

Report of the Working Group on Electronic Money

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Mumbai.

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Dear Sir

We have great pleasure in forwarding herewith the Report of the Working Group on Electronic Money.

Yours sincerely

(Zarir J. Cama)
Chairman

(Nachiket Mor)

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Introduction

It has been witnessed across the globe, especially in developed economies that there has been a gradual switchover from the use of paper-based payments media to those based on electronics. While the basic characteristics of these new instruments are by and large similar to those of old, paper-based instruments, these, however, present a different set of challenges to policy makers. Electronic money (e-money) is one such new product which has appeared on Indian horizon recently.

2. The distinguishing characteristics of e-money is that unlike innovations in other retail payments media which facilitate more efficient access to traditional form of central bank money, e-money could have the potential to become an independent medium of exchange. In that eventuality, two extreme views are being offered. On the one hand, one group perceives that in future in a highly technologically advanced networked world, private entities may not require central bank money for settlement and, therefore, there may not be any central bank in future. Some of them also question whether private money is more efficient than central bank money from the point of view of social welfare and if so, under what circumstance, private money can replace altogether the central bank money. On the other hand, there is another group of academicians and practitioners who strongly believe that central banks would continue to be as effective as ever though they may be required to respond differently in the changed environment.

3. Keeping these developments in perspective, it was felt that it is now appropriate to prepare a Policy Paper on e-money so that the challenges it might place in future both on the balance sheet of the central bank as also on the transmission mechanism of monetary policy are appropriately met. In other words, it is instructive to identify the areas of concern from the point of view of the central bank in the context of more wide spread use of e-money so that our conduct of monetary policy is not impaired and at the same time, the integrity of the instrument (i.e., e-money) is also preserved. To this end, a Working Group has been constituted on January 25, 2002 with representations from both within the Bank and outside under the Chairmanship of Mr. Zarir J. Cama, Chief Executive Officer, HSBC with the following members (Annexure).

- (i) Dr. D.V.S. Sastry, Adviser, MPD - Convenor
- (ii) Dr. Nachiket Mor, Executive Director, ICICI Bank Ltd. - Member
- (iii) Shri Deepak Mohanty, Adviser, MPD - Member
- (iv) Shri R. Gandhi, CGM, DIT - Member
- (v) Dr. K.V. Rajan, CGM, UBD - Member
- (vi) Shri S. Krishna Kumar, General Manager,
Computer Planning & Services Department, SBI - Member
- (vii) Shri V. Ramchandran, Senior Manager,
Head of Technology Department, IBA - Member

4. The Group would like to place on record the substantial contribution made by Shri Amitava Sardar, Director, MPD, RBI as Resource Person to the Group. The Group expresses its deep appreciation of the inputs received from Ms. Madhabi Puri Buch, General Manager, ICICI Bank and Shri Vikramaaditya, Senior Business Development Manager, HSBC who were special invitees to the Group. The Group also had the benefit of discussion with Shri K.U.B. Rao, Director, DEAP, RBI.

5. The Terms of Reference of the Working Group are the following:

- (a) to examine the various dimensions of e-money and the implications for payment system;
- (b) to review the international experience on prudential practices governing use of e-money and their impact on the conduct of monetary policy;
- (c) to assess the current situation in India in the context of international best practices; and
- (d) to study the extent of use of e-money and to suggest appropriate policies from the point of view of the RBI in the wake of use of e-money.

6. Accordingly, the Report is organised in four Sections. Section I deals with the definition and features of e-money and its likely position vis-a-vis other retail payments media. Section II attempts to explore the likely implications of e-money on both the balance sheet of the central bank and the conduct of monetary policy. Based on these discussions, Section III brings to the fore the policy issues for RBI and the likely prudential norms governing operations of the e-money scheme. Section IV gives summary and recommendations of the Report.

Section I

Definition and Features of E-Money

7. E-money may be broadly defined as "an electronic store of monetary value on a technical device.... 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" (European Central Bank, 1998). These products could be classified into two broad categories viz., (a) pre-paid stored value card (sometimes called "electronic purse") and (b) pre-paid software based product that uses computer networks such as internet (sometimes referred to as "digital cash" or "network money"). The stored value card scheme typically uses a microprocessor chip embedded in a plastic card while software based scheme typically uses specialised software installed in a personal computer.

8. The stored value card could be of three types - single-purpose card, closed-system or limited-purpose card and general-purpose or multi-purpose card. The single-purpose card generally with a magnetic chip recording the amount of fund therein is designed to facilitate only one type of transaction e.g., telephone calls, public transportation, laundry, parking facilities etc. Here, the distinguishing point is that the issuer and the service provider (acceptor) are identical for the cards. These cards are expected to substitute coins and currency notes. It is important to note here that the European Central Bank (ECB) has exempted these single-purpose pre-paid cards from the purview of their policy initiatives on e-money because of their smaller denominations as well as limited risk exposure for customers and the financial system as a whole.

9. The closed-system or the limited-purpose cards are generally used in a small number of well-identified points of sale within a well-identified location such as corporate/university campus. ECB has recommended that these cards be subject to lighter regulations and be issued by credit institutions.

10. The multi-purpose card on the other can perform variety of functions with several vendors viz., credit card, debit card, stored value card, identification card, repository of personal medical information etc. ECB has underscored especially the importance of these

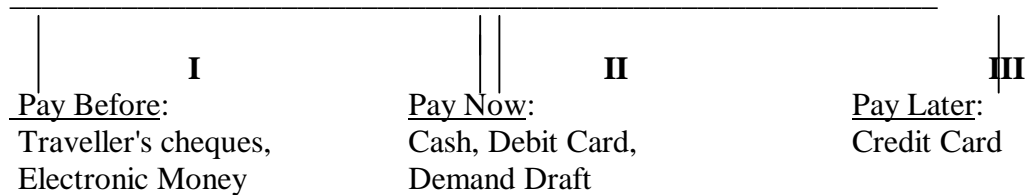
cards with respect to regulatory oversight, restrictions on issuers and their implications for monetary policy. These cards may reduce demand for current accounts in the bank for likely reduction in transaction costs, and prudent portfolio management.

11. It is important to distinguish here the so-called "access" products e.g., credit card and debit card from e-money. The former typically require a telephone or a personal computer with appropriate software to access the customer account before transferring the value while under e-money, the amount of value is already embedded and it may be increased or reduced without necessarily involving a personal bank account. In a sense, e-money can be construed as an electronic form of traveller's cheques (TCs). In both cases, the user pays for the instrument upfront.

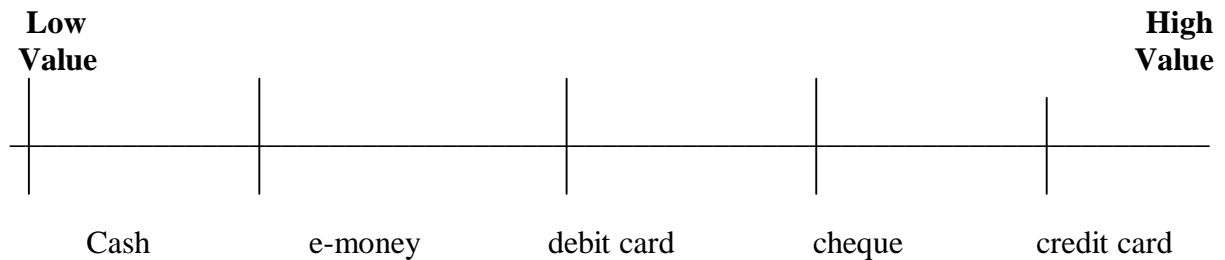
Relative Status of Various Retail Payments Media

12. From payer's perspective, different payment instruments can be distinguished depending upon when funds are actually parted with. This can be shown as below.

Time when a good/service is transferred



Given this scenario, it is expected that e-money may not displace other payment instruments. However, eventually a payment instrument is used considering its opportunity cost and the transaction value of the item to be purchased as indicated below.



13. In a scale of low value to high value, it is felt that while it may not be desirable to place any limit on storing monetary value in e-money, based on current experience, it is expected that e-money might be used mainly for small value transactions and thus, could be used to substitute central bank notes and coins at least partially.

Incentives for Using E-money

14. Spread of e-money would depend upon the incentives of issuers, merchants and consumers of using e-money. For issuers, the principal motivation arises from revenues to be earned from investment of outstanding balances (i.e., float income), savings of costs from reduced handling of cash and incentive of offering fee-based service to consumers and merchants besides the larger security emanating from audit trail of transactions and improved management information system. For merchants, the trade-off would be between reduction

in cost of handling physical cash vis-a-vis cost of putting in place necessary infrastructure. For consumers, the use of e-money would depend upon the perceived security and privacy of e-money and ease with which e-money could be used which would again depend upon willingness of merchants to accept e-money. In other words, apart from security, privacy and ease, network effects are also important for wider use of e-money.

15. An economy like India where cash transactions are very high, could benefit from using e-money through cost savings from printing and minting of smaller denomination notes and coins and eliminating the cost of handling, storing, transporting and insuring currency. These should also improve operational efficiency of the financial sector as also extension of banking to the urban poor and rural communities besides facilitating e-governance initiatives of governments. However, such benefits should be weighed against the need to build up the costly infrastructure to operate nationwide cashless retail payment system.

Section II

Implications for Balance Sheet of the Central Bank and Conduct of Monetary Policy

16. Before analysing the likely implications, it is instructive to note that e-money can be issued in three alternate ways. Each of these three ways may have different implications for conduct of monetary policy.

17. First, e-money can be issued in exchange of cash (i.e., 100 per cent backing of central bank money). Under that circumstance, there may be only marginal change in total money supply in the economy provided there is no significant change in velocity of circulation of money. Second, e-money can also be issued on credit against interest payment.

18. Third, it is argued that e-money could also be issued as a separate form of currency independent of central bank money by entities other than the central bank. In that case, e-money would compete against the central bank money as a medium of exchange. Such a scenario, however, in which public gets e-money from an entity in exchange for something other than the central bank money seems remote now. It may be worth appreciating here that one of the strongest proponents advocating abolition of central bank's monopoly in the creation of money was Von Hayek (1976). He proposed that banks should also issue their own currency. The resultant competition would ensure only well managed currencies to survive, help appropriate price discovery process and achieve price stability.

(i) Balance Sheet of the Central Bank

19. Currency notes and coins generally form an overwhelming part of any central bank's balance sheet. If e-money is extensively used and in the process, replaces substantially central bank's money, central bank's balance sheet would *shrink* while that of the issuing authority of e-money would *expand* in relative terms. To elaborate, if an individual pays, say, Rs.100 to an issuing authority, say, a bank, to obtain a pre-paid card (i.e., e-money), while the central bank's currency liability remains unchanged (because its liability to public gets reduced while its liability to banks gets increased correspondingly), the balance sheet of the bank in question as the issuer of e-money would in contrast enlarge with the arrival of a new deposit. This together with deposit multiplier, the banking sector as a whole would have larger deposit. Technically, with zero reserve requirement and complete substitution of central bank currency, the central bank's balance sheet would shrink significantly in relation

to that of the banking sector. This coupled with very high money multiplier would result in substantial enlargement of balance sheets of banks, and hence, would have the potential of inconceivably increasing money supply for a given increase in base money. In other words, if a consumer prefers to use e-money vis-a-vis currency, then for a given stock of currency, the money multiplier would go up which would in turn increase the aggregate money supply in the economy more than what would have been the case without e-money.

20. With large scale use of e-money, it has been apprehended that central bank's balance sheet may shrink to such an extent relative to that of the banking sector that it may be unable to perform its liquidity absorption function [in effect, open market operations (OMO)] on account of non-availability of adequate volume of assets. Under that circumstance, extensive e-monetisation in the economy could jeopardise the conduct of monetary policy of the central bank. It may, however, be noted that the central bank would not have any problem in liquidity injection because central bank money is still the only legal tender in the economy.

21. Apart from constraining its liquidity management function, relative shrinkage in balance sheet may also have implications regarding loss of *seigniorage* revenue for the central bank (BIS, 1996). This is because currency notes and coins are the interest-free liability of the central bank towards public (i.e., public have in effect lent to the central bank such amount free of interest) which are then used by the central bank to purchase interest bearing assets. Thus, interest earned on these assets constitutes its seigniorage revenue. Therefore, if the central bank's operating costs are high which are more likely in an environment where central bank is required to intervene more, it may even incur losses on account of seigniorage revenue foregone. This may also have adverse implications for governments with chronic budget deficits as it would be deprived of the transfer of surplus to its treasury from the profitable central bank.

22. As a counter argument, it is maintained that there should always be a lower bound below which the use of currency notes and coins should not go down [akin to Baumol (1952) - Tobin (1956) inventory model¹] so that there should also be a limit below which reserve money should not shrink relative to broad money stock. Moreover, so long as e-money is expected to be used for small value transactions and the underlying asset of e-money is the central bank money and the central bank has the monopoly in its issuance, its balance sheet is not expected to contract sufficiently. Again, since e-money developments are expected to be gradual in nature rather than an one-off event, many of the apprehensions expressed above may not materialise as the central bank should have adequate time to respond accordingly.

(ii) Conduct of Monetary Policy

(a) Case when E-money is issued against central bank money

23. E-money could have profound impact on compilation of monetary statistics and money supply unless regulated prudently. As indicated above, e-money could be issued against cash (i.e., 100 per cent backed by central bank money paid upfront). Since e-money are close substitutes of central bank money, these should be explicitly accounted for in monetary statistics. If e-money is allowed to be issued only by banks, then currency

¹ 1. Baumol-Tobin transactions demand model shows that optimal money holdings vary inversely with interest rate but directly with transaction costs.

would be substituted with demand/time liabilities through e-money. In that eventually, issuance of e-money would be money stock neutral and no change would be required in the definition of money stock. However, if e-money is issued by entities other than depository institutions (i.e., banks), the money creating sector as embedded in compilation of monetary statistics would need to be broadened. Otherwise, it would reduce information content of monetary aggregates as monetary statistics without coverage of e-money may not fully represent the transaction balances in economy. It may need to be appreciated here that in recent period, countries generally follow eclectic approach with accent on interest rate/inflation targeting rather than monetary targeting. Even then, assessment of liquidity could pose problem on account of higher velocity of money and interest elasticity of money demand.

24. There could also be a situation where residents could use digital cash or network money supplied by entities outside the country for domestic transactions. If such transactions rise significantly, a large part of domestic money would be held abroad and there would be weaker link between domestic transactions and monetary aggregates. In that case also, monetary aggregates would lose its predictive power. In a sense, even without e-money, some countries have already experienced such phenomenon through spread of dollarisation or co-circulation of currency.

25. With regard to its behaviour on money supply, since this is only substitution of currency and coins with e-money, it may witness only a small change despite enlargement of commercial banks' (the issuers) balance sheets vis-a-vis that of the central bank because velocity resulting from increase in such demand liability may not increase much². If, on the other hand, the velocity increases, this would certainly increase money supply more for a given increase in base money. However, if e-money performs only small value transactions, such velocity effect on overall money supply could be small and there may not be any perceptible change in money supply. These apart, interest elasticity of e-money could be higher on account of the fact that it would generate float to the issuers of e-money which are generally likely to be invested in interest bearing highly liquid securities (to meet redemption liability). On the contrary, mere currency holding does not involve such process. In view of this, it is expected that competition may force interest rate to be paid in due course on e-money balances despite these being in the nature of demand liabilities. Under this circumstance, the proportion of interest bearing liabilities in monetary aggregates would grow which would render them more unstable and information content of monetary aggregates would also change.

(b) Case when E-money is issued on credit

26. E-money can also be issued on credit (i.e., no central bank money is paid upfront by the customer who is now a *borrower*) against payment of interest rate whereby it is the issuer who is supposed to comply with all the requirements of the regulator in respect of the issuance of e-money. Under this case, there is a possibility that the issuers may assume a leveraged position. There is, therefore, a need for continuous monitoring of the behaviour of issuing authorities for balanced growth of their assets and liabilities, particularly liabilities arising out of issuance of e-money. For these reasons, the Group recommends that the central bank should regulate and closely monitor the practice of issuing e-money on credit.

² Multiplier effect from pure currency transaction only is one. For general treatment of derivations of multiplier under e-money, please see Berentsen (1998) and Krueger (1999).

(c) Case when E-money is issued as an independent form of currency

27. In this context, one of the principal concerns over the emergence of e-money is whether the central bank would be in a position to conduct monetary policy when e-money would be issued as an independent form of currency. Here two opposite views are being offered. Friedman (1999) has argued that notwithstanding the monopoly power of the central bank to create reserves, in future the central bank may not be in a position to influence vast amount of financial transactions by controlling a small volume of its reserves in an environment of new payment and banking technologies. He also emphasised that different forms of e-money in that scenario may advance to the point that these would not only provide payment services but also settlement services in an economy thereby obviating the need for central bank money for settlement. King (1999) has gone even further and argued that in a future world, all settlements could be done on a real-time basis through transfers of appropriate value of private wealth from one electronic account to another in an electronic barter environment thus obviating the need for central bank money in the economy. In that case, there would be no role for the central bank as it would not be in a position to influence short-term rate of interest.

28. Goodhart (2000) on the other hand maintains that the central bank's ability to influence nominal rate of interest is eventually an issue of political economy because if it is so required, the government can always place a set of legal restrictions on financial market so that they would be forced to settle only in central bank money. He has also argued that a central bank with the support of the government has the ability to incur largest losses than any other entity in the economy and accordingly, would be in a position to influence nominal interest rate even in the absence of demand for central bank money.

29. Freedman (2000) holds that incentives facing banks to force them to settle on the books of the central bank is key for the latter to influence nominal interest rate. Such incentives can be built into the terms and conditions of unlimited standby facilities whereby central bank would be prepared to accept overnight deposits as well as extend overnight loans at certain interest rates which would in turn establish a corridor for overnight market interest rates.

30. Woodford (2000 and 2001) shares the same views of Freedman (2000). He mentioned that even in the presence of multiple currency, market participants may like to settle at least some of their payment obligations on the books of the central bank in central bank money on account of its unparallel creditworthiness. Central bank can influence overnight interest rates if it is ready to accept overnight deposits and lend overnight at specified rates in the form of standing facilities, disregarding the quantity as is being practised in Australia, Canada and New Zealand. In other words, a central bank can determine both the quantity of settlement balances and interest rate thereon unlike private financial institutions issuing their own currencies who can determine only either of them.

31. In a multi-currency regime, whether monetary policy does matter is eventually a question of how many private entities contract with one another in course of their transactions in a stable currency. Since currency uses are characterised by network externalities in that larger the number of users, larger is the settlement value of the currency concerned, it is implied that currency could at best be supplied oligopolistically. In fact, it could be a case of natural monopoly also. Such notion, however, goes against the hypothesis put forward by

Hayek (1976) and obliquely by Friedman (1999) and King (1999). Apart from the issue relating to network externalities, there are other several reasons why, in a multi-currency regime, competition among several currencies and the corresponding process of price discovery may not be beneficial for economies. First, during the competitive phase when bad currencies would be driven out on account of their not maintaining corresponding liquid assets to meet the liability, the economy could experience high inflation and volatility in its output. Second, there is no guarantee that once the discovery process of searching the stable currency is over, the new monopolist/oligopolists thereafter would not resort to inflationary finance to maximise its seignorage revenue. Third, in the event when there are multiple currencies, there would be number of prices for n number of currencies. This would severely erode the unit of account function of money as it would no longer act as numeraire. A unique numeraire is the most efficient solution to this co-ordination problem.

32. Given these considerations, it appears that there is a trade-off between micro-economic efficiency and macro-economic stabilisation. This is because with the advancement of technology and the consequent innovations in both wholesale and retail payments media including e-money, the economy stands to gain efficiency in terms more prudent risk management practices, faster settlement of funds and better disclosure of information. Simultaneously, the economy is also confronted with destabilising forces like lesser information content of key variables e.g., monetary aggregates, multiple currency regime, lesser private sector demand for central bank money and the consequent threat to the existence of the central bank etc. Therefore, while micro-economic efficiency considerations demand that there should be increasingly private provision of payment and settlement services in the economy in future, macro-economic stabilisation policy warrants that there should be a case for public regulation over such provision. In fact, this is the fundamental reason for which the "monopoly right" in the issuance of currency, as indicated above, should be in the hands of some public authority, preferably the central bank. Even then, there cannot be any final judgement on this issue at this point of time. In view of all these considerations, the Group, therefore, recommends that the RBI should regularly monitor closely all these developments so that integrity of the financial system is preserved.

Section III

Policy Issues for the RBI

33. Based on the above analysis, there could be three areas of immediate concern to RBI - (i) what could be the mode through which e-money could be permitted to be issued, (ii) of the financial market participants, who could be allowed to issue e-money and (iii) what should be the prudential norm to be followed for preserving effectiveness of monetary policy and integrity of the e-money. These apart, there are three other areas where the Group feels that there is a need for ongoing work viz., (a) legal framework involving the rights and obligations of issuers, merchants, consumers and the regulator (i.e., the RBI), (b) technological security and (c) the clearing and settlement arrangements of different e-money schemes.

(i) Issuance of E-Money

34. The Group recommends that multi-purpose e-money may be permitted to be issued only against payment of full value of central bank money or against credit only by the banks. The issuance of e-money on credit basis should, however, be strictly regulated and closely

monitored. On the issue whether entities other than the central bank could issue independent media of exchanges, the Group feels that such a possibility is apparently remote in India at this point of time. However, RBI may continually keep track of these developments for preserving integrity of the financial market.

35. In this regard, it needs to be appreciated that issuers must be under obligation to offer redemption of their e-money liabilities net of service charges, if so required. From monetary policy point of view, such redemption requirement is essential in order to preserve unit of account function of money as also to control money supply in the economy.

(ii) Status of Issuers of E-money

36. Keeping the above discussions in perspective, one can conceptualise arguments for preference of a particular class of institution as issuers of e-money. First, liabilities accepted under multi-purpose pre-paid cards are in the nature of *demand liabilities* and hence, banks may be preferred as issuers of e-money. Second, since e-monetisation involves generation of fresh liabilities by the issuing authority, compilation of monetary statistics would warrant regular reporting of such liabilities to the central bank. This could be easier done for banks rather than for non-banks. Third, if e-money is subjected to reserve requirement, then pricing of e-money between institutions with reserve requirement and those without them would be different. Ensuring level playing field demands that issuing authority should be uniform. Fourth, issuing authority would have strong incentive to leverage and oversupply e-money if it is issued as credit against interest. The resultant implications for money supply, interest rate and inflation on the one hand and probability of default and likely impact on systemic crises and eventually on deposit insurance of the central bank on the other may necessitate that issuing authority be restricted to banks only. Fifth, security issue of e-money may also prompt the central bank to prefer banks as the only issuer of e-money.

37. In this context, it may be indicated that the ECB has recommended only credit institutions should be allowed to issue multi-purpose pre-paid cards. In many of the European Union (EU) countries, this recommendation has been implemented. However, the ECB has also permitted non-credit institutions to issue e-money provided they would conform to seven minimum prudential requirements as laid down by it in 1998 as has been adopted in Denmark. In USA, on the other hand, both depository and non-depository institutions may issue e-money. However, developments in e-money are rather quite moderate in USA relative to those in Europe.

38. Based on these considerations and the credibility of non-banking financial institutions in India now, the Group proposes that at this stage, RBI should not permit them to issue multi-purpose e-money. However, if it permits them to do so, it should require them as also banks to conform to seven minimum prudential requirements laid down by ECB in 1998 as indicated below. In this regard, it should be noted that the single purpose and limited purpose e-money should be allowed to be issued by any entity including banks.

(iii) Minimum Prudential Requirements for Operations of E-money Scheme

39. In order to preserve effectiveness of monetary policy and integrity of e-money schemes, the Group suggests that we should adapt the following seven minimum prudential requirements, as mandated by ECB, with regard to issue of e-money:

- (i) Prudential supervision: Issuers of electronic money must be subject to prudential supervision.
- (ii) Solid and transparent legal arrangements: The rights and obligations on the part of the respective participants (customers, merchants, issuers and operators) in an electronic money scheme must be clearly defined and disclosed. Such rights and obligations must be enforceable under all relevant jurisdictions.
- (iii) Technical security: 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: Protection against criminal abuse, such as money laundering, must be taken into account when designing and implementing electronic money schemes.
- (v) Monetary statistics reporting: Electronic money schemes must supply the central bank with whatever information that may be required for the purposes of monetary policy.
- (vi) Redeemability: Issuers of electronic money must be legally obliged to redeem electronic money against central bank money at par at the request of the holder of electronic money.
- (vii) Reserve requirements: The possibility must exist for central banks to impose reserve requirements on all issuers of electronic money.

Section IV

Summary and Recommendations of the Report

40. Broadly, e-money is an electronic store of monetary value on a technical device. E-money could be classified as (a) pre-paid stored value card (sometimes called "electronic purse") and (b) pre-paid software based product that uses computer networks such as internet (sometimes referred to as "digital cash" or "network money"). The stored value card could be of three types - single-purpose card, closed-system or limited-purpose card and general-purpose or multi-purpose card. The single-purpose card generally with a magnetic chip recording the amount of fund therein is designed to facilitate only one type of transaction e.g., telephone calls, public transportation, laundry, parking facilities etc. Here, the distinguishing point is that the issuer and the service provider (acceptor) are identical for such cards. The closed-system or the limited-purpose cards are generally used in a small number of well-identified points of sale within a well-identified location such as corporate/university campus. The multi-purpose card on the other can perform variety of functions with several vendors viz., credit card, debit card, stored value card, identification card, repository of personal medical information etc. 41. While it may not be desirable place any limit on storing monetary value in e-money, it is expected that e-money could be used to substitute central bank notes and coins at least partially. However, the importance of e-money with respect to regulatory oversight, restrictions on issuers and their implications for monetary policy is extremely critical from the point of view of the central bank.

42. After considering various issues, the Group recommends that multi-purpose e-money may be permitted to be issued only against payment of full value of central bank money or against credit only by the banks. The issuance of e-money on credit basis should, however, be strictly regulated and closely monitored.

43. It needs to be appreciated that issuers must be under obligation to offer redemption of their e-money liabilities net of service charges, if so required. From monetary policy point of

view, such redemption requirement is essential in order to preserve unit of account function of money as also to control money supply in the economy.

44. With regard to status of issuers of e-money, it may be indicated that there are five reasons which may warrant banks as the issuers of multi-purpose e-money. These include attributes of e-money being closure to demand liabilities of the bank, implications of e-money on velocity of circulation of money and its corresponding impact on monetary statistics, the option to impose reserve requirement on e-money, the need for closure monitoring of e-money when these would be issued as credit and the technical security of e-money. For all these reasons, the Group recommends that only banks should be allowed to issue multi-purpose e-money. However, single-purpose and limited-purpose e-money should be allowed to be issued by any entity including banks.

45. Non-banks should not be permitted to issue multi-purpose e-money. If they are permitted, they along with banks must conform to seven minimum prudential requirements as laid down by European Central Bank (ECB) in 1998. These are (i) prudential supervision of issuers of e-money by the central bank, (ii) solid and transparent legal arrangements codifying the rights and obligations of issuers, merchants, consumers and the regulators, (iii) adequate technical, organisational and procedural safeguards to prevent and detect threats to the security of e-money, (iv) protection against criminal abuse, (v) supplying of all relevant information to the central bank for the purpose of monetary policy, (vi) legal obligations to redeem e-money against central bank money at par at the request of the holder and (vii) the right of the central bank to impose reserve requirement on issuers of e-money.

46. E-money could have profound impact on compilation of monetary statistics and money supply unless regulated prudently. E-money could be issued against cash (i.e., 100 per cent backed by central bank money paid upfront). Since e-money are close substitutes of central bank money, these should be explicitly accounted for in monetary statistics. If e-money is allowed to be issued only by banks, then currency would be substituted with demand/time liabilities through e-money. In that eventually, issuance of e-money would be money stock neutral and no change would be required in the definition of money stock. However, if e-money is issued by entities other than depository institutions (i.e., banks), the money creating sector as embedded in compilation of monetary statistics would need to be broadened.

47. There could be a situation where residents could use e-money supplied by entities outside the country for domestic transactions. In that case, monetary aggregates would lose its predictive power.

48. It is expected that the proportion of interest bearing liabilities in monetary aggregates would grow in the event of growing use of e-money which would render them more unstable, and information content of monetary aggregates would also change.

49. If e-money is issued on credit, there is a possibility that the issuers may assume a leveraged position. There is, therefore, a need for continuous monitoring of the behaviour of issuing authorities for balanced growth of their assets and liabilities, particularly liabilities arising out of issuance of e-money. For these reasons, the Group recommends that the central bank should regulate and closely monitor the practice of issuing e-money on credit.

50. If consumers prefer to use e-money vis-a-vis currency, then for a given stock of currency, the money multiplier would go up which would in turn increase the aggregate money supply in the economy more than what would have been the case without e-money. Also, with large scale use of e-money, it has been apprehended that central bank's balance sheet may shrink to such an extent relative to that of the banking sector that it may be unable to perform its liquidity absorption function on account of non-availability of adequate volume of assets. Apart from constraining its liquidity management function, relative shrinkage in balance sheet may also have serious implications regarding loss of *seigniorage* revenue for the central bank. As a counter argument, it is maintained that there should always be a lower bound below which the use of currency notes and coins should not go down so that there should also be a limit below which reserve money should not shrink relative to broad money stock.

51. A review of developments indicate that while considerations of potential benefits of micro-economic efficiency, extension of banking to urban poor and rural communities and facilitation of e-governance demand that there should be increasingly private provision of payment and settlement services in the economy in future, macro-economic stabilisation policy warrants that there should be a case for public regulation over such provision. Also, currency uses are characterised by network externalities in that larger the number of users, larger is the settlement value of the currency concerned implying that currency could at best be supplied oligopolistically. There are, in fact, the fundamental reasons for which the "monopoly right" in the issuance of currency should be in the hands of some public authority, preferably the central bank. Even then, there cannot be any final judgement on this issue at this point of time. In view of all these considerations, the Group, therefore, recommends that the RBI should regularly monitor closely all these developments so that integrity of the financial system is preserved.

52. The RBI should also periodically review issues relating to legal framework, if any, technical security and the clearing and settlement arrangements of different e-money schemes and the practices of various e-money schemes, both in India and abroad, for preserving integrity of the financial market. On the issue whether entities other than the central bank could issue independent media of exchanges, the Group feels that such a possibility is apparently remote in India at this point of time. However, RBI may continually keep track of these developments for smooth functioning of the financial market.

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ANNEXURE

Memorandum Reserve Bank of India

Working Group on Electronic Money

With progress in technology and networking, the modes of payment and settlement would undergo distinct changes, particularly with operationalisation of the real-time gross settlement system (RTGSS), Negotiated Dealing System (NDS) and Clearing Corporation of India Limited (CCIL). These would lead to gradual switchover from the use of paper-based payments media to those based on electronics including electronic money (e-money). Keeping these developments in perspective, it is felt that a Discussion Paper on e-money may be prepared bringing in the challenges it might place in future and its impact on the balance sheet of the RBI as well as on the conduct of monetary policy. Accordingly, a Working Group is constituted with the following members:

- (i) Mr. Zarir J. Cama, Chief Executive Officer, HSBC - Chairman
- (ii) Dr. Nachiket Mor, Executive Director, ICICI Bank Ltd. - Member
- (iii) Dr. D.V.S. Sastry, Adviser-in-Charge, MPD - Convenor
- (iv) Shri Deepak Mohanty, Adviser, MPD - Member
- (v) Shri S. Krishna Kumar, General Manager, Computer Planning & Services Department, SBI - Member
- (vi) Shri V. Ramchandran, Senior Manager, Head of Technology Department, IBA - Member
- (vii) Shri R. Gandhi, GM, DIT - Member
- (viii) Dr. K.V. Rajan, GM, DBOD - Member

Shri Amitava Sardar, Director, MPD would act as Resource Person for this Group.

2. The Terms of Reference of the Working Group are -

- (a) to examine the various dimensions of e-money and the implications for payment system;
- (b) to review the international experience on prudential practices governing use of e-money and their impact on the conduct of monetary policy;
- (c) to assess the current situation in India in the context of international best practices; and
- (d) to study the extent of use of e-money and to suggest appropriate policies from the point of view of the RBI in the wake of use of e-money.

3. The Working Group may submit its Report within three months from the date of its first meeting.

(Y.V. Reddy)
Deputy Governor
January 25, 2002