.
- European Central Bank (2001: 4), *Monetary Developments Press Release*, October.
- European Central Bank (2003: 1), *Monthly Bulletin* May.
- European Central Bank (2003: 2), *Monetary Developments Press Release*, June.
- Fagan, G. & Fell, J., (1992), *Business Cycle Indicators for the Irish Economy*, Central Bank Quarterly Bulletin, Winter.
- Howlett, D., (1995), *A Note on the Compilation of Monetary Statistics for the Period 1960 to 1995*, Central Bank of Ireland Unpublished Technical Paper.
- Kelly, J., (2003), *The Irish Pound: From Origins to EMU*, Central Bank Quarterly Bulletin, Spring.
- McEvoy, N. J., (1984), *The New Irish Banking Statistics: A Review of Conceptual Issues and Monetary Aggregates*, Central Bank Quarterly Bulletin, Summer.
- O'Sullivan, R., (1997), *A Note on the Compilation of a Consistent Broad Money Supply Series, 1979 to Present*, Central Bank of Ireland, Unpublished Technical Paper.

Legal Texts

Regulation (EC) 2819/98 of the ECB of 1 December 1998 concerning the consolidated balance sheet of the monetary financial institution sector (ECB/1998/16).

Regulation (EC) No 2423/2001 of the ECB of 22 November 2001 concerning the consolidated balance sheet of the monetary financial institutions sector (ECB/2001/13).

Decision of the ECB of 6 December 2001 on the issue of euro banknotes (ECB/2001/15).