Electronic Commerce and Electronic Money - Co-operative efforts undertaken at the Bank for International Settlements (BIS)

Heinrich, Gregor

Universität Hamburg - Fachbereich Informatik - Verteilte Systeme und Informationssysteme

8 June 1998

Electronic Commerce and Electronic Money - Co-operative efforts undertaken at the Bank for International Settlements (BIS)

By: Gregor C. Heinrich*

"The invention of the computer is the greatest contribution to the quality of human life since the development of language" [1]

"E-commerce is big, fast and growing, and those who do not get onboard will be left at the station" [2]

Introduction

Most people who speak on trends in electronic commerce will make predictions as to the overwhelming increase in internet usage over the last few years and the enormous potential market for buyers and vendors alike created by access to the internet. However, I have some doubts as to the validity of many such predictions, in particular since estimates on the dollar-volume of electronic commerce transactions in 2002 or 2003 (i.e. not even four years from now), may vary between 5-10 billion US-dollars[3] approximately 300 billion[4] US-dollars, to 1.2 trillion US-dollars[5].

Regardless of the real volume, the past and predicted increase in electronic commerce, and in particular its cross-border potential, raises questions of a technical, organisational, business and legal nature that were hitherto less prominent on the retail level. One of the challenges in electronic commerce is

---

* This text formed the basis for remarks made at the Conference on "Trends in Electronic Commerce" (TreEc 98), Hamburg, Germany, 8th June 1998. They reflect the views of the author and not necessarily those of the BIS.

1 Colin Tapper, *Computers and the Law*, London : Weidenfeld and Nicolson, 1973, p. xv.

2 Comment published in Priority One's on-line Newsletter "Electronic Payments" #35 (Akron, PA; May 14, 1998).

3 Estimate quoted in a French government report: "Commerce électronique: une nouvelle donne pour les consommateurs, les entreprises, les citoyens et les pouvoirs publics", rapport du groupe de travail présidé par M. Francis Lorentz, chapter 1.1.3.

4 International Data Corp, e-commerce forum, as quoted in as quoted in Priority One's Newsletter #35 (Akron, PA; May 14, 1998). Similar estimates are made by the WTO and the US-Government.

5 ActivMedia, "Real Numbers behind Net Profits", as quoted in Newsletter # 35, *supra, footnote 2.*

"electronic payment" for goods ordered through - and increasingly also delivered through - networks.

If we take for instance the information that is available on the web-site of the Bank for International Settlements (BIS). This information, in particular the publications of the BIS, is offered free of charge. If the Bank were to charge for it, we would be entering the realms of electronic commerce. In its full sense this means not only that information, documents or services are delivered to your PC but also that any remuneration for such delivery is effected via the computer, from the initiation of the payment order, all the way to the confirmation of such payment having been effected, including, of course inter-company and/or interbank settlement.

1) BIS as forum of cooperation among central banks

In this conference, we are analysing trends in electronic commerce. Technical development and the subsequent emergence of standards are certainly prerequisites for well-functioning electronic commerce. A second prerequisite, it is suggested,[6] should be secure and simple electronic payment systems that function globally.

I come from an institution whose name "Bank for International Settlements" may suggest that the BIS could be involved in or perhaps provide payment systems. However, the BIS, as an international organisation that is active in fostering co-operation among central banks, does not provide such a payment systems.

The BIS is actively involved in seeing to it that matters of common concern to central banks, including payment and settlement systems, are discussed at the BIS.

In this connection, the Committee on Payment and Settlement Systems (CPSS) is the most relevant committee meeting at the BIS. It was established in 1990, and it is one of the permanent G-10 central bank committees reporting to the G-10 Governors.[7]

---

6 For instance at the OECD Conference *"Dismantling the barriers to global electronic commerce",* (Turku, Finland, 19-21 November 1997), Session 9: "Establishing payment systems and easing logistical problems".

7 The mandate stipulates: "...it should serve as a forum for the monitoring and analysis of developments in domestic payment and clearing systems as well as in cross-border [...] netting schemes [..] and that it should provide means for the coordination of the oversight functions to be undertaken by G-10 central banks with respect to these [latter] schemes".

2) BIS and electronic commerce

There is currently no group at the BIS that is concerned with electronic commerce matters in general. Whether commerce is done in traditional ways or entirely via on-line communication channels does not appear to be a prime concern for central banks.
But at given points in time, profits generated in electronic commerce will need to be "materialised"; and this will at some point involve transformation into legal tender or bank money (credit to a bank account).

Common concerns for the safety and integrity of payments and payment and settlement systems exist regardless of the character of any underlying transaction. Therefore, the work done at the BIS, and mainly by the CPSS, in respect to payments and settlements, mainly can be of interest also to those who are involved in electronic commerce.

BIS and payment systems

Central banks are above all concerned about *systemic issues and risks*, like risks inherent in *wholesale* payment systems that could have an adverse effect on financial stability and the banking system as a whole.

On the other hand, "electronic commerce", at it appears to be developing now, is rather a part of the *retail payment* and *micro payment* business. At the BIS, central banks have recently also looked into some aspects of retail payments and the related payment systems.

Of the many publications, the work undertaken in connection with electronic money is probably of particular interest to entities involved in payment systems and electronic commerce:

BIS study of electronic money

Central banks have recently also looked at various aspects of electronic money. One of the reasons is certainly that catchwords such as electronic money, cybercash, electronic commerce etc. began to fill the newspapers and the imminent end of cash as a means of payment was being propagated.

Why is this topic relevant?

Central banks show an interest in e-money, cybercash and e-purses because these new developments may have a bearing on some of the functions of central banks.

Central bank lawyers, involved in areas such as payment system oversight, banking supervision, perhaps even consumer protection or fraud prevention, are requested to offer some guidance to policy-makers (both within and outside our institutions).

In November 1995, the G-10 central bank Governors therefore commissioned a study of the monetary policy and seignorage implications of the development of electronic money, the security aspects of the schemes, the challenges they could pose to law enforcement, the legal and contractual framework for the development of the new services, and issues relating to the different potential categories of providers of such new products. The G-10 central bank governors therefore requested the BIS, and in particular the CPSS, to consider the recent development of electronic money products and their potential impact on policy issues in a systematic way.

A number of issues of interest emerged from this stock-taking exercise:

(i) It was important to distinguish the various forms of e-money and to **define the categories**.

The term "electronic money" is used to cover a number of new or proposed payment products generally designed for retail use, including both card-based products (so-called "electronic purses" or multipurpose prepaid cards) and computer-network or software-based schemes (in particular, various proposals to offer non-standard payment services on computer networks such as the Internet).
It is important to distinguish such products from concepts such as "electronic banking" which most often only refer to new methods of access to traditional bank accounts.

(ii) Various specialised working groups looked at **issues** related to, for instance:

- technical security (chip, encryption, etc.)

- monetary policy and seignorage income[8]
- law enforcement/money laundering
- legal and regulatory issues[9]

Raising awareness: The BIS' publications[10]

(i) In August 1996, the CPSS and the G-10 Group of Computer Experts jointly published a report on "*Security of Electronic Money*" with the expectation that the information it contains on the range of security measures that can be taken to protect electronic money products will improve the public discussion of these topics.

(ii) Drawing on the work done mainly by the CPSS, the BIS also published in October 1996 a staff paper "*Implications for Central Banks of the Development of Electronic Money*", which summarises many of the key issues related to the issuance and use of electronic money products.

With the publications of the CPSS and the Group of Computer experts, central bank governors pursued mainly two interests:

- to raise awareness in the markets, both consumers as well as product providers, on security aspects of e-money technology, and
- to raise the attention of the public in general those issues related to e-money that are of importance to central banks.

Impact of publications: Current position

(i) The monitoring has now been implemented. The BIS, through the CPSS and in cooperation with roughly 70 central banks is monitoring closely the developments with regard to card and software based systems, and with regard to policy approaches.

---

8 For instance, it is argued that if e-money is to replace physical cash, and e-money issuers will benefit from the "float", then those who benefited from the float on physical cash before may lose out. This is precisely the concern that some central banks had voiced with regard to their "seignorage" income. "Seignorage" is understood to be the "income" a central bank (and thus the government) receives as a result of its monopoly on issuing banknotes, i.e. the respective country's non-interest-bearing debt.

Another concern relates to the question whether central banks can still make use of their traditional tools to preserve monetary stability if cash is replaces by electronic money, and, yet another concern, is the potential misuse of electronic money products for criminal purposes, including money laundering.

9 For instance the question whether the issuance of e-money should be limited to "banks" or "credit institutions".

10 All available at http://www.bis.org [section: "publications"].

(ii) The work by the BIS has influenced several other groups, for instance:[11]

- G-10 Deputies'[12] Report on *Electronic Money - Consumer protection, law enforcement, supervisory and cross border issues* (April 1997);[13]
- Financial Action Task Force (FATF) report on typologies;
- The creation, by the bank supervisors in the Basel Committee, of a working group on electronic money;
- European Monetary Institute (EMI) *Report on Prepaid Cards* (1994);[14]
- World Trade Trade Organisation (WTO), Special Study, "Electronic commerce and the WTO" (1998)

(iii) The current position can be summarised in that the BIS (G-10 central banks) has alerted the participants to the risk inherent in e-money (and thus, indirectly, also in electronic commerce), but it will not make a formal statement and thus not interfere - as a group - in this innovative process.

3) Year 2000

Electronic commerce and the related payments infrastructure depends on a well-functioning technology. The trust in the integrity of the financial system and its payment infrastructure cannot be separated from the impact that technology - and possibly technology failures - may have.

I would therefore like to add a few remarks on the involvement of the BIS in the "Year 2000" discussion.

---

11 Co-operative efforts on specific topics of relevance for electronic commerce is undertaken at several other international organisations. For instance, the OECD in Paris is concerned with policy issues related to, for instance, taxation and, encryption; the United Nations Commission on International Trade Law (UNCITRAL) in Vienna has elaborated a Model Law on Electronic Commerce and is currently working on Model Rules for Electronic Signatures; the European Commission has very recently (May 1998) published a proposal for a Directive establishing the legal framework for the use of electronic signatures.

For an overview, see Heinrich, "International Initiatives towards legal harmonisation in the field of Funds transfers, payments and payment systems - Annotated Bibliography", in: *Grenzüberschreitender Zahlungsverkehr im Zahlungsverkehr im Europäischen Binnenmarkt / Transboundary Payment Transactions in the European Single Market / Transactions financières transfrontalières dans le Marché unique européen* (ed. by W. Hadding/-U.H. Schneider), Bonn : Bundesanzeiger, 1997, p. 193-247.

12 Deputy ministers of finance and deputy governors of central banks. The Secretariat is hosted by the BIS.

13 The Report recommended that consumers, providers and authorities give consideration to potentially important aspects, **without implying any particular policy approach**, to *Transparency, Financial integrity, Technical security and Vulnerability to criminal activity.*

14 "Report to the Council of the European Monetary Institute on Prepaid Cards", by the Working Group on EU Payment Systems, May 1994. The most relevant conclusion of the Report is probably that "only credit institutions should be allowed to issue electronic purses". A revised version of the report may be published in 1998, incorporating also developments on "network money", and work undertaken at the European Commission.

In April this year, a Round Table on the Year 2000 was held at the Bank for International Settlements (BIS). It was sponsored by the Basel Committee on Banking Supervision (BCBS), the Committee on Payment and Settlement Systems (CPSS), the International Association of Insurance Supervisors (IAIS), and the International Organization of Securities Commissions (IOSCO). As a result of the Round Table, the committees sponsoring the event agreed to establish a Joint Year 2000 Council. It is chaired by Mr. Ernest Patrikis, First Vice President, Federal Reserve Bank of New York, and its secretariat is provided by the BIS.

The Council has agreed on a range of initiatives to ensure a high level of attention on the Year 2000 computer challenge within the global financial supervisory community, to share information on regulatory and supervisory strategies and approaches, to discuss possible contingency measures, and to serve as a point of contact with national and international private-sector initiatives.

At their meeting in London in early May, the G-7 finance ministers called on the Council and its sponsoring committees to monitor the Year 2000-related work in the financial industry worldwide and to take all possible steps to encourage readiness.

Conclusion: The BIS as a setter of standards?

This conference is dedicated to "trends in electronic commerce". At the moment, there are indeed several trends that can be observed, and it is probably premature to predict which technical infrastructure and which payment mechanism will become a standard in the future. From policymakers and the industry it is often heard that either obstacles associated with standards, testing and certification should be identified and removed, but also, that policymakers should offer clear guidance so that investments are not made in the wrong direction

However, the BIS' role in respect of standards, testing and certification related to electronic commerce is limited. As I have mentioned before, the BIS has no legislative power, and is in general more concerned with financial stability issues. Thefore, specialized Comittees, like the CPSS, normally merely observe and analyse the technical issues of electronic commerce or the innovations related to electronic money, while a slightly more visible effort of raising awareness is currently being undertaken with regard to the Year 2000 issues.

Still, there may nevertheless be point a common interest for the central banking community and participants in electronic commerce: Just as in central banking, the element of trust is of essence in electronic commerce and electronic money. Electronic commerce can only work efficiently if the participants trust in the technical and financial integrity of the arrangements in place, and this concerns both the private (i.e. commercial and contractual) relationships as well as the public framework.