Spreading Use of Digital Cash

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INTRODUCTION

Approximately 10 years have passed since the words such as *digital cash, digital money, electronic money*, and *e-cash* have been introduced. Progress has increased rapidly in the fields of communication and information technology (IT) and in the field of digital cash; its use and transaction volume have been increasing. However, little analysis has been done about this phenomenon especially from the academic field. The continued increase in its use is inevitable, and it is important to investigate its influence and problems from both practical and theoretical perspectives. The spread of the use of digital cash impacts economic activity and social structure. This article considers both the merits and the problems of digital cash in the modern economy.

This article analyzes characteristics of relationships between digital money, financial institutions, and financial authorities; considers the relation between digital cash and financial institutions; and analyzes the relation between digital cash and monetary policy authorities.

BACKGROUND

Digital cash may be classified into electronic wallet and online types (Kurihara, 2000). IC-card type digital cash has value in itself; the network type is maintained on the personal computer or the host computer. Both types of digital cash have appeared recently. The distinction between the two types has begun to disappear; Internet cash is one example.

This classification permits an examination of cost reduction and price cutting from the demand factor of the former for the reason of the cause to which digital cash spread, a technology of IC card reformation and price cutting from the supply side (U.S. Department of Commerce, 1998). The availability of the personal computer and the Internet have also prevailed, as well as Internet commercial dealings from the demand factor as an online-type personal development factor. The ongoing reduction of equipment costs (typically in computers) has helped to promote online transactions from the supply side. Electronic commerce all over the world has increased greatly. Moreover, it seems that the spread of mobile telecommunications (e.g., cellular phones) has contributed to the development of digital cash. In the near future, television or mobile phones will be used to complete financial transactions (Hammersley, 2004).

The difference between closed-loop and open-loop transactions is important. In closed-loop transactions, the transfer of the value is the same as with digital cash. For instance, when the user who receives the issue from the issue subject (typically a bank) and digital cash is allotted to pay for the commodity or service, the seller (typically, a retailer or service provider) completes the transaction for the transfer of value. Value cannot be moved among users in the closed loop, which is used in both IC-card and network digital cash transactions.

On the other hand, digital cash issued once can be used for other transactions, even if the value does not return to the issuer in the open loop. Rolling liquidity exists there. The IC-card type of the closed loop is most common in the early 21st century.

Although credit cards, checks, and debit cards have become remarkably widespread for making small payments electronically, the difference between them and digital cash is important. These transaction types should not be classified as digital cash. Considering monetary policy, the distinction from digital cash is very important.

Digital cash builds information on "near cash or itself" into the card, the network, and transactions. To qualify as digital cash, five characteristics must be present: a settlement, generality (use for any purpose), the transfer of funds, circulation (i.e., free availability), and anonymity. More concretely, digital cash is a legal currency and is legal as deposit currency. Time deposits, certificates of deposit (CD), trust money, and so on must not be included as digital cash. Debit, prepaid, and credit cards and checks do not comply with to the forgoing definition and are different from digital cash in spite of being traded in electronic form.

Although the generality of digital cash is much greater than that of prepaid cards (e.g., phone cards), it is inferior to usual money, and the transfer does not exist in the closed loop compared with current cash, either. Circulation is also low, and it is doubtful whether anonymity exists with deposit currency. Moreover, digital cash does not have the same legal status as cash. However, the examples of our statement comply with the above definition and should be classified as digital cash.

THE ADVANTAGES AND PROBLEMS OF DIGITAL CASH

Advantages

Both types of digital cash reduce cost, time, and human error. These advantages accrue both to the user and the donor of the digital cash (Davis, 2002).

With IC transactions, people do not have to carry about small change and have the advantage of high privacy buying. In network-type transactions, the buyer does not have to be present at the seller's establishment to conduct business. Furthermore, security against theft or loss is high. Even small retailers or sellers can reduce handling costs and increase business opportunities. International transactions benefit in particular (Davis, 2003).

Problems

On the other hand, there are some problems in spite of having a lot of merit, with the digital cash.

Who Pays the Cost of Digital Cash?

The cost of creating digital cash is high. The technology to manufacture cards and provide infrastructure against commitment is expensive.

How are Users Protected?

This is a legal problem as well as an economic and technological problem. For instance, it is common all over the world to construe that illegal use is the user's own responsibility in the case of online transactions. In the United States, there is a rule by which the liability is limited to $50 after the consumer's loss is borne.

Problems of the Issuing Body

Emergencies on the part of the issuing body are cause for concern. For instance, the European Central Bank (ECB) assumes that the issue of digital cash is the same as the acceptance of deposits for those who issue it. The issuing body must (a) defend the settlement system, (b) protect the consumer, (c) support the execution of monetary policy, and (d) promote competition. Only financial institutions should be able to issue digital cash.

- **User Equity:** People who do not or cannot use equipment such as personal computers, for instance, are at a disadvantage relative to other consumers.
- **Questions and Standards of Taxation:** There is a possibility of avoiding taxes incurred by digital cash. The World Trade Organization (WTO) and the United States are not inclined to tax network trading. However, the stance varies worldwide.
- **Counterfeiting:** Dealing with the problem of counterfeiting with digital cash is not as easy as with the present currency. The IC type of digital money has high privacy, but it also has the disadvantage of being easy to lose and easy to steal. In addition, money laundering has been an issue. However, digital cash transactions are not large, especially for IC type (Berger, Hancock, & Marquardt, 1996). This problem may apply more to the network type with its larger average transactions.
- **Privacy:** It is difficult to solve the problem of privacy because of the consequences of interfering with the security of network-type transactions.

DIGITAL CASH AND FINANCIAL INSTITUTION MANAGEMENT

Many banks in developed countries have adopted several kinds of Internet banking services. The possibility of cost reduction of customer services, severe competition, and increases in the number of Internet users have contributed to the prevalence of Internet banking.

The spread of digital cash has upgraded consumer access to and satisfaction with transactions. First of all, consumers need not even go to a retail establishment or ATM. With digital cash, former restrictions such as the geographical location of a shop and business hours no longer hamper consumers' ability to obtain desired goods and services. Economies of scale benefit both sellers and buyers. Even if it costs more to introduce the system for financial institutions, the customer channel can be secured widely (Davidson, 1997). SET is one example.

Some big companies are announcing an interface standard to be used for bank services. The construction cost of the system is expected to decrease further as a result. Certainly, at least handling costs of money will decrease. Movement toward the standard is becoming active in the United States. There also is some possibility that some types of settlements, particularly those beyond the type generally handled by banks, will grow with the spread of digital cash. Another possibility is a decrease in the number of branches and bank clerks required by banking institutions. Cline (1998) noted that advantages accrue to banks with fewer branches (mega commercial banks and some trust banks). The spread of digital cash may further influence financial institution management by permitting decreases in commission fees if the net settle-