

# Issues arising from the emergence of electronic money

Although its use has been very limited in the euro area so far, electronic money has the potential to become an attractive means of payment. This article reviews the development of electronic money and its implications for monetary policy, the oversight of payment systems and the prudential supervision of financial intermediaries. Particular reference is made to the recently adopted European Parliament and Council Directives relating to electronic money.

Overall, with regard to monetary policy, the development of electronic money should not be expected to endanger the capacity of the ECB to pursue its primary objective, price stability. Concerning payment systems oversight, the Eurosystem pays particular attention to both the technical security of electronic money schemes and their interoperability within the euro area. As to prudential supervision, the recently formulated regulatory and supervisory framework is adequate to promote a prudent attitude to risk on the part of electronic money issuers.

## I What is electronic money?

### Definition

Electronic money is a payment instrument whereby monetary value is electronically stored on a technical device in the possession of the customer. The amount of stored monetary value is decreased or increased, as appropriate, whenever the owner of the device uses it to make a purchase, sale, loading or unloading transaction.

A distinguishing feature of transactions carried out with electronic money is that they do not necessarily involve a bank account. This is a fundamental difference between electronic money and access products. With access products, such as debit

cards, payments are settled by means of transfers between bank accounts.

More precise definitions of electronic money are provided in Box I. These definitions recognise that *single-purpose electronic payment instruments*, which are accepted as payment only by their issuers, do not fall under the concept of electronic money. Such single-purpose payments can be considered as down payments for goods or services which the issuer is expected to deliver at a later stage. An example of a single-purpose payment instrument is a pre-paid telephone card, which is accepted only by the issuing telecommunications operator as payment for telephone calls.

### Box I

#### Definitions of electronic money

According to the "Report on electronic money" published by the ECB in August 1998, "electronic money is broadly defined as an electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transaction, but acting as a prepaid bearer instrument".

A legal definition of electronic money has recently been provided in Article 1 of the European Parliament and Council Directive 2000/46/EC on the taking-up, pursuit of and prudential supervision of the business of electronic money institutions. According to this definition, "electronic money shall mean monetary value as represented by a claim on the issuer which is: (i) stored on an electronic device; (ii) issued on receipt of funds of an amount not less in value than the monetary value issued; (iii) accepted as means of payment by undertakings other than the issuer".

The definitions proposed by the ECB and used in Directive 2000/46/EC recognise that electronic money refers to products widely used for making payments to undertakings other than the issuer, implicitly introducing the different concepts of *multi-purpose* electronic money and *limited-purpose* electronic payment instruments. In the former case, the purchasing power can be widely used in making payments. By contrast, in the latter case, the use of purchasing power is limited to a small number of clearly identified points of sale within a well-defined location. An example of this would be electronic payment instruments accepted only as payment for public transportation where the latter is provided by several companies within one city.

The legal definition set out in Directive 2000/46/EC introduces the concept of a claim on the electronic money issuer. This clarifies the concept of the *issuer*, i.e. the undertaking that has ultimate financial responsibility towards the holders of electronic money. This distinction is necessary because in some electronic money schemes the tasks of issuing and administering electronic money are the responsibility of different entities.

### **Technological features**

On a technological level, electronic money products can be further divided into *hardware-based* and *software-based products*, depending upon the storage device. In the case of hardware-based products, purchasing power resides in a device containing hardware-based security features (generally a chip, which is usually embedded in a plastic card). By contrast, software-based products employ specialised software on a personal computer, typically allowing electronic value to be transferred via telecommunications networks, such as the internet.

Hardware-based products have the potential to be used not only for face-to-face payments, but also for payments via telecommunications networks, for example by means of a card-

reading machine and a personal computer connected to the internet. Whenever electronic money is transferred via telecommunications networks, the term "*network money*" is used, regardless of whether the electronic money is hardware-based or software-based.

In addition, the following characteristics of electronic money should be emphasised. First, at the present juncture, electronic money received by the beneficiary cannot, in most cases, be used again, but has to be forwarded to the issuer for redemption (closed circulation of electronic money). However, in certain cases, features facilitating the re-usability of electronic money have been introduced (open circulation of electronic money). With open circulation, electronic money functions in much the same way as banknotes and coins, which allow for a number of transactions to be carried out without the involvement of the issuer. Despite the current predominance of closed circulation, it is possible that open circulation could become more popular in the future, depending on the evolution of its security features. Open circulation could be more cost-effective for electronic money schemes than closed circulation, and it might be more convenient for electronic money users.

Second, electronic money can provide varying degrees of anonymity, from total anonymity to full disclosure of the identity of the user, depending on the technical features of the individual scheme. By contrast, with access products such as debit cards, the processing of payments requires the identification of both parties to the transaction, since their bank accounts need to be debited and credited.

Third, in comparison with banknotes and coins, which use physical security features, electronic money products also typically employ electronic cryptography. Electronic cryptography is used to ensure the authentication, confidentiality and integrity of the data processed in electronic money transactions.

## 2 Development of electronic money in the euro area

### Electronic money as a means of payment

The role of electronic money in the economy derives from its function as a retail payment instrument. In this regard, electronic money is analogous to banknotes and coins, cheques, bank transfers or credit and debit cards. Each of the existing retail payment instruments offers certain specific services which make that payment instrument particularly attractive to certain customers or for certain types of transactions. Nonetheless, there is scope for competition between them. For example, following their introduction, credit and debit cards competed with cheques. Apart from the range of services offered by retail payment systems, the key factor in determining competitive outcomes is the cost associated with the use of each retail payment instrument. For banknotes and coins, as well as for cheques, handling costs are sizeable. For credit and debit cards, the main costs arise from the bookkeeping in relation to bank accounts, including the verification of accounts and transfers between accounts.

With electronic money, transaction costs can be lower than with banknotes and coins. For example, when payments at vending machines are made with electronic money, there is no need for the merchant to handle banknotes and coins stored in the machine and to spend resources on the physical safety of the vending machine. Furthermore, with electronic money, transaction costs may also be lower than with debit cards, because the settlement process generally requires fewer data exchanges and there is usually no need for any online authorisation of electronic money transactions.

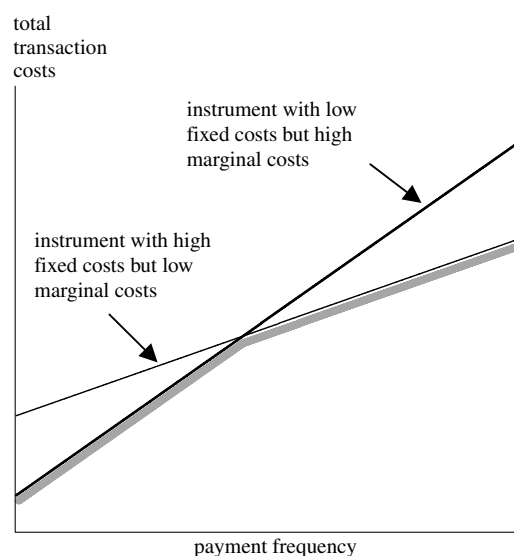
### Scope for the development of electronic money usage

The development of electronic money will depend on the decisions made by customers and merchants as to whether or not to use electronic money as a payment instrument.

From the point of view of the merchant, it is useful to distinguish between the fixed costs and the marginal costs of using payment instruments at a particular point of sale. In the case of electronic money, fixed costs include the costs associated with the purchase and maintenance of electronic money cards and software or dedicated merchant terminals. By contrast, the marginal costs are those relating to the processing of a single transaction, including in particular the costs incurred for telecommunications. To the extent that electronic money systems need to rely on new technologies or new standards, which may remain relatively expensive in the early stages of their development, fixed costs are likely to be relatively high, at least during an initial phase. However, the marginal costs of using electronic money may be lower than those of using alternative payment instruments.

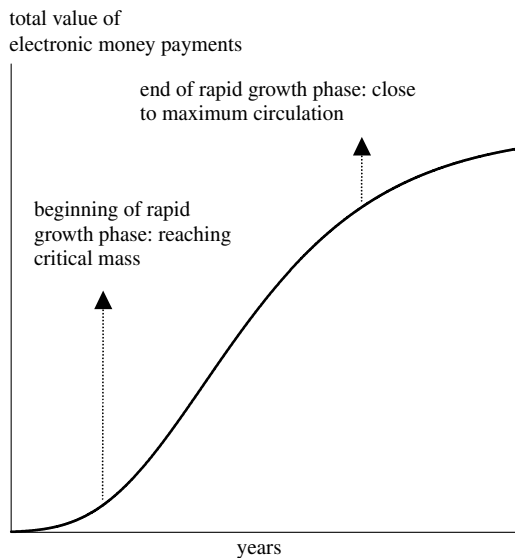
All in all, it can be expected that, given the low marginal costs of electronic money,

**Chart I**  
**Competition between payment instruments: fixed costs versus marginal costs**



*Note: The thick grey line shows which of the two instruments involves the lowest total transaction costs (vertical axis) for any payment frequency (horizontal axis).*

**Chart 2**  
**Increased usage of electronic money over time**



merchants whose business involves relatively frequent payments will be attracted to the use of electronic money (see Chart 1). At the same time, customers who need to carry out relatively small and frequent payments, such as daily purchases of newspapers or urban transport services, may see benefits in using electronic money for these transactions.

Owing to the existence of fixed costs, there is a preference for using a minimum number of retail payment instruments and for selecting the most widely accepted ones. This could deter the development of alternative payment instruments, unless there is sufficient confidence that the reduction in costs will, in the long term, be enough to offset the cost

of change. However, once a new payment instrument reaches a certain critical mass, the costs of acquiring the new payment technology are offset by the expected future savings on transaction costs, since the latter can be achieved over a shorter period of time with a greater number of transactions. As a result, once the critical mass is reached, a new payment instrument is likely to develop more quickly. There will be a network effect, whereby the broad acceptance of electronic money by merchants and the widespread usage of electronic money by customers reinforce each other (see Chart 2). Such a development would be in line with the pattern of diffusion of new technologies observed in various instances, including that of the increased usage of new payment instruments such as credit and debit cards in recent decades.

**Review of the evidence available so far**

The development of electronic money has been subdued so far, both in the euro area and in other economies. There are a number of schemes under development or already in operation. As a result of the differences both in the marketing approaches followed by the various schemes and in customers' acceptance of electronic money, the number of electronic money devices available differs widely from country to country. However, in the euro area and in the United States the volume and value of payments carried out using electronic money remain small (see Table 1).

**Table 1**  
**Statistics on electronic money in euro area countries and in the United States**

	(millions)	Number of devices <sup>1)</sup> (percentage of the population)	Number of merchant terminals (thousands)	Volume of daily transactions (thousands)	Value of daily transactions (EUR thousands)	Average value per transaction (EUR)	Reporting period
Belgium	7.0 <sup>2)</sup>	69% <sup>2)</sup>	64	149	563	3.8	Dec. 1999
Germany	60.0 <sup>3)</sup>	73% <sup>3)</sup>	60	58	197	3.4	Aug. 1999
France <sup>4)</sup>	0.02	0.0%	0	0.3	0.3	1.1	Nov. 1999
Spain	8.1	20%	131	6	16	2.2	Jan.-Dec. 1999
Ireland <sup>5)</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	–
Italy	0.03 <sup>2)</sup>	0.1% <sup>2)</sup>	4 <sup>6)</sup>	1	3	2.7	Jan.-Dec. 1999
Luxembourg	0.3	60%	1	1.6	6	3.6	Dec. 1999
Netherlands	20.0	128%	150	n.a.	n.a.	7.5	Apr.-Nov. 1999
Austria	4.8	60%	30	6	32	5.3	Jan.-Dec. 1999
Portugal	3.4 <sup>7)</sup>	34% <sup>7)</sup>	59	14	17	1.2	Jan.-Sep. 1999
Finland	0.5	10%	1	1	2	1.7	Jan.-Dec. 1999
United States	0.1	0.0%	1	n.a.	n.a.	n.a.	Oct. 1997-Dec. 1998

Sources: Committee on Payment and Settlement Systems, "Survey of electronic money developments", published by the Bank for International Settlements, May 2000; national data; Eurostat (population).

1) Unless indicated otherwise, this includes all devices, even those which had never been loaded as at the reporting date.

2) Includes only those devices which had been loaded at least once as at December 1999.

3) Includes chips available on debit cards. These chips are able to carry out electronic money functions which may not, however, be used in practice.

4) Schemes are in a pilot phase.

5) Only two small pilot schemes were in operation as at September 2000.

6) As at 31 December 1998.

7) Around 261,000 devices had been loaded as at September 1999.

Another observation is that electronic money schemes are generally not *interoperable* at present. Interoperability means that payment instruments belonging to a given scheme can be used in systems installed by other schemes, for example in foreign countries. The lack of interoperability is not unusual for innovations in their early stages. If electronic money schemes are to be successful, it appears important that they become interoperable.

As outlined in Box 2, the ECB has started to collect data on euro-denominated electronic money in circulation in the euro area (see Table 2). Starting from a negligible level in

1994, the total amount outstanding of electronic money in circulation has increased over recent years and had reached a level of €140 million at the end of June 2000. In this respect, the usage of software-based electronic money remained negligible. As at the end of June 2000, electronic money still represented a very small fraction of total money: 0.04% of banknotes and coins in circulation and 0.003% of the monetary aggregate M3. The practical relevance of electronic money to current economic analysis therefore remains very limited at the present juncture.

**Table 2**  
**Euro-denominated electronic money in circulation in the euro area**  
*(amount outstanding, end-of-period data, EUR millions)*

	1994	1995	1996	1997	1998	1999	June 2000
<b>Hardware-based</b>	0	2	9	75	116	135	140
<b>Software-based</b>	0	0	0	0	0	0	0

Source: ECB.

## Box 2

### Statistical treatment of electronic money in the ECB's money and banking statistics

The ECB collects statistics in accordance with Council Regulation (EC) 2533/98. The collection of money and banking statistics in accordance with the ECB's requirements is specifically established in Regulation ECB/1998/16. The ECB's money and banking statistics capture the electronic money that is issued by Monetary Financial Institutions (MFIs) located within the euro area. In accordance with Regulation ECB/1998/16, the amount outstanding of electronic money issued by euro area MFIs is classified as deposit liabilities within the MFI balance sheet statistics, indistinguishably included within the item "overnight deposits". Overnight deposits issued by euro area MFIs and held by non-MFI euro area residents are included in the definition of the euro area monetary aggregates. Furthermore, overnight deposits issued by euro area MFIs (irrespective of the residency of the holder) are included in the reserve base for the calculation of the Eurosystem's minimum reserve requirement. Hence, electronic money issued by euro area MFIs is fully taken into account in the calculation of both euro area monetary aggregates and the reserve requirement.

The collection of separate data on electronic money from euro area MFIs is not currently a legal requirement of the ECB. Nevertheless, almost all euro area national central banks (NCBs) and the NCBs of the non-participating EU Member States collect separate data on the amounts outstanding of electronic money issued by MFIs. The ECB receives data from the NCBs on amounts outstanding of electronic money issued by MFIs, broken down into hardware-based and software-based electronic money and also by currency, with a split between balances in euro (including the legacy currencies) and other currencies. However, MFIs located in the euro area have only issued euro-denominated electronic money for the time being. Data are compiled by NCBs at the available frequency, monthly in many cases, and submitted to the ECB at least twice a year. The ECB intends to publish these data regularly from now on.

In the euro area, almost all electronic money is issued by MFIs. In a few euro area countries, electronic money is also issued by non-MFIs, although the amounts involved are very small. The ECB receives data from the NCBs on the amounts outstanding issued by non-MFIs in those cases in which the issuance is relevant at the national level and the data are available.

## 3 Electronic money and monetary policy

### Implications of electronic money for monetary policy

The impact of electronic money on monetary policy has been a widely debated issue since the developments in technology made the widespread use of electronic money a feasible scenario. Some observers were quick to predict that monetary policy would become ineffective in the future. Others remained unconvinced that electronic money would ever gain popularity among users and – even if it did – envisaged only a limited impact on monetary policy.

The importance of electronic money for monetary policy stems from the fact that

electronic money may become a very close substitute for banknotes and coins. If electronic money were to be remunerated, it might also become an attractive alternative to holding short-term bank deposits. Over the long run, developments in consumer prices are closely related to developments in money. The primary objective of the monetary policy of the ECB is to maintain price stability. With regard to this objective, the development of electronic money raises three different issues:

- First, there is a need to safeguard the role of money as the *unit of account* for economic transactions. Society reaps substantial benefits from using a single,

well-defined and stable unit of account, or “numéraire”, for conducting transactions, irrespective of the issuer or the form in which money is issued.

- Second, the effectiveness of monetary policy instruments might be affected by a widespread adoption of electronic money. This relates mainly to effects on central bank balance sheets and the ability of central banks to steer short-term interest rates.
- Third, the emergence of electronic money might have repercussions on the information content of monetary indicator variables with regard to the primary objective of price stability.

### **Preserving the unit of account**

There is a risk that electronic money might lead to the emergence of multiple units of account in the economy. In the absence of any regulation of the issuance of electronic money, electronic money issuers might be tempted to issue excessive amounts of electronic money in an attempt to profit from the placement of these funds. Over time, there may be a change in market views about the creditworthiness of electronic money issuers engaging in excessively risky investment activities, which could lead to electronic money instruments being traded at variable exchange rates. This would undermine the role of money in providing a single unit of account as a common financial denominator for the whole economy.

These problems can be addressed by imposing an obligatory redeemability requirement on issuers of electronic money. If privately issued electronic money always has to be redeemed at par value with central bank money, this creates a tight link between electronic money and central bank money.

### **Preserving central banks' ability to steer money market interest rates**

A widespread substitution of privately issued electronic money for central bank money could reduce the size of central banks' balance sheets, which in turn might have an impact on the implementation of monetary policy. Central banks normally steer the interest rates prevailing in the money market by setting the terms on which they inject liquidity into, or withdraw liquidity from, the money market (see the article entitled “The operational framework of the Eurosystem: description and first assessment” in the May 1999 issue of the ECB Monthly Bulletin). Some observers have argued that electronic money could reduce the control central banks have over very short-term interest rates. In their view, a replacement of currency in circulation could reduce central banks' balance sheets to a level at which it would no longer be possible for them to steer the interest rates prevailing in the money market.

The potential shrinking of central banks' balance sheets might also put downward pressure on their profits through a reduction in seigniorage income. In the extreme, the budgetary independence of central banks could be affected. Ultimately, this could call into question the political independence of central banks, particularly in cases where a strong constitutional underpinning of central bank independence is lacking.

In order to retain the potential to steer money market interest rates, central banks could, on the one hand, take measures to broadly maintain the size of their balance sheets by replacing currency in circulation with other types of liabilities. One particular type of liability on central banks' balance sheets is minimum reserves, and central banks could consider imposing minimum reserves on electronic money. In addition, it would also be possible for central banks to issue electronic money themselves.

However, the potential implications of a rapid growth in electronic money for the control

of money market conditions at the short end should not be overstated. There should always be a high degree of confidence in central bank money, by virtue of the fact that it is either issued or backed by a public institution. Central bank money can thus be expected to retain its appeal as a risk-free means of settlement among private agents. As long as some form of ultimate market recourse to central banks remains, the ability of central banks to influence money market interest rates will be preserved.

#### **Ensuring the continued effectiveness of the monetary policy strategy**

Electronic money may also have implications for the information content of indicators used by central banks to assess current economic developments and the associated risks to price stability. In this regard, the ECB is equipped to take into account any potential

increase in electronic money in circulation. In its money and banking statistics, electronic money issued by Monetary Financial Institutions (MFIs) is part of monetary aggregates, which are the focus of analysis under the first pillar of the ECB's monetary policy strategy. If electronic money issuance by non-MFIs were to develop in the future, the ECB would also be in a position to collect statistics from these issuers and thus integrate such issuance into its analysis.

A rapid development of electronic money could have repercussions on different components of monetary aggregates and on the velocity of money. For example, if electronic money were to contribute to a more efficient payment structure in the economy, it could boost the velocity of circulation of monetary aggregates. Such effects – if they were to materialise – would have to be taken into account in the analysis and interpretation of monetary developments.

## **4 Electronic money oversight, supervision and the Community regulatory framework**

### **The Eurosystem's interest in electronic money**

As the amounts outstanding of electronic money in circulation are still very low, they do not have a material impact on monetary policy at present. However, given the potential for the rapid growth of electronic money, the ECB regarded it as important to design a regulatory framework for the issuance of electronic money with a view to ensuring that the needs of monetary policy are appropriately taken into account.

The Eurosystem's interest in electronic money stems not only from the monetary policy concerns reviewed in the previous section. It also relates to the Eurosystem's basic task of promoting the smooth functioning of payment systems, as well as to its role in contributing to the smooth conduct of policies pursued by the competent authorities in relation to the prudential

supervision of credit institutions and the stability of the financial system.

Although electronic money creates opportunities for efficiency gains in retail payments, it is important that its development should not jeopardise either the smooth functioning of payment systems or the stability of the financial system. Furthermore, efficiency gains can only be realised if sufficient safeguards are put in place to ensure that the general public has confidence in electronic money, i.e. that it is seen to be a reliable way of making payments. A number of risks can be identified. In particular, the intrusion of counterfeit value, major technical failures, float mismanagement and, ultimately, failure on the part of issuers of electronic money could have a negative impact on the credibility of various electronic money products and possibly even on other electronic payment products.



### Box 3

#### The Eurosystem's policy on electronic money

The Eurosystem's policy on electronic money is explained in the ECB's "Report on electronic money" (August 1998) and further elaborated in the official opinion of the ECB on draft Community legislation on electronic money.<sup>1</sup> On the basis of monetary policy, payment systems policy and supervisory concerns, the report sets out seven minimum requirements for electronic money schemes to fulfil, as well as two desirable objectives.

The requirements are as follows:

- i) issuers of electronic money must be subject to prudential supervision;
- ii) electronic money schemes must have solid and transparent legal arrangements;
- iii) electronic money schemes must maintain adequate technical, organisational and procedural safeguards to prevent, contain and detect threats to the security of the scheme, particularly the threat of counterfeits;
- iv) protection against criminal abuse must be taken into account when designing and implementing electronic money schemes;
- v) electronic money schemes must supply the central bank with whatever information may be required for the purpose of monetary policy;
- vi) issuers of electronic money must be legally obliged to redeem it at par value; and
- vii) the possibility must exist for the ECB to impose reserve requirements on all issuers of electronic money.

The desirable objectives, which relate mainly to the smooth functioning of payment systems, the prudential supervision of credit institutions and the stability of the financial system, are:

- i) the interoperability of electronic money schemes; and
- ii) the adoption of adequate guarantee, insurance or loss-sharing schemes.

*1 The Opinion of the European Central Bank of 18 January 1999 at the request of the Council of the European Union under Article 105 (4) of the Treaty establishing the European Community and Article 4 (a) of the Statute of the European System of Central Banks and of the European Central Bank on (1) a Commission proposal for a European Parliament and Council Directive on the taking-up, pursuit of and prudential supervision of the business of electronic money institutions, and (2) a Commission proposal for a European Parliament and Council Directive amending Directive 77/780/EEC on the coordination of laws, regulations and administrative provisions relating to the taking-up and pursuit of the business of credit institutions (ECB/1999/1, published in the Official Journal of the European Communities, OJ C 189, 6 July 1999, pp. 7-10).*

Hence a framework is needed to ensure that electronic money schemes are safe and efficient and that electronic money issuers are sound. The regulatory framework also needs to ensure that there is a level playing-field across the different types of electronic money providers. In addition, in view of the possible expansion of electronic money schemes, such a framework should help to protect the stability of the financial system. The Eurosystem's policy on electronic money is outlined in more detail in Box 3.

#### Electronic money and payment systems oversight

The requirements and desirable objectives outlined in Box 3 serve, inter alia, as the

common policy line for the Eurosystem central banks when they oversee electronic money schemes. In particular, the oversight of payment systems pursues the twofold objective of soundness and efficiency.

As part of its oversight duties regarding electronic money schemes, the Eurosystem is currently paying specific attention to the technical security of electronic money schemes. The technical security of electronic money schemes is important for the reliable functioning of systems and for protection against criminal abuse. Adequate security would also contribute to the achievement of interoperability, thus promoting efficiency. The Eurosystem is studying technical security approaches adopted by electronic money schemes and market initiatives in this area.

#### Box 4

#### Main elements of the new regulatory framework for electronic money institutions

The new regulatory framework for electronic money institutions (ELMIs) is defined in two recently adopted Directives: European Parliament and Council Directive 2000/46/EC on the taking-up, pursuit of and prudential supervision of the business of electronic money institutions and European Parliament and Council Directive 2000/28/EC amending Directive 2000/12/EC relating to the taking-up and pursuit of the business of credit institutions.

According to European Parliament and Council Directive 2000/46/EC on the taking-up, pursuit of and prudential supervision of the business of electronic money institutions, the main elements of the new regulatory framework for ELMIs include the following:

- i) *The limitation of activities* – Article 1 limits the business activities of ELMIs to the issuance of electronic money, the provision of closely related financial and non-financial services and the issuance and administration of other means of payment, but excluding the granting of any form of credit. The ELMIs' business activities also include the storage of data on the electronic device on behalf of other undertakings or public institutions.
- ii) *The scope of application of banking Directives* – Article 2 stipulates that only two EU Directives, if not otherwise expressly provided for, will apply to ELMIs, namely a number of provisions of Directive 2000/12/EC relating to the taking-up and pursuit of the business of credit institutions and Directive 91/308/EEC on money laundering.
- iii) *Redeemability* – Article 3 stipulates that the bearer of electronic money may, during the period of validity, ask the issuer to redeem it at par value in coins and banknotes or by a transfer to an account free of charges other than those strictly necessary to carry out that operation. The contract between the issuer and the bearer must clearly state the conditions of redemption and may stipulate a minimum threshold. This threshold may not exceed €10.
- iv) *Initial capital and ongoing own funds requirements* – The initial capital and minimum ongoing capital requirement for ELMIs is €1,000,000, while capital requirements are also set on an ongoing basis (Article 4).
- v) *The limitation of investments* – Article 5 requires that ELMIs invest an amount not less than their outstanding financial liabilities related to electronic money in highly liquid assets which attract a 0% or, subject to quantitative limitations, a 20% credit risk weighting.<sup>1</sup> Limitations also apply to ELMIs' activities in derivatives. These activities can be undertaken only for the purpose of hedging market risks. The imposition of appropriate limitations on market risks inherent in electronic money activities is left to the Member States.
- vi) *The verification of the specific prudential requirements for initial and ongoing capital, limitations on investments and market risks by the competent authorities* not less than twice per year (Article 6).
- vii) *Sound and prudent operation in respect of management, administrative and accounting procedures and adequate internal control mechanisms* (Article 7).
- viii) *The application of a waiver* of the provisions of electronic money Directives 2000/46/EC and 2000/12/EC (Article 8). National authorities may grant a waiver if the storage device cannot hold more than €150 and one of the following conditions is fulfilled: (a) the total amount of financial liabilities related to outstanding electronic money does not normally exceed €5 million and never exceeds

<sup>1</sup> Investments in assets other than those attracting a 0% credit risk weighting may not exceed 20 times the own funds of the ELMI and these include items such as sight deposits with zone A credit institutions and other sufficiently liquid debt instruments recognised by the competent authorities as qualifying items in accordance with Article 2 (12) of Directive 93/6/EEC (i.e. assets subject to a 20% credit risk weighting according to the Solvency Ratio Directive, debt instruments issued by EU or recognised third-country investment firms as well as debt instruments that are listed on at least one regulated market in the EU or on a recognised stock exchange in a third country provided that they are sufficiently liquid and the solvency of the issuer is subject to a degree of default risk which is comparable to or lower than that of the assets carrying a 20% credit risk weighting in the context of the Solvency Ratio Directive).

€6 million; (b) the exchange of electronic money takes place solely within the group to which the ELMI belongs; or (c) the electronic money business is limited to local areas or it is accepted only by undertakings that have a close financial or business relationship with the ELMI, such as a common marketing or distribution scheme. The ELMIs eligible for the waiver will not benefit from the European passport provisions.

The Directive recognises that there may be a need for a revision of the waiver. Other potential revisions concern, for example, measures to protect the bearers of electronic money, such as the introduction of a guarantee scheme. The Directive stipulates that the Commission should present a report on these issues to the European Parliament and the European Council, together with a proposal for any necessary revisions, within 54 months of the date of publication of the Directive.

The European Parliament and Council Directive 2000/28/EC amending Directive 2000/12/EC relating to the taking-up and pursuit of the business of credit institutions

- i) amends the definition of a credit institution by including ELMIs, thus implying, in conjunction with both Article 19.1 of the Statute of the ESCB, which entitles the ECB to require “credit institutions” established in Member States to hold minimum reserves, and the restriction of issuance of electronic money to credit institutions as stipulated by Article 1 of the above-mentioned Directive 2000/46/EC, that the ECB can impose minimum reserves on all issuers of electronic money; and
- ii) stipulates that the redeemability requirement will also apply to traditional credit institutions issuing electronic money.

On the basis of this review, the Eurosystem will evaluate the feasibility and desirability of a common approach to the technical security of electronic money.

The objective of efficient payment systems has traditionally involved balancing economies of scale against competition. This is also pertinent with regard to electronic money schemes. The normal remedy is co-operation between service providers, in order to avoid any unnecessary duplication of investments, and interoperability, in particular through the use of common standards. The degree of interoperability should be sufficient to widen the choice for customers, avoid unnecessary costs to merchants and enhance overall efficiency. The compatibility of standards and the resulting interoperability could provide greater freedom for customers and merchants to switch from one service provider to another, thus enhancing competition and promoting product innovation.

### **The new regulatory framework for electronic money institutions**

The legal and regulatory regime for electronic money in place in the countries of the European Union (EU) has, until recently, been characterised by a low degree of harmonisation. The recently adopted Community legislation on electronic money provides a comprehensive and harmonised regulatory framework for electronic money schemes. It is consistent with the Eurosystem’s views in almost all areas.

The framework limits the issuance of electronic money to traditional credit institutions and to a new type of credit institution known as an electronic money institution (ELMI). ELMIs are institutions which specialise in the electronic money business. The particular nature of their activity and of the risks that they incur has led to the definition of a specific supervisory framework. In addition, the application of provisions of the Directive relating to the taking-up and pursuit of the business of credit institutions will allow ELMIs to benefit from a

European passport, which will enable them to carry out their activities throughout the EU.

The other main elements of the new regulatory framework for ELMs as provided for in the electronic money Directives are outlined in Box 4.

The new regulatory framework meets the concerns of the ECB to a very large extent. However, Directive 2000/46/EC specifies that, under certain conditions and within certain limits, national authorities may grant

a waiver for some of the obligations imposed on issuers of electronic money. The ECB regards it as important for there to be a prudent implementation of the waiver in national legislation and a restrictive granting of waivers to electronic money issuers. Furthermore, the ECB would welcome a minimum level of harmonisation pertaining to the imposition of limitations on market risks. In this regard, the application of Directive 93/6/EEC on the capital adequacy of investment firms and credit institutions might be a viable approach.

## 5 Conclusions

Electronic money has the potential to become an important element of the euro area financial system. The development of electronic money in the euro area will be determined by market forces and reflect competition between electronic money and existing retail payment instruments, as well as among the various issuers of electronic money. As a result, it is difficult to predict whether electronic money will develop in the future, and what form its development will take. ECB statistics show that electronic money usage in the euro area has so far remained subdued. However, based on the experience of other payment instruments, the possibility cannot be ruled out that growth in electronic money will quicken once a critical mass has been reached.

The development of electronic money raises issues relating to monetary policy, payment systems oversight and the prudential supervision of financial intermediaries. In general, the regulatory framework currently being implemented in the EU provides adequate safeguards in these three areas. However, for this framework to become effective, it is important that the waiving of regulatory requirements as foreseen as a possibility in the Directives on electronic money is implemented in a restrictive manner in the Member States.

From the point of view of monetary policy, the redeemability requirement on electronic money is important to ensure that the development of electronic money does not endanger the unit of account function of money. As the common unit of account in which prices are expressed, money greatly facilitates the price formation mechanism. Furthermore, the ECB has the ability to collect statistics on electronic money and to impose reserve requirements on issuers of electronic money. Taking all this into account, the ECB does not expect its capacity to pursue its primary objective, price stability, to be endangered by the development of electronic money.

From the point of view of prudential supervision, the main element in relation to the potential development of electronic money is that the recently formulated regulatory and supervisory framework is adequate to promote a prudent attitude to risk on the part of electronic money issuers.

Whereas the electronic money Directives focus on the soundness of electronic money issuers, payment systems oversight by the Eurosystem focuses on the sound and efficient functioning of electronic money schemes. The Eurosystem pays particular attention to the technical security of electronic money schemes and to their interoperability within the euro area.