E-money
Niche market that might be expanding

Electronic money (e-money) is the digital equivalent of cash. It can be used for making payments without involving bank accounts in the transactions and always acts as a prepaid bearer instrument.

E-money can be software or hardware based. As such, card-based e-money, such as e-money stored on the “GeldKarte”, is hardware based. E-money stored on an account in the Internet, such as PayPal, is software-based e-money.

No matter what format, e-money still is a niche market. However, the growing digitalisation of financial services might boost its usage and might thus support its importance as a payments instrument in the near future.

Other virtual forms of money, such as Bitcoins, may further enhance e-money’s importance as internet services could spread rapidly – once started – due to the sheer mass of potential users.
E-money: The digital equivalent of cash

Electronic money (e-money) is a digital equivalent of cash. It is defined as an electronic store of monetary value on an electronic device or remotely on a server. E-money can be used for making payments without necessarily involving bank accounts in the transactions. It always acts as a prepaid bearer instrument. Since 2009, e-money services have been regulated by the “E-Money Directive” (2009/110/EC).

Between 2000 and 2010, the average growth rate of e-money purchase transactions was at 11.5%. This is relatively high compared with other payment instruments such as all cards without an e-money function (10.8%), credit transfers (5.6%), direct debits (6.4%) or cheques which even shrunk by 5.7%. Nonetheless, the absolute number of transactions processed with e-money is still small (chart 1).

E-money can be software or hardware based

E-money can be divided into card-based (and as such hardware-based) and software-based e-money (chart 2). One common type of hardware-based e-money is the ‘electronic purse’, where users store relatively small amounts of money on the chip or magnetic stripe of their payment card, other smart card or on mobile phones, to make small payments. Another option is to store e-money in a payment account on the Internet (software based).

GeldKarte: Not a success story

In Germany, the most prominent example of a card with an e-money function is the “GeldKarte” which has been developed by the German banking industry. The GeldKarte is a cashless payment system as it stores e-money on a chip that can be loaded with the equivalent of up to EUR 200. Usual points of acceptance are: parking lots, cigarette machines, ticket machines for public transport and the post offices of Deutsche Post. Furthermore, the GeldKarte can be used for secure Internet payments.

In 2010, GeldKarte cards were loaded approximately 5.5 million times, transferring about EUR 157 m into the chip. The card was used to make 43 million payments at approximately 600,000 acceptance points, paying an average of EUR 3.02 per paying transaction. However, the GeldKarte has never really made a breakthrough as a payment instrument (chart 3).
Generally, the number of cards with an e-money function is growing, but the share of these cards is still small (chart 4 & 5). Even though cards with an e-money function, and especially the GeldKarte, have not been a success story after all, e-money in combination with innovative mobile payment systems, such as the use of NFC technology, might however lead to a renaissance of hardware-based e-money in the future.

Software-based e-money could make the deal in the long-run

Furthermore, the importance of software based e-money is growing steadily. One of the most common software based e-moneys is PayPal (chart 6). Others include Amazon Payments, Moneybookers and Wirecard. The vast majority of PayPal transactions take place in the US (approx. 60%). The fact that US customers seem to be more open to innovative payment instruments than European customers might be due to the fact that in Europe more effective and fast payment instruments have already been established for a long time.

Software-based e-money allows payments and money transfers to be made via the Internet: in an online money transfer, a payer transfers money to a payment account in the Internet and then transfers this money as e-money to the payee. Online money transfers thereby serve as electronic alternatives to paying with traditional paper methods, such as cheques and money orders.
E-money

Growing digitalisation could boost e-money transactions

As suitably equipped e-money schemes allow anonymous payment at a cheaper cost than, for example, credit card payments, e-money schemes could be positioned as strong competitors to credit cards in the context of remote payments via the Internet in the near future. So far, the share of e-money transactions in national payments is still small (see chart 7). Complexity might be one of the reasons why growth in e-money use is still modest: standards for e-money need to be high as it needs to be protected against fraud and convertibility. Furthermore, e-money needs to be negotiable (peer-to-peer), anonymous and it needs to be controlled for double spending. Cryptographic techniques are hence used when e-money is stored on a customer’s account in order to make sure that the extensive safety requirements are fulfilled. As a consequence, application procedures to the electronic payment systems often are complex for new customers.

However, the growing digitalisation of financial services might boost the use of e-money in future. One driver in this context could also be mobile wallets. Mobile wallets are virtual wallets that store payment cards, coupons, and more on a mobile phone or online. It thus enables smartphones to pay with a virtual credit card that has been stored digitally.

Virtual money might have growth potential

Another form of e-money is virtual money such as Bitcoin or Facebook Credits (chart 8). Virtual money is a purely peer-to-peer version of electronic cash that allows online payments to be sent directly from the payer to the payee without going through a financial institution. Basic features of any Bitcoin-like network are: 1) the “coins” can be transferred between arbitrary nodes on the network, 2) transactions are irreversible, 3) double spending is prevented by using a block chain (i.e. a transaction database shared by all nodes participating that contains every transaction ever executed in the currency), 4) transactions are broadcasted within seconds and verified within minutes and 5) transactions can be received while the computer is turned off. So far, virtual money has primarily been used in niche market spaces; for example, there are some 6 m Bitcoins currently circulating all over the world. However, this could change rapidly as these services could spread fast due to the mass of potential users.

E-money: A niche market that might be expanding

To summarise, there are three factors that could lead to an increased importance of e-money in the future. These are:

1) Innovative mobile payment systems that could lead to a renaissance in the use of hardware based e-money.

2) The digitalisation of financial services that could boost the use of software-based e-money.

3) Virtual e-money that could spread rapidly, once started, due to the sheer mass of potential users.

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