

# Internet Virtual Money Under Chinese payment Environment and It's efficiency analysis

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**Abstract.** The development of e-Commerce needs suitable online electronic-payment and settlement arrangement. In China, most online virtual commodity and service providers adopt a new payment and settlement solutions which is named "Webcoin" by this paper. In this paper we analyze the China's online and offline payment environment, explain the reason why the Webcoin come into being now, give the definition of the Webcoin, present the Webcoin's characteristics, and introduce the concept of payment friction coefficient to discuss the efficiency of the Webcoin as a payment instrument on virtual commodity and service.

## 1 Introduction

A new type of online payment mode have been adopted more and more by most online e-Commerce companies in China since 2002[1], such as "Q coin" adopted by Tencent Company, "U coin" adopted by Sina.com, and so on. In this paper we call all this kind of payment mode Webcoin. This mode is suitable to the payment and settlement environment in China now, and fits the characteristics of the online products especially the virtual commodity and service. Because of the use of Webcoin, the online companies in China succeeded in conquering the online flexible payment problem and make huge profits[2]. What's Webcoin? How can it make this achievement? Why does it emerge and grow up in China? This article analyses the present environment of the payment and settlement in China, explain the advantage of Webcoin to be online micro-payment for virtual properties, and through the analysis of the payment friction coefficient to show the importance of the Webcoin to the virtual commodity and service.

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Webcoin is not an electronic-payment products, it is a micro-payment mode that is used to charge intangible goods online in China's web companies. In China, there are many companies which had been issuing their own "coin" which circulated and was used for buying the product provided on their own websites, i.e. the "Q coin" issued by Tencent company(www.qq.com) which is a leading Internet company in China, the "Baidu coin" by Baidu company(www.baidu.com) which is a leading Internet search engine company in China, the "U coin" by Sina company(www.sina.com.cn) which is a primary Internet portal in China, the "santa point ticket" by Santa company(www.santa.com) which is a leading online game company in China, the "star coin" by Super Star Digital Library(www.ssreader.com) which is a leading online library in China. Customers buy the Internet company's "digital cash" through lower cost payment instruments or payment channels such as cash, bank card, telephone, and Internet bar. The amount of money that they pay for Webcoin is recorded in a particular virtual account set up by the company. When customer purchases something in the Internet company's web, the value of relative virtual account is deducted. For example, customers can get the "Q coin" in book store by cash, and then they can buy the virtual commodity and service provided by qq.com using this account.

## **2 The relationship between the virtual commodity and service and payment environment**

The virtual commodity and service is those low value intangible goods which is provide by Internet companies for online customers such as online games, the download of phone ring, the video and audio products online, the photos and pictures viewing, online books and magazines reading, online consultancy, web show like QQ show, web pets breeding, and so on. The main characteristic of those products is the low price, that is probably 0.01 cent or even lower, the second characteristic is the large number of the virtual commodity and services that can be shared by all users, the third one is the large number of potential customers whose age is young and their income is low, and the last one is that the value-add-in of those products is very large; it can bring large profits to those web companies. On the other hand, the virtual commodity and service is pure digital product, it can distribute to customers online, and the cost of transportation is very low. Under the effect of the network externality and the zero margin cost of those products, the market of the virtual commodity and service is very large [1].

The key role of the development of the virtual commodity and service is the payment and settlement arrangement. The potential huge number of customers, the lower price of the products and high frequency of the payments, all these need a low cost and efficient way for payment. But there are many payment barriers in online exchange in China, especially in virtual goods online, and the micro-payment also encounters the cost pitfall [5]. Therefore, it is very important to find a flexible and creative payment system that is suitable to the Chinese e-Commerce and electronic payment environment.

### 3 Background of payment environment in China

The payment environment in China now mainly serves for traditional economy [6]. The payment organization consists of central banks, commercial banks and other financial organizations which are engaged in clearing and settlement. The payment system consists of RTGS(Real Time Gross System) and DNS(Deferred Net System) which interconnect the banks and other payment and settlement organizations. The detail payment system consists of banks, post office and clearing house. The payment instruments include check, bill exchange, cashier's check and bank card. The payment and settlement environment is dominated by banks and is suitable to traditional economy, It does not support e-Commerce fully.

Although there were online payment and e-payment methods in China since 2000, most people still like to pay with cash that time. The willing of using bank card (debit card or credit card) is not strong, because the customers worried about that the information of their card exposed on the Internet [7]. Moreover, whenever the customer using bank card, the web companies also were dependent on banks to deal with customer's account and settlement, for the regular payment way using bank card is through the gateway of banks. The additional major problem is that most potential customers who are middle school students and have not bank cards for themselves [8].

In general, the main problems for the online payment in China are as follows:

- The period of payment and settlement is too long for customers to pay their online services.
- The fee charged to customer or to web companies is high. So it is not suitable to micro-payment.
- The payment method is not designed for online payment, and there are many trade arguments.
- Lack of standard of charge fee, lack of unified online payment and settlement standard, and lack of online payment organizer and arbitrator.

As known to all, people can not see each other on Internet, they don't want go to bank for just a micro-payment as well, so the paper bills or checks which were treated on the bank's counter is no longer in effect yet, even cash. The fund transfer which is depend on bank's account is also unavailable because of expensive fee compared the price of virtual good and service, for example the fund transfer fee is at least more than 1 yuan RMB for each deal. Even using card also brings expenditure such as communication fee, handling fee and commission charge. Generally the efficiency and cost of payment structure now in China is not suitable for online payment, especially for online virtually goods. So the web companies have to explore creative ways for online payment.

To overcome these payment problems, Internet companies took a series alternative way in the early stage, such as:

- Free policy, to allure customer, waiting proper time to charge.
- Charge by year or month, or charge for membership.
- Through telecommunication Companies such as China Mobile to charge customers, then web company settlements with Telecommunication Company at schedule time.
- through the third party institute such as payment website like alipay.com or

network banks. The main payment instrument is bank cards in China.

The first method adopted is not the market solution, after all no company can develop well without having steady and continuous profit or revenue. The market practice also proved this is not a long term solution. If people are used to have these services for free, it is very difficult to charge them later. The change of consume habit can not be in effect in short time and may make company in trouble. The second way is in effect for the customers who favor the company very much and faithful to it. However, the way is lack of flexibility, and is not good for marketing. It can not subtract the vast potential customers and lose them at last. Furthermore, the most of the potential customers of the virtual good provider online are students and young people whose income is lower than \$200, so the second way is not good for enlarge the market share. The third and fourth way mention above increase the business procedures, the Telecommunication Company will get their own profit from the sum of money which paid by customer, even majority of the amount (i.e. 60%). Therefore, the cost of the last two ways is so high that limit the fast pace grown of web company.

#### **4 Webcoin and it's characteristics**

The Webcoin emerged in 2002 from Tencent Company in China can overcome and reduce these payment barriers. It is a prepaid payment mechanism. It presents the amount of money that customer have paid to web companies for future purchases. The Webcoin is not a real coin or money of the real world, it is just a number in the Internet company's account and represents the customer's right to purchase commodity or service online. In fact, it is similar to the telephone card.

People can get the Webcoin through several channels online or offline such as bookstore or Internet bar by cash, or network bank by bank card. While people buy the Webcoin, the money is transfer from customer to web company, then the customer gets the right to consume the products that the company provide, and the company guarantees the customer's right and their money security. If customer buys something on the web, the number in the virtual account is deducted. When the number is zero or lower than the product's price, customer is noticed to buy Webcoins to refill the account. Different companies have their own Webcoin and give them different names, in this paper we call all of them Webcoin.

The advantage of using Webcoin in virtual commodity and service on line is make use of the financial facilities such as bank card, bank account, telephone bank, network bank, as well paper currency. It can be sold by store, booth, gas station or Internet website. It not only fits into the environment of payment in China, but also the consumer habits in China. It seems simple and easy, but it avoids the kind of limits to high payment cost and other problems mention above. It is a suitable payment mode in the payment environment in China. Besides, as for the Webcoin is stored in computer, it is easy to put into use for many purposes such as marketing statistics and product price marks[10].

Due to the role of payment instrument in the virtual world and the function of price mark of intangible goods, i.e. a T shirt in the "QQ show" of QQ.com website is marked 1.5 "Q coin", it is paid by Webcoin also, some experts in China think that

the Webcoin will act as the currency in the virtual world. Furthermore, considering the potential huge market of the intangible market, these experts also think the Webcoin will bring an impact on fiat paper currency and lead to inflation in the real world.[11] Through the analysis above, we think the Webcoin is a warrantee just like a receipt or voucher after customer had bought something, it's not the real money, it can not buy anything except the virtual goods provided by this web company who has issued the Webcoin in its own website. In the other hand, the Webcoin can not be exchanged back to paper currency. So, we do not think that the Webcoin is fiat money, it can not influent the issuing amount of real world currency, it cannot lead to inflation as well.

The Webcoin payment mode promotes the web company fast grown. For example, the register user of QQ.com which is the first web company to use Webcoin is over 570 million by the end of 3<sup>rd</sup> quarter of 2006[2]. The revenue from the Internet service-add-in paid by Webcoin is reach 0.49b Yuan RMB in the 3<sup>rd</sup> quarter of 2006, increase by 139 % comparing with last year. The rest web companies include Baidu.com, 163.com, Shenda.com, Sina.com.cn, Sohu.com, Wangfangdata.com, Ssreader.com, and so on, all adopt or plan to adopt the Webcoin payment mode. The table below figures out the part of web companies which had their own Webcoin solutions.

**Table 1. Part of web company's Webcoin solutions**

website	Webcoin name	Price (RMB)
QQ.com	Q coin	1Q coin/1 yuan
Sdo.com	Sanda point ticket	0.5 -2point /1 yuan
Baidu.com	Baidu coin	1 Baidu coin/1 yuan
Sohu.com	Hu coin	1 Hu coin /1 yuan
Sina.com.cn	U coin	1 U coin /1 yuan, by bank card 3 U coin/6 yuan, by phone
163.com	POPO coin	10 POPO coin /1 yuan
Kingsoft.com	K coin	100 K coin /1 yuan
Ssreader.com	Star coin	1 Star coin/1 yuan

## 5 Webcoin's efficiency analysis

Webcoin raised the payment efficiency and reduced the payment cost remarkably. Suppose there are three participants in the web market, the customer, the web company, and the agency which provide payment service. First of all, we define the payment friction coefficient simply like this:

$$\text{Payment friction coefficient} = \text{cost of payment} / \text{total revenue} * 100\%$$

Obviously, Payment friction coefficient presents the influent of payment environment on web trade. If the coefficient is big, the efficiency is low, vice versa.

The payment mode on the web in China in the early stage is shown in Fig.1. The agency for payment is telecommunication companies such as China Mobile. The procedure is as below:

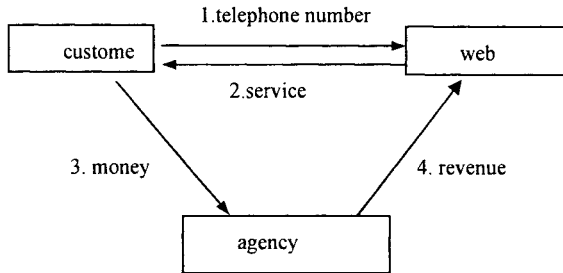


Figure.1. payment mode early stage in China

The procedure is like this: customers give their mobile phone numbers to a web service company which then transfer user's information to a agency company (such as a telecommunication company), the latter checks this number and verifies whether the customer can pay the service from the users account through the agency, if the check is through, the amount of money will be deducted by the agency from the user's account. Finally, the agency settlement with web company in agency. In this circle, the agency will keep 40% to 60% from the total amount received from customers. The payment friction coefficient is about 50%. Hence, the efficiency of payment at early stage is low. For example, if Customer buys 3 "U Coin" through telephone, he pays 6 yuan RMB. The agent company gives the web company 3 yuan RMB also, (Fig.1).

If the web company adopt Webcoin mode, suppose there is an agency company to deal with the Webcoin card sales, the procedure circle will be changed like Fig.2. The difference with the Fig.1 is that agency sale Webcoin card to customer, and then customer opens or refuels an account which is kept in the web company. Now customer can consume by their Webcoin. Because of the Webcoin card is issued by the web company, so the discount is range of 10% to 15%. Therefore, the payment friction is less than 15%, it means that payment mode in Fig.2 is more efficient than that in Fig.1. The Tencent Company's QQ card carries out like the way of fig.2.

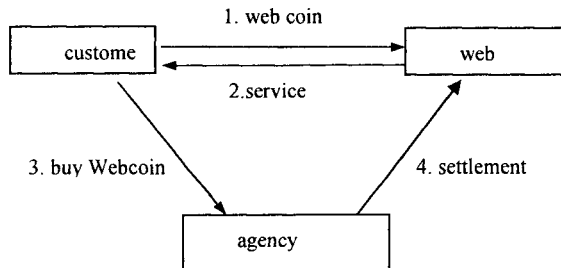


Figure.2. Webcoin payment model with agency

Moreover, if the web company sales Webcoin by oneself, the payment friction coefficient can be reduced to a very low level. The Tencent Company's Esale is the way like this. The procedure circle can be shown in Fig.3 as below:

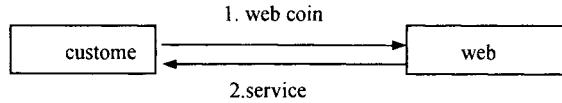


Figure.3. Webcoin payment model without agency

From the analysis above, we can find the Webcoin mechanism can reduce the payment friction coefficient, and raise the payment efficiency remarkably.

## 6 Conclusions

Payment model should be matched the payment environment and the demand of the market, or there will be payment friction between them. The main function of the Webcoin which is a micro-payment mechanism, a prepaid payment mode, a customer's right to get correspond amount of virtual commodity or service, is introduce in to reduce the friction between the Internet service providers and the particular payment environment in China, where the payment situation now does exist much friction. Webcoin is also can be thought to be a number in the virtual account, it is easy to put into use for many purposes such as marketing statistics and product price marks. But it's not real money and no any impact on real world monetary so far.

Considering the potential huge market of the online virtual commodity and service, it is very important to research and find better ways to pay. The practice of the Webcoin in China is proved that the Webcoin is suitable to China's payment environment, which promotes the web companies fast grown. Therefore, it is very important to research and make use better of this payment mode in China.

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