Critique on the 1994 EU Report on Prepaid Cards

by Ian Grigg November-December 1996.

Abstract: **The European Union report of 1994 reserves the issuance of Prepaid Cards to banks. Comments have indicated that the conclusions of this report should be expanded to include Internet cash, and it is believed that a committee under the auspices of the EMI has been given that mission.**

This approach would be valid if the conclusions in the 1994 report were valid, and there was sufficient relationship between the prepaid card and Internet cash to support this extension. It is argued that neither is the case, and thus there is little validity in simply extending the 1994 report. Rather, a fresh approach is called for with respect to Internet cash.

With due consideration given to the pressures upon the institution of central banking, it is argued that only a policy of minimal regulation is likely to be structurally practical. Thus the imperative is on establishing a dialogue with the new financial intermediaries, and encouraging the development of simple, open and transparent structures suitable for public monitoring.

In the event of attempts to stifle financial innovation for the sake of control, authorities will be ignoring the changing face of the intermediation industries, and rightly or wrongly, are likely to build a structure at odds with the future. It is argued that, whilst there is little chance of this structure surviving in the long term, its construction and downfall is likely to have negative effects in the medium term for Europe and European industry.

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Introduction

In 1994, the Payments Systems Group of the European Monetary Institute (the EMI) released a report [1.emi94] recommending that banks be given more or less exclusive license to issue *prepaid cards* [1.term]. Public comments have indicated that the same results are to be applied to Internet electronic cash, simply by extending the 1994 report to cover the new medium:

> FRANKFURT, Oct 3 (Reuter) - Bundesbank President Hans Tietmeyer said on Thursday a new government policy to give only banks the right to issue prepaid cards, or ''electronic purses'', should also be applied to Internet network money.
> ...
> Tietmeyer noted European Union central bankers have agreed that only banks should issue the prepaid cards. The policy is expected to be widened to include the rights to create and maintain Internet-based electronic cash systems.
> ''In our opinion, the same should definitely also apply to network money,'' he said.

[1.oct3]. See also [1.meister].

Such an approach is valid if two premises hold. Firstly, that the 1994 report remains valid in its own right, and secondly, that the newer medium, the Internet, bears sufficient similarity to prepaid cards to bear analogy, or at least regulatory extension.

It is the intention of this critique to challenge both premises. If these challenges survive analysis, then it would become necessary to re-evaluate the EU intention, at least in the terms indicated.

Hence, Section 1. examines the report on its own right. It is concluded that the fundamental assertion that the prepaid card can be treated as bank deposit, and the logic that this places it within the domain of banks, is unsupportable.

Section 2. looks at the differences between prepaid cards and Internet cash. It is argued that the structure of the two sectors is sufficiently different to demand treatment on their own merits. Firstly, the lower barriers to entry in Internet payment systems will encourage frequent entry and rapid innovation. Secondly, the lack of a definable chain of suppliers, incumbents, and users will result in a sector that defies attempts to categorise and describe.

Regardless of the validity or otherwise of the report, and indeed, the arguments presented here, the context of the times and the place will have an important bearing upon outcomes. In order to reach a common understanding of todays central banking environment, Section 3. attempts to document the important contextual influences on electronic cash.

With a context in place, and a better understanding of the limitations of the report and the new medium, it is then possible to draw some conclusions about what is plausible, what is recommended, and what is likely. Section 4. attempts this, by predicting likely dangers and results in the event of an attempt by the EMI to tightly constrain Internet cash to the banking sector. We also consider a middle ground: companies that operate payment systems should be single purpose, openly audited, and should deposit funds with formal banking institutions. Rather than control, central banks should seek dialogue and should signal willingness to work with entrepreneurs.

1. The Logic of the 1994 Report

What the Report Proposes

The 1994 report states in paragraph 52 that "the most important conclusion ... concerns the need to restrict issuance of electronic purses to credit institutions," although an interesting exception is noted [1.exception].

In order to assert the validity of the above it is necessary to ask how it was reached. The conclusion is fundamentally based on the logic of paragraph 31:

1. Monies received by an issuer for purpose of "charging" a card represent a *bank deposit*, in economic terms. As such it is a claim that the card holder has on a third party, that can be used to make (cash-less) payments to a wide range of merchants.
2. The regime applied to deposit taking should therefore also apply to the issuance of electronic purses. Being, specifically, banks, as designated takers of deposits from the public.
3. The reasons for a specific regime for deposit taking include protection of the consumer and protection of the monetary system. Therefore these reasons would also apply to newer forms of deposit such as electronic purses.

For the record, several other considerations enter into the 1994 report. These are noted in footnotes: [1.security], [1.monpol], [1.legaltender], [1.profits], but are not discussed further.

In analysing the conclusion, it is useful to next ask, "how did we arrive at this point?" By looking at the alternative classifications and their ramifications, it might be possible to divine where the EU payments committee derived their logic from, and where they were heading (with, of course, the benefit of 2 years of hindsight).

The Electronic Purse as a Bank Deposit

Does an electronic purse qualify as a bank deposit, as stated in para 31? The answer is a definite maybe.

It is clearly *possible* to model the plastic card as a banking deposit. Funds, real funds, are deposited in advance with a secure issuer. In all scenarios envisaged so far, either the value is treated as general deposited funds (and is thus a component of the reserve ratio equation of the risk analysis team) or, the funds are deposited with a defined bank escrow account in a one-to-one fashion. Hence, it possible to treat the funds as being represented by a ledger entry on the books of a regular authorised depository institution.

However, like all models, the interesting part is at the edges of the limitations, and with comparisons against other cohesive, but contradictory models.

Firstly, the description of electronic purses as a banking deposit might hold from an accounting point of view, but is less plausible from any other point of view:

- The customer sees something new - a hybrid between debit cards and cash, where the differences depend on how it is implemented.
- From a banking relationship viewpoint, an account is highly defined in terms of ownership, but electronic purses, less so.
- An electronic purse is more mobile than its depository brother. Whilst accounts are becoming more globally accessible, the marketing intentions of the issuers, and the expectations of the consumers, would appear to be pushing for multi-jurisdictional applicability. For example, across the entire US, and across all of Europe would appear to be a "reasonable minimum."
- A purse presents some novel computing and network systems demands, above and beyond the pure notion of remote access to accounts afforded by ATMs, for example. At least from this author’s perspective, an architecture that derived from a fundamental premise of a depository account would appear to present intractable difficulties when compared with the vision of the marketing teams.

Secondly, the characterisation can be contrasted with cash (notes and coins). Clearly, the marketing endeavours of the electronic purse issuers are pitching their product as a substitute for cash, not for deposit accounts, and just as clearly, they are making a fair stab at the comparison.

Thirdly, whilst cash may be presented publicly as "the competition" by the issuing companies, credit cards and debit cards are just as much of a competitive threat. Indeed, from competitive points of view, cards, cheques and cash of all forms are competing against each other, thus pushing the case to model the entire system of payments as competing media rather than one as an analogue of another.

Fourthly, attempting to define just what prepaid cards achieve and where they will lead to is convoluted: the technology itself is so flexible and so nascent as to make a mockery of any claim of the nature that "we understand this product." Arguments that rest on the capabilities of the technological solutions of existing systems will automatically ignore future innovations.

In summary, the electronic purse can qualify as a banking deposit, or not, depending on the viewpoint, and also the objectives, of the qualifier. To give weight to the qualification, the following sections analyse the alternatives to the banking deposit.

The Electronic Purse as Something Else

Cash. A general classification of electronic purses as a form of cash leads into a trap. If indeed, electronic purses are cash, then we must treat them as such. But the issuance of cash is a legal monopoly of the central banks, and this is evidently at odds with the commercial and practical nature of the new medium. Indeed, the report recognises this explicitly in stating that "no EU central bank envisages issuing prepaid cards for the moment" [paragraph 10].

Hence, it is beholden upon the central banking fraternity to describe electronic purses as something other than cash.

Debit Cards. Classifying electronic purses as debit cards is possible. However, this classification relies on the existence of the banking account as the primary point of interest, and the card as being a mere extension of the account. This limitation would eliminate the possibilities of one-off or impulse cards, and of transferability of the cards, both reasonable models of commercial activity.

Credit Cards. Similarly, classifications as credit cards raise difficult questions of the nature of lending. Credit institutions lend with credit cards, whereas consumers lend with prepaid cards.

It is likely that any other analogy would similarly be of limited value, as there are substantial differences between the new mechanisms, prepaid cards, and other payment systems. Indeed, even two years after the original report, it is not entirely clear where the new medium is taking us; it would at least be true to say that, from hindsight, we are not seeing an obvious classification of prepaid cards as deposits.

The Electronic Purse is a New Payment System

By comparing and contrasting prepaid cards to other forms of payment, and by failing to make the analogy stick, we are forced to reach some general conclusions:

- prepaid cards are a new form of payment medium
- they should be treated on their own individual merits, and
- analysis should not concentrate on technology or existing systems,

It is difficult to find strength in the assertation that the prepaid card should be treated as a bank deposit. Hence it is concluded that the 1994 report founders on its most important principle, and its most important conclusion is moot. This leads to a need to rethink the rational behind limiting prepaid cards to the banking world, although that is not the prime thrust of this critique.

Logic of Functionality *versus* Control

Having reached the point where the 1994 report is recognised as not logically founded, it is of some interest to wonder on what basis this state of affairs occurred. Assuming that a logic of functionality was applied to the issue of prepaid cards, we would have to classify the prepaid card as a new payment system.

Immediately we would be faced with the difficulty that the legal framework for payment systems is patchy at best within the European Union. Bundesbank Director said recently that

> the issuance of the new electronic payment methods is at the present time not subject to particular regulations and is, therefore, allowed both for banks and non-banks.

[1.meister2].

For example, in Britain, payment systems are more in the domain of the private sector, whilst in Italy, there is clear regulation placing payment systems firmly under state guidance [1.bluebook].

Hence, we would be left with recognising the functionality of the prepaid card, but with a confused or even relinquished control of its development and usage.

Alternatively, if there were a pressing need to not relinquish control of the development of prepaid cards, then some classification would be needed that enables and assists the visible hand of the central banks. The best option here would be the deposit account, as these are the primary instrument of banks, and the central banks' control of the banking sector is not seriously questioned.

The EMI and the EU do feel a need to contain most debate behind closed doors, so it is always difficult to ascertain what true developments are. However, snippets leak through. To support the viewpoint that the EU favour the application of a logic of control, and not of functionality, a member of the Directorate of the Bundesbank said recently:

> Consequently, the EU central banks have agreed as an initial step to ensure, above all, that this development is subject to control. In all EU countries, therefore, legal initiatives have been set in motion, as a result of which only credit institutions which are subject to banking supervision will be allowed in future to issue multi-purpose prepaid cards.

[1.hartmann],

2. Internet Cash takes on the Prepaid Card

The signalled intention of the EMI is to use and extend the report to cover the new forms of value that are arising on the Internet. There are some similarities between prepaid cards and Internet systems, so the 1994 report might be a plausible starting point:

- Both forms are very new.
- The retail sector appears to be the prime market.
- Electronic forms of value are used.
- Cryptography and networks are key to both forms.

It is the intention of this section to show that whilst on the surface there is a similarity, this is deceptive, and cannot be relied upon to form useful judgments of any form. To do this, we analyse the two payment systems broadly using the framework of Porter's five forces [2.5forces], although other approaches would

be equally valid. Especially, RBNZ reaches similar conclusions using an analysis of consumer characteristics [2.ledingham].

Note that it is specifically not our intention to comment on the merits of one product against the other, rather to show that these are very different sectors of the payment systems industry. We hope to reach a conclusion that it will be necessary to treat each on its own merits, and not that one or the other is commercially more viable, or deserves more support.

Threat of Entry

It has, until recently, been safe to say that new entry into the retail payments systems business was a remote possibility. Innovations such as cheques and credit cards have been so slow to arrive that most consumers will have trouble remembering their absence.

However, the pace is quickening, and this is nowhere more evident than on the Internet. If we look at the US, there are probably of the order of 100 different payment schemes, with a wide range of relationships to banks, from banks being actual operators to no particular relationship.

On the other hand, it is possible to count the plastic card trials on one hand, and every one is by a bank or bank-related organisation [2.plc].

These differences in apparent ease of entry can be explained by the following *barriers to entry*:

- Economies of scale. Variable costs are a lot lower with Internet cash, probably by an order of magnitude or more [2.variable], [2.yurman]. Also, prepaid schemes suffer from the need to attract sufficient merchants and consumers within a limited geographical area. In contrast, Internet schemes can attract merchants and users from all over the world. These two factors lead to much stronger economies of scale with prepaid cards, and consequently a much higher barrier to entry, and the likelihood that prepaid cards will be issued by large organisations with strong access to the retail sector (both customers and merchants).

- Capital requirements. The capital required to implement a prepaid card scheme would start at the order of US$10 million whereas the capital required to implement an Internet scheme is more like $100,000 [2.fixed].

- Access to distribution channels. Prepaid cards need a strong distribution channel, but Internet schemes get one for free.

- Government policy can have a strong effect on prepaid cards, whereas it is more limited in its efficacy towards the Internet.

Suppliers

With Prepaid cards, there exist relatively strong suppliers of technology. The equipment and knowledge required to develop the physical cards, the software and the readers is of a high level of sophistication, and in general, issuers would turn to specialists for it.

To some extent, a similar situation exist with Internet cash software, with these notable exceptions:

- only one "difficult" resource is required, being software, and
- that resource is normally a barrier, but not in this case: software is the currency of the Internet, and
- that currency is highly liquid: once written, a payment system can be copied and installed at negligible variable cost.

There is at least one free version of Internet cash systems that is accessible to enterprising individuals [2.free], and there are many open, published standards and cooperative ventures. To this author's knowledge, there is no such thing as an open standard for prepaid card.

The other major supplier to an Internet cash scheme would be the Internet Service Provider, but ISPs are not generally, in themselves, powerful determinants of strategy.

Buyers

On the "demand" side, we can draw the following comparison, albeit relying on some of the other distinctions mentioned: users of prepaid cards will represent existing customers of old institutions (banks) whilst users of Internet payment schemes will represent new customers for new startups. Hence, the difference is stressed between the existing strong and intricate distribution chains of the banking industry and the new, virtual distribution of the Internet available to any entrepreneur with a PC.

Substitute products

Both payment systems have their substitute products, but there are some distinctions: prepaid cards are threatened by cash, cheques, credit and debit cards, whilst Internet cash is threatened by extension of existing banking models of credit cards and of direct (telephone) banking (but not strongly by cheques or cash).

Industry Competition

For completeness, we need to look at Porter's fifth force, competition within the incumbents. However, neither prepaid cards nor Internet cash have yet reached the stage where competition within the industry is a strong factor. From this point of view, they are both in the early stages of trials, and the zero-sum battle for market share is many years away.

Industry Structure

Porter's five forces analysis is normally intended to determine the likely structure of an industry. Applying the above structural analysis to the prepaid card sector, we can now see that few suppliers and large capital costs will result in few competitors, and that these latter "incumbents" could be expected to use their combined user base as a further barrier to entry.

Therefore, the theory would predict that the prepaid card sector will be dominated by two or three large competitors in the long run, with an evolving intricate relationship to existing banks, regulators and countries, and with innovations slow to appear.

In contrast, the structure of the Internet payments sector will include a wide range of competitor sizes and types, with fast innovation and rapid change. This strongly competitive structure is likely to be maintained until significant barriers to entry can be identified and built [2.one_barrier].

Different Sectors of the Payment Systems Business

We concluded in the previous section that prepaid cards were a new sector in the overall payments systems business. Now, through the analysis above, we can conclude that the different natures of the prepaid cards and Internet electronic cash will result in very different structural features in the payment systems industry, and we must therefore treat them as sectors apart. The common usage of some technological elements and the common terminology is only indication of a superficial relationship.

Hence there is little scope for extending the 1994 report to apply to Internet cash. The key factors that will force a complete rethink of policy for this new form of money are these:

- Low barriers resulting in rapid and frequent entry.
- No control over distribution chain (users) and suppliers (software and ISPs).

Indeed, from the central banking point of view this represents a challenge. The 1994 report succeeded not on its merits, but because the structure of the industry permitted it. Only a handful of very large competitors existed, and these were both obvious and geographically defined, as well as being part of or related to the banking industry. The potential to control the makers of prepaid cards (suppliers) always existed. From these two points of control there was little difficulty in imposing the stated viewpoint on the incumbents, which allowed regulatory control to extend to the user base (buyers). Then with the entire distribution chain under control, it is possible to regulate away new entrants, and limit competition between the incumbents, as desired. Porter's 5 forces are emasculated, and as a result, there was little difficulty in accepting the analysis and required conclusion of the 1994 report.

In contrast, new regulatory policy aimed at Internet electronic cash will have to contend with a lack of a suitable, existing regulated incumbent, or a definable point of control. For example, there will be great difficulty in defining and controlling the suppliers. Actual incumbents will be many and various in structure, and will be highly adaptive to regulatory input, and Internet users are not amenable to regulation of any form.

3. The Context of Central Banking Today

It's easy to criticise the 1994 paper as inadequate for the job, but harder to understand the context of the times, and the direction that future statal activity should take. The world of central banking used to be a safe place, but the wolves are hungry. We can identify several of the hungry *canis lupus* by name, whilst attempting to relate them to the Internet cash debate:

Free Banking

The modern revival of Free Banking over the last 20 odd years has been sparked on the one hand by the proposal of Nobel Laureate F.A. Hayek that governments be removed completely from the business of issue of money [3.hayek], and on the other hand by Mises' advocacy of gold-standard free banking [3.mises]. Lawrence H. White built on their arguments with a seminal work [3.white] that documented the

historical case of Scotland, and presented a formal model that sought to explain the observed stability.

Initially just a historical curiosity, free banking appears on the verge of achieving respectability [3.selgin]. It has survived challenges to its validity as serious economics [3.challenge], and is seen by many closet economists, this author included, as a role model for a market economy. It is now receiving considered attention from the likes of Alan Greenspan, the Chairman of the US Federal Reserve Board, in his comments on the US experience with "free banking" [3.us_free_banking]:

> ... the earlier [US "free banking"] period affords certain insights on the way markets behaved when government rules were much less pervasive. These insights, I submit, should be considered very carefully as we endeavor to understand and engage the new private currency markets of the twenty-first century.

[3.greenspan].

Free banking has the potential to redefine the the central banks' roadmap, and it also lays the theoretical foundations for Internet cash. However, it will, of necessity, be completely ignored by the EMI.

The motive for this convenience, in the opinion of the author, lies in the European Monetary Union project. If free banking rocks the boat in the study of the historical rise of central banks, it threatens to turn the monetary merger into a Euro-Titanic. As this political project brooks no opposition to the all-pervasive Euro-think, there is little chance of any consideration of inconvenient theory in the relatively minor issue of Internet cash, where it might plausibly run counter to the Euro-party Line.

The New Money

On the street, or in the banks, what might be labeled as the practical side of free banking is getting underway. New systems of payment and settlement have arisen over the last 50 years, fuelled by regulatory arbitrage and better efficiencies; with credit cards and IOU money (checks or cheques) now well accepted, the consumer has a range of options. Alongside the new payment systems for consumers, new risk methods have arisen for corporates, led by the infamous derivatives. These developments promise improved efficiency to society, but also mean the end of the cosy relationship between banking and payment systems.

Financial intermediaries are no longer complacent: if innovation is the first name of the game [3.miller], then regulatory arbitrage is the second [3.goodhart].

Technology

Led by IT, technology has introduced a range of new techniques and cost savings, which have gone on to reduce costs and improve efficiency. What is less well understood is that as the efficiency gains feed in to the market, they effect the structure of the industry: markets, once considered natural monopolies, become subject to alternative competitive structures (witness NYSE versus the NASDAQ); more IT in payment systems leads to more availability, with offshore provision of finance effectively putting a lid on onshore profit making based on barriers to entry; and barriers themselves start to fall as innovations such as credit cards slide through the gaps.

Shrinking Countries, Disappearing Borders

International Competition is now well on its way. Led initially by the Euromarkets and Eurodeposits, it is now possible, and reasonable, for corporates to tap the financial institutions anywhere in the world. Consumers have been slow to follow, in part due to inefficiency in access, and in part due to barriers within their home countries.

Shrinking Banks, Disappearing Costs

Shrinkage in the Banking System: As markets become more efficient, the corporate sector relies more and more on direct raised capital, rather than bank-intermediated loans [3.internet_ipo]. This forces banks into more lending on property and new business, both inherently risky sectors, and both also suffering from increasing competition from the markets (developments such as NASDAQ and the securitization of loans). Indeed, it would be fair to say that banks no longer make their money in lending and deposits: other services are becoming important.

On the other side, as payment systems become more efficient, the cost of "going to market" shrinks, forcing banks to offer more attractive terms to encourage deposits. As banking deposits and cash deposits are already ruled by the cost of "going to bank", as described by the Baumol-Tobin model, the notion that market costs shrink to something like bank costs provides the theoretical answer to the success of NOW accounts [3.baumol-tobin].

This spells more trouble for those countries where the banking industry is not on a competitive footing, Germany foremost. As the innovation of Internet cash will be available from anywhere, and as it fundamentally rides in across the borders on the wave of lowered cost, it has the potential to take serious business from incumbents, where competitive pricing is not followed.

Putting restrictions on who can issue won’t help here, as different countries run to different cost structures. Maastricht foresaw the gradual arrival of European competitors forcing the incumbents into better shape - it didn’t foresee the ability of a foreigner to offer a better service without setting up even a local branch office.

No More Easy Monetary Policy

The general weakening of monetary policy, as new payment systems start to bite, and markets flex their muscles. Like strong medicine and fatal diseases, implementation of monetary policy requires stronger and stronger doses over time, and is causing more residual damage, resulting in more instability. The body that is the financial system is developing immunity to the drugs, causing the monetary tools to lose their efficacy.

Competition between States

Currency Competition puts new interests on the table. As currencies are now predominantly convertible, it becomes essential for the central bank to keep it strong. The dilemma is the requirement to keep the national debt financed: inflate it away and be penalised with high rates, or make the currency strong, pay low rates, and pay out the capital in real terms. The open currency markets teach a lesson known as "there’s no free lunch", unless it is the attraction of providing a stable international currency that earns

significant seignorage [3.england].

This competition, a new feature for central bankers, is seen by some as a form of free banking for states. The Federal Reserve Board of Cleveland [3.cleveland] argues that:

> with the advent of flexible exchange rates, Hayek's vision of competition among currencies that can effectively regulate the quantity of notes may become a reality. Privately issued monies may not be allowed to compete, but competition among different national currencies may serve the same purpose. Even without allowing private companies and banks to issue their own money, such competition can also work to keep government monetary authorities honest.

The European Project

Politics have played their part. In Europe especially, it is now a political goal to merge the currencies and the central banks. The arising popular doubts surrounding the project push central bankers into increasingly dogmatic behaviour. The European Monetary Union project plays an important role of invisible policy maker to the central banks, and the resulting somewhat opaque policies need to be contrasted against the uncertain, indefinable world of Internet cash.

4. Conclusions and Future Options

What the EMI is likely to do

We have argued that the 1994 report is neither valid in its own right, nor a useful basis for considering Internet electronic cash.

Notwithstanding this, the stated intention of the EU, and the predilection to application of a logic of control, will probably result in the EMI recommending in a new report that a similar approach be taken. Specifically, issue of electronic cash in its Internet form will be restricted in some sense to the banking industry.

This will be a mistake that is likely to have quite severe effects on the European financial scene that may not be immediately apparent. It is critically important for the EMI to treat the Internet cash debate more seriously for the following reasons:

- It's not just a matter of "shopping," it's about the entire distribution system. A walk through any major shopping centre is enlightening. How many of the retailers do not have a business case if it is more convenient for consumers to order the product through the Internet? [4.retail],

- It's not just a matter of consumer products. Internet transaction systems, in whatever guise, will progressively replace private systems for interbank dealing or settlement (such as SWIFT, BACS, TARGET, CREST). This is fundamentally due to Internet economies of scale (programming and networks), which lead to more rapid falls in cost and more advanced technology than private solutions can hope to promise [4.private], [4.rtgs].

- Europe is a long, long way behind the US in Internet schemes. We can count the number of competing European projects on one hand [4.reif]. But over the pond, it is impossible to count the ventures. As well as numbers, they also have one other significant advantage - they are up and working, with some (First Virtual, for example) having user bases in the 6 figure range.

  Can Europe catch up? It's not very likely. There is no case or possibility here for closed borders, and Internet time is measured in dog-years, roughly a seven to one ratio. So, we can guess that Europe, as a market, is at least 7 years behind in conventional terms. This means that before any European banks (not known for their speed) can deploy systems with strong user bases, the American incumbents will arrive and seek to lock up market share [4.offshore].

- The Empire Currency Effect. The systems that arrive from the US will have one thing in common: they will propose the US dollar as the currency of choice. This is not something that will happen deliberately, but as US systems colonise the fragmented European frontier states, they will offer the US dollar alongside local currencies.

  The offering of local currencies will be a sop to the marketing department of the respective issuers, but fairly soon customers will discover that the currency in common, across Europe and the Internet, is the US dollar. The US dollar already accounts for the larger part of the market, and the vast majority of systems are written with the dollar in mind [4.usdollar].

  This leads to the plausible danger of damaging the Euro. If, when the Euro arrives for consumer use in 2002, the dollar has established itself as *the* Internet currency, then the local unit will have trouble establishing itself. It is debatable whether disparity between local costs and dollar revenues would provide incentive to switch. This is especially unlikely with virtual products, those that are wholly delivered and consumed on the net [4.meister].

What the EMI should do

Based on the structural evidence in Section 2, there are strong grounds for concluding that there should be no restrictions on Internet electronic cash. Further factors that will undermine the intention of any restrictions in Internet cash are

- Empirical evidence in the US shows that the non-banks are doing better than the banks at this business.

- There are economic advantages in the electronic cash model over the account access model, which will work in favour of the non-bank. As the banks are tending to the account access model, there is an economic cost to be paid, firstly in the running of the account access systems, and secondly in the inevitable changeover to the more efficient cash systems [4.access_cost].

- The foreign non-banks will have no trouble operating offshore.

- There are practically no barriers to stop the local non-banks moving offshore, and indeed, it would arguably be advantageous in terms of overall costs.

In fact, the EMI should probably go further than allowing this sector to be unrestricted. Given the danger that colonisation represents to the Euro and the European financial industry, it may be time to start taking a more active role. Whilst this author would not recommend actual positive intervention, there is much the Institute can do to encourage the development of local solutions by signalling, perhaps in a detailed fashion, that this sector is open to European non-banks.

Leadership of this nature does not come cheaply; it must have been difficult for Alan Greenspan's to intimate that previous governmental initiatives have caused more costs than benefits:

> In the current period of change and market uncertainty, there may be a natural temptation for us--and a natural desire by some market participants--to have the government step in and resolve this uncertainty, either through standards, regulation, or other government policies. In the case of electronic money and banking, the lesson from the ACH is that consumers and merchants, not governments, will ultimately determine what new products are successful in the marketplace. Government action can retard progress, but almost certainly cannot ensure it.

[4.greenspan2].

There are some detail issues that can be readily addressed:

1. Open the process up to public debate, as it is in the US [4.us_debate]. The arguments are difficult to comprehend, due to the conjunction of cryptography, banking, economics, and networking. Few people have a grasp of all of these subjects, and it is unlikely that any government body could conclude anything useful without a wide-ranging and open investigative process.

2. Start out with an assertation that further regulation needs to be justified, in contrast to the accepted view that it is solely a case of deciding who should be regulated and by whom.

3. Start out with a broader mission to ask "what is to become of Europe's financial system under the advent of the Internet?"

4. Ask why European businesses are not attempting to start digital cash issuing? US companies are heading full speed ahead into the new digital financial systems, whilst European companies appear to be sitting back awaiting government clarification. Is this not a cause for concern?

The Likely Effect of Restrictions on Internet Cash

If, is as seems likely, the EMI seeks to extend the 1994 report to propose restricting Internet cash issuance to banks, then it will be useful to predict what the result of this might be. Understanding that it is always difficult to reliably predict the nature of financial innovation, we could anticipate the following:

- The Internet as a whole will condemn the report with its most severe judgment: it will be mostly ignored [4.damage].

- Some commercial entities within Europe will not enter into the payment systems business, and others will enter only cautiously. The remainder will restructure to avoid the restrictions and carry on with their non-bank activities.

- European banks will carry on with their slow-paced schemes to link existing systems to the Internet.

- US operations will take up the slack, and indeed will be pushed into Europe. On one hand, they will be encouraged by an open market with only limited indigenous competition. On the other hand, the restriction will be a signal to US operators that they must now consider the market to include Europe, as a mutual competitive response, rather than separating the world into areas of economic domination.

- Britain and Ireland will be the least effected, as both have, on the one hand, less highly regulated banking industries, and consequently, more innovative banks, and on the other, significant investment in financial services as major export industries. Whilst unlikely to state it publicly, the central banks are less likely to implement restrictions once the choices become clearer. These countries' banks will respond in time, and the non-banks will thrive by selling onto the Continent.

- Germany will be most effected, as its banking sector is highly regulated (and thus highly uncompetitive and unresponsive), and also highly integrated: not only monetary policy flows through banks, but also wages and industrial policy. This will result in a lot of cross border non-bank activity and much anguish on the part of the Bundesbank [4.law-free].

- The Euro will fail to make it as a consumer currency, as by the time it is ready, the Internet dollar and prepaid cards will have sufficient market share that the Euro will no longer be attractive. Its status will stall after being introduced as a markets and inter-bank currency, resulting in a similar status to the ECU today [4.on_cards].

This path will likely result in further weakening of Europe's competitive position in the area of financial services. If indeed payments systems migrate over time into what are currently known as settlement systems, and the economics of them are such that economies of scale in R&D apply, then Europe will find that the financial colonisation of the rest of the world by the US will not be to its best advantage. However, under the combined regimes of the World Trade Organisation, European open borders and open financial markets, it will be powerless to stop or even retard the process.

It should, however, be said that even if no restrictions were placed on issuance of Internet cash, Europes position and control of its own financial services is likely to be weakened, simply because of the lead that the US enjoys in this area. Further, coupled with the enormous restructuring of distribution chains presaged by the arrival of Internet commerce (especially in the banking sector) there are likely to be many ramifications into other policy areas: employment, competitiveness, social security.

The Middle Ground

Is there a middle ground? A compromise between the desire to control and the needs of Europe to tackle the arisal of Internet commerce in the most unrestricted environment?

The EMI needs to search for a way to allow free competition, but permit a dialogue with the issuers. Relying on banks to play a leading role in the industry is likely to result in too slow a response, and an ignored one at that.

So the interest is in encouraging private sector, as unregulated agents, to pursue the issue of Internet cash, whilst maintaining a dialogue with the centre. One way to do this would be to insist on issuers being a separate company, dedicated to the mission, but maintaining 100% reserves in a standard bank account, with a requirement for independently appointed auditors. This seems reasonable, in that this casts in stone the notion that the operation is a payment system, in contrast the the more complex world of banking [4.banking].

Whether this system is owned by a bank or not is not at issue. What is at issue is whether the "cash at bank" funds are managed with probity, whether issued Internet cash is reflected in an appropriate chain of user instructions and accounting records, and whether this process is transparent to an outside audit by the owners of the value, and seen to be so.

Effectively, the way to achieve this is to encourage the public to achieve it. There is little doubt that *netizens*, making up the body-Internet, have cast their lot in with the notion of *caveat emptor*. There is also little doubt on the subject of sufficient intelligence, cooperation, and willingness to take on the task. Indeed, the only area where tools are lacking is in widespread understanding of auditing procedures and clarity, and a corporate willingness to open up the books.

In the latter, central banks might help. Indeed, this would appear to be the strategy of the New Zealand central bank. It has taken its widely reported experiment in public monitoring [4.brash] and extended the result to the Internet with a specific document that signals that whilst the Reserve Bank is monitoring events, it views the development of Internet electronic cash as a matter for the market to decide:

> ... and we have been relaxed about the banks (*and others*) developing payment methods (e.g. cheques, traveller's cheques, debit cards and credit cards) which are close substitutes for the use of currency. Stored value cards and the like are simply another innovation in this context, and do not raise any new issues of principle.

[4.ledingham2]

Which suggests a reasonable policy approach in itself: treat the Internet as an experiment in new monetary methods, on the basis that it is small in overall effect, and will remain small for some time. From a policy point of view, the forces for more deregulation are gathering, so it would be reasonable to be open-minded and "experimental" with issues that are unlikely to effect the core role of central bank activity (stability of the money supply). In the meantime, the current tight regime could be maintained on other monetary areas, on the basis that useful experience can be extended there, and failed experiments can be addressed when the issues are better understood.

References

Ian Grigg can be reached at iang@systemics.com . He is a founder of Systemics, Ltd, a developer of Internet Financial Systems software. Back.

1.emi94 Report to the Council of the European Monetary Institute on Prepaid Cards by the Working Group on EU payment Systems, May 1994. Back.

1.term So-called prepaid cards are also known as smart cards or electronic purses, and fall under the general terms of digital or electronic cash (along with Internet cash and older "Electronic Data Interchange" systems). We will often use these terms interchangeably. Back.

1.oct3 FRANKFURT, Oct 3 (Reuter). Back.

1.meister Speech by Bundesbank Director Edgar Meister Cybermoney, Prepaid Cards and the Euro: Consequences for the Transport of Money and Valuables at the annual meeting of the Federal Association of German Money and Valuables Transport Companies on 28 November 1996 in Frankfurt. This presents much more detail on the Bundesbank position on Internet digital cash. Back.

1.exception [1.emi94], para 32 indicates that existing, local issuers may be permitted by the host central bank, provided that they are subject to banking regulations and supervision. Back.

1.security Security of technology. Clearly, an insecure technology raises a risk of loss to the consumer or issuer or the public purse. This is well covered in the excellent 1996 Bank of International Settlements Security of Electronic Money Report by the Committee on Payment and Settlement Systems and the Group of Computer Experts of the central banks of the Group of Ten countries, Basle August 1996. Back.

1.monpol Implications for Monetary Policy. As consumers shift to non-central bank issued funds and payment systems, there is less efficacy in the levers available to enforce monetary policy. However, this is not limited to electronic purses, and is likely to be minor in effect for some time to come. The prediction made by the 1994 report that monetary policy would only be effected within quite workable limits is still valid today, having been supported by, amongst others, by David Laster and John Wenninger Implications of Electronic Money for Monetary Policy, the Banking System, and Financial Markets, by Bert Ely Electronic Money and Monetary Policy: Separating Fact from Fiction and the author's own The Effect of Internet Value Transfer Systems on Monetary Policy, although the latter paper concentrated on Internet cash. Back.

1.legaltender Whether the new medium enjoys the status of *legal tender* is unclear. Indeed, it was somewhat premature to discuss the issue in 1994, as serious debate is only just starting. See, for example, Vartanian's statement before the Federal Deposit Insurance Corpotation. Back.

1.profits Central Banking Profits. Central banks earn significant revenues through seignorage, the interest benefit on the loan of funds represented by the money in circulation. These revenues will be eroded according to the public's preference for non-central bank issued cash. However, the report explicitly recognises that "maximising profit is not the objective of central banks and, therefore, they will not base their policies ... on their profit expectations." Back.

1.para10 Prepaid Cards, para 10 Back.

1.bluebook The Blue Book contains a description of payment systems in European Countries and the applicable legal frameworks; this documents how the legal framework for payments systems is not as harmonised as it is for deposit taking and other banking activities. Italy and Portugal both have full regulation of payment systems, and Austria has none, with the other countries ranged inbetween. *Payment Systems in the European Union*, European Monetary Institute, April 1996, Frankfurt am Main. Back

1.meister2 Edgar Meister, ob. cit. Back.

1.hartmann Stated by Mr W. Hartmann, member of the Directorate of the Deutsche Bundesbank in a lecture for the IBIT Forum in Basle on 11/6/1996. Back

2.5forces See any management or strategy text book, or see How competitive forces shape strategy by X. Wang, for a summary of Porter's original HBR article. Back.

2.ledingham As was concluded by the RBNZ in their paper on The Policy Implications of Electronic Payments presented by Peter Ledingham to the Consumer Payments Conference, Auckland, 20 May 1996. Back

2.plc It is also worth noting that, contrary to normal patterns seen in new industries (for example, as described by the Product Life Cycle theories of marketing), there has already been significant consolidation. Mondex, the technological leader, has transferred from its original bank developer, NatWest, to a consortium of banks, and on to a majority (51%) shareholding by a payment system operator, Mastercard. Back.

2.variable Anecdotal evidence from newsgroups suggest that one part-time employee supports the operational side of the Mark Twain Bank ecash system, as provided by DigiCash, a supplier based in Amsterdam.

Further, we can treat the communications costs as nil, as large sunk or fixed costs will be absorbed by the issuer in the course of doing business. It is, however, recognised that the distinction between variable costs and fixed costs is not rigourous here. Internet costing theory is a relatively ambiguous art. Back.

2.yurman Dan Yurman reports that a teller transaction costs $1.07, whilst an ATM one is $0.24, and an Internet transaction costs $0.03 - indicating a costs drop of an order of magnitude with each new technology. This does not, however, resolve how much a smart card transaction costs. *Internet Commerce: Emerging Business Models*, dyurman@world.std.com, December 11, 1996. Back.

2.fixed Again, Mark Twain Bank is instructive. The ecash "bank" is a standard personal computer running FreeBSD, a free variant of Unix, and with a RAID (redundant drive array). The probable capital value would be less than $20k. Implementation of the project for MTB was thought to be less than one man-year of technical installation and evaluation.

Another supplier, Digital Insight, charges an average on-line banking site an initial license fee of $25,000, although its $2 per-user per-month may have a lot to do with it (See BUSINESS WIRE of Nov. 7, 1996).

In both of these cases, off-the-shelf technology is assumed (the difference is equally dramatic otherwise). We would need to assume a hefty fee for staff training and procedural development, but we are still only talking of a team of, say, 5 or less.

In contrast, Mondex in the US is well into 7 figures:

> It has been publicly acknowledged only that the original capitalization of Mondex USA was 30 million British pounds, or about $50 million.
>
> That is likely to be a fraction of the marketing and development expenditures required to realize Mondex's vision of "global electronic cash."

American Banker: Thursday, December 5, 1996 "Wells, Chase Take Lead Stakes As Seven Invest in Mondex USA" Back.

2.free Admittedly, there is not a lot of competition in the free lunch department. For example, see NetCheque A number of Internet groups are known to be working on cash schemes for general release. Back.

2.barrier There is one identified barrier to entry: size of customer base. However, this is unlikely to prove sufficient unless coupled with other barriers. Free banking theory (introduced in Section 3) predicts in general that this barrier is not sufficient to move the structure of the industry towards some form of imperfect competition (e.g., oligopoly). Back.

3.hayek Friedrich A. von Hayek, *Denationalisation of Money: An Analysis of the Theory and Practice of Concurrent Currencies*, 2nd Ed. The Institute of Economic Affairs, 1978 Back.

3.mises Ludwig von Mises. Recommended free banking on a gold standard, but I am unsure of the book. Back.

3.white Lawrence H. White, *Free Banking in Britain*, 2nd Ed. The Institute of Economic Affairs, 1995. Back.

3.selgin George Selgin, *The Theory of Free Banking* Back.

3.challenge See for example, "Did central banks evolve naturally," in Kevin Dowd, *Laissez-faire Banking*, Routledge, 1993. Also, Bank Self-Regulation: Comment on Bordo and Schwartz by George Selgin, the Cato Journal, Vol. 14 No. 3. Indeed, one commentator, Antoine Clarke, said that the "theoretical case for free banking [has] been established almost 'ad nauseam'" in Currency Competition: Some Options Considered Back.

3.us_free_banking Historians make a distinction between free banking, and the period of US banking history of the same name. This is because, in contrast to the name, the US experience was characterised by a quite well defined and consistent regulatory model (especially, historians give much attention to the requirement that reserves be held in State bonds, leading to the weakening and eventual failures of many State systems). For this reason, the US period is conventionally quoted: "free banking." See for example, "US banking in the 'free banking' period," in Kevin Dowd, *Laissez-faire Banking*, Routledge, 1993. Back.

3.greenspan See Remarks by Chairman Alan Greenspan at the U.S. Treasury Conference on Electronic Money & Banking: The Role of Government, Washington DC, September 19, 1996. Last paragraph. Note that the US "free banking" period is normally seen as distinct from genuine free banking due to the important regulations that characterised the former (foremost amongst them was the widespread State regulation that reserves be kept in State bonds, which is credited with causing severe instability). Back.

3.miller Sadly for the banking sector, almost all of the innovations have come from outside the (regulated) banking world (for example, currency futures, euromarkets, stock options, program trading, credit cards, digital cash, secure payment systems, electronic markets, securitization). See Merton Miller, "Financial Innovation", Journal of Applied Corporate Finance, 1992. This indicates that the existence of barriers to entry inspires innovation on the outside, and me-too behaviour on the inside. Back.

3.goodhart Professor Charles Goodhart captured the process in the so-called *Goodhart's Law* that states that "attempts by [a central bank] to regulate or tax one channel of banking business quickly lead to the same business being conducted through a different channel which is untaxed or unregulated." David Begg, Stanley Fischer, Rudiger Dornbusch, Box 24-2 in *Economics* 3rd Ed, McGraw Hill 1991. (I don't have a reference to Goodhart's original work.) Back.

3.internet_ipo From standing start in February of this year, the Economist lists some 30 Initial Public Offerings (IPOs) heading for the Internet, with costs being decimated from $700k to $100k for a $5m offering. The Economist, "On-line Capitalism" 23rd November 1996. Back.

3.baumol-tobin The Baumol-Tobin model takes the cost of "going to bank" and the interest rate of funds left at the bank, and calculates the optimal position for the holder of cash. One interesting result of this formula is that consumer cash holdings are driven by the inefficiencies of "going to bank" and the bank deposit holdings are driven by the inefficiencies of "going to market."

The model is described in *Jeffrey D Sachs and Felipe Larraine B., "Money Demand", in* `Macro Economics in the Global Economy`*, 1995.* Also, the original papers are *W. Baumol, "The Transactions Demand for Cash: An Inventory Approach," Quarterly Journal of Economics, November 1952*, and *J. Tobin, "The Interest-Elasticity of the Transactions Demand for Cash," Review of Economics and Statistics, August 1956*. Back.

3.england See for example, Cyberbanking and Currency Competition, an address to the Cato Institute by Catherine England, George Mason University Back.

3.cleveland Governments and Money, essay appearing in the 1995 Annual Report of the Federal Reserve Bank of Cleveland, released 11 April 1996. Back.

4.retail The retail sector on the Internet is likely to evolve, for physical goods delivery, as a mail order operation, but without the hassles of accepting orders or of distributing catalogues. Back.

4.private It matters little whether such systems use the public Internet, or a private internet or intranet. Usage of the former may result in some reduction in security due to denial of service attacks and traffic analysis, but a properly designed payments system will be proof, at least in theory, from any external fraudulent attack. Payments systems that are known to be robust to the level of interbank payment requirements would include those of DigiCash or Systemics or CyberCash, all of which use strong cryptography (1024 public key and 128 secret key).

A private internet for banks is The Bankers Network. Bank of America have initiated an Internet-Based Financial EDI project. Back.

4.rtgs It should be understood that some of the systems that in operation on the Internet are realtime gross settlement (RTGS), whilst most of the conventional settlement systems are delayed (generally from 2 to 10 days). This alone leads to significant effects in cost, systemic risk, and operational reliability. Back.

4.reif Three DigiCash banks, Semper, GTE France, and SET trials makes for 4 or 6 trials, depending on how you count them. Private conversation with Holger.Reif@PrakInf.TU-Ilmenau.DE who recently surveyed some 70 schemes. His most favourable estimate was a 5 to 1 ratio against Europe. Back.

4.offshore There are already some moves afoot to access European customers solely via the Internet, if this author's conversations with some US providers are accurate. Back.

4.usdollar In conversations the author has had with European companies intent on issuing, they have vacilated themselves between their own local currency and the US dollar. So far, the US dollar appears to be winning on marketing grounds. Back.

4.meister3 See for example the comments of Edgar Meister, ob. cit, with respect to the card money threat to the Euro. Back.

4.access_cost This is a theoretical prediction backed up by limited anecdotal observations of the author. The difference is essentially the same as with RTGS and netting. The latter carries a penalty in its more complex overall systems, for a benefit of a simpler transaction system. Back.

4.greenspan2 About two thirds down in Remarks by Chairman Alan Greenspan, quoted above. He reaffirms this viewpoint in later Remarks by Chairman Alan Greenspan at the Conference on Privacy in the Information Age, Salt Lake City, Utah March 7, 1997, Third last paragraph. Back.

4.us_debate See, for example, the U.S. Treasury Conference on Electronic Money & Banking: The Role of Government, Washington DC, September 19, 1996 (Remarks by Chairman Alan Greenspan, also quoted above) and the Federal Deposit Insurance Corporation hearings of 12 September 1996 ([1.legaltender]). Back.

4.damage To paraphrase John Gilmore, the Internet tends to interpret regulation as damage and routes around it. Back.

4.law-free It could be argued that the German government recognises this danger, and is responding:

GERMAN GOVERNMENT PROPOSES INTERNET LAW Declaring that the Internet is not "a law-free zone," the German government has drafted legislation that would require companies offering transactions via the Internet to store on the minimum of user data necessary to complete the transaction. In addition, the law would require possible objectionable material (specifically, pornography or neo-Nazi propaganda) to be electronically tagged, and in an effort to discourage business fraud, Internet service providers would be able to electronically trace entities doing business online. The government hopes to enact the bill by next August. (Investor's Business Daily 12 Dec 96 A8, from Educom 12 Dec 1996) Back.

4.on_cards An interesting question is what currencies will be loaded on multi-currency cards? As all street purchases involve a large component of local costs, then local currencies will predominate. However, in multi-currency areas such as Italy, Switzerland and London, there will be a temptation to accept foreign cards directly, so a battle for the most widely accepted applicable currency will develop, leading to the de facto Euro arising in the process described by Greenspan, above. Back.

4.banking Banking, here, is taken to mean its more formal definition of firstly, public deposit taking, and secondly, fractional lending.

Although, to be fair, this avoids the current dilemma of the European central banks: is payment systems part of their role? Opinions differ, with, for example, Bank of England saying No, and Italy having a chartered role to manage the payment systems. Most others tend to say yes, but have no formal backing for that position [1.bluebook]. Back.

4.brash See, for example, A New Approach to Banking Supervision by Governor Don Brash, or many other references on the excellent home page of the RBNZ. Back.

4.ledingham2 Para 17, my italics added, of The Policy Implications of Electronic Payments quoted above. For their comment on disclosure, see para 25. Back

other references The Role of the Central Bank in the Growing Industry of Internet Payments by Mauro Cipparone MC5105@mclink.it OR http://www.geocities.com/WallStreet/2486

Remarks by Eugene A. Ludwig Comptroller of the Currency Before the Department of the Treasury Conference Toward Electronic Money & Banking The Role of Government

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Federal Reserve Board, Remarks by Governor Edward W. Kelley, Jr., at the CyberPayments ’96 Conference, Dallas, Texas, 18 June 1996.

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