

PAYMENT SYSTEMS IN CHINA

July 2002

China

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List of abbreviations

ATM	Automated Teller Machine
CCPC	City Clearing Processing Center
CDC	Central Government Bonds Depository and Clearing Corporations Limited
CNAPS	China National Advanced Payment System
CSRC	China Securities Regulatory Commission
DVP	Delivery versus Payment
LCH	Local Clearing House
EIS	Electronic Interbank System
MOF	Ministry of Finance
NII	National Interbank Institution
NIS	National Interbank System
OTC	Over-the-Counter
PBC	People's Bank of China
SD&C	China Securities Depository and Clearing Corporations Limited
STP	Straight-Through Processing
SWIFT	Society for Worldwide Interbank Financial Telecommunication

Introduction

In order to meet objective requirements of China economic and financial developments, the People's Bank of China (PBC) has been ameliorating different payment methods, perfecting relevant payment regulations and standardizing non-cash payment instruments among which bills are principal part. The PBC has also been actively promoting the development of electronic payments and standardizing local clearing houses, to support the developments of China's securities market and FX market.

China's securities market has made major progress in the past few years. By strengthening relevant regulations and rules, China has been continuously standardizing the trading behavior of participants in the securities market and improving the financing channel of security companies. China has allowed all qualified security companies and fund management companies to participate in the national interbank market, in order to combine the capital market and the money market step by step.

1. Institutional aspects

1.1 Legal and regulatory framework

The *Law of the People's Republic of China on the People's Bank of China*, promulgated in year 1995, stipulates that PBC's responsibilities in payment systems are to "maintain the smooth operation of payment and settlement systems". According to the law, the PBC is responsible for formulating regulations related to payment clearing and settlement, as well as for providing interbank settlement services. The *Law of the People's Republic of China on Commercial Banks*, issued in the same year, requires commercial banks to provide payment and settlement services for their customers on a timely basis, and to be subject to supervision and regulation from the PBC.

The *Securities Law of the People's Republic of China*, published in year 1998, lays down some detailed requirements concerning security issue, trading behavior and protection for investor's interests. It also clarifies the rights and obligations of stock exchanges, security companies and securities registration and settlement institutions, and so on.

1.1.1 Payment instruments and systems

The *Bills Law of the People's Republic of China*, promulgated in year 1995, regulates the issue, endorsement, acceptance, guaranty, payment and right of recourse concerning bill of exchange, promissory note and cheque. It also defines the rights, obligations and legal responsibilities of different parties involved in bill transactions.

The *Regulations of the People's Republic of China Governing the Renminbi*, published in year 2000, regulates the design, printing, issuance, circulation and withdrawal of the RMB. The *Provisional Regulations on Cash Management*, issued in year 1988, must be followed by enterprises, for cash on hand and range of its use.

Besides the laws and regulations that must be followed nationwide, there are also some regulations for governing special entities and business. The *Provisions on Funds Transfer of the Postal Remittance*, set in year 1993, defines the opening and usage of accounts held in banks and the PBC, and the receiving and cashing of remittance. The *Provisions on Bankcard Business Management*, published in year 1999, clarifies the approval, interest calculation and

fee standards, accounts and transactions, risk and legal responsibilities relating to bankcards.

1.1.2 Securities settlement

The People's Bank of China and the China Securities Regulatory Commission (CSRC) are responsible for monitoring the interbank bonds market and the securities market respectively, according to their different administrative domain. The Ministry of Finance (MOF) is also accountable for management of the primary and secondary government bonds market.

Set by the PBC, the *Regulations on Trading in the Interbank Bonds Market* define participants' qualification, types of transactions, custody and settlement for the interbank bonds market. The *Temporary Provisions on Management of the Government Bonds Custody*, laid down by the MOF, aims at protecting the legal rights of investors and standardizing the custody behavior for government bonds.

The *Provisions on Management of the Customer's Trading Deposits*, issued by the CSRC, intends to monitor commercial banks involving in management of customer's deposits and security registrars to provide real time fund transfers for securities trading.

1.2 Institutions

1.2.1 Providers for payment services

In China, financial institutions providing payment services are state-owned commercial banks, share-holding commercial banks, urban commercial banks, urban credit cooperatives, rural credit cooperatives and foreign banks.

1.2.1.1 Commercial banks

According to the *Law of the People's Republic of China on Commercial Banks* and the *Company Law of the People's Republic of China*, commercial banks are legal entities that can take public deposits, provide loans and payment services for their clients.

State-owned and some share-holding commercial banks may provide comprehensive payment services to their customers. These banks have already set up their own nationwide electronic funds transfer systems, and about 75% of non-local payments are settled by these systems. For urban commercial banks, they provide not only payment services within a city, but also non-local services by their correspondent banks. By the end of year 2000, 33 foreign banks have started to provide RMB payment services.

1.2.1.2 Credit cooperatives

China's credit cooperatives include both urban and rural ones. In general, there is no competition between urban and rural credit cooperatives, since they operate in different restricted areas. The PBC is responsible for providing assistance to these credit cooperatives in management, technology and financial areas, as well as supervising them to play a proper role.

1.2.1.3 Other service providers

Some institutions not defined in the *Law on Commercial Banks* may also engage in some banking business and provide relevant payment services.

China

(a) Post offices

According to the relevant regulations, post offices may provide remittance services to enterprises and residents. As post offices increase and improve services, their role in retail payment services will become more and more important.

(b) China unionpay

China unionpay is jointly set up by banks, post offices and credit cooperatives, and so on. It is a self-disciplined bankcard organization conducting domestic bankcard business, and providing information exchange services to its members via a nationwide bankcard network.

1.2.2 Providers for securities services

Securities service providers include securities registration and settlement institutions, securities trading institutions and other securities business-related institutions.

1.2.2.1 Securities registration and settlement institutions

These are institutions that provide centralized registration and settlement services for securities. There are two such companies, namely central government bonds depository and clearing corporations limited (CDC), and China securities depository and clearing corporations limited (SD&C).

(a) Central government bonds depository and clearing corporations limited (CDC)

CDC is a state-owned financial institution set up in 1996. This company is the ultimate custodian of all types of government bonds that have been issued so far (excluding convertible bonds). It operates and manages a bonds business system, which comprises 3 sub-systems: central bonds book-entry system, PBC bonds issue system and PBC open market operation system. In addition to providing bonds registration and settlement services, it offers technical supports for issues of government bonds and financial bonds, etc., as well

(b) China securities depository and clearing corporations limited (SD&C)

SD&C was jointly established by Shanghai and Shenzhen stock exchanges in March 2001. It is not only the ultimate custodian of all stocks, trusted funds and convertible bonds listed in stock exchanges, but also a sub-custodian of other listed bonds. It is under the administration of the CSRC. It has two subsidiaries, one located in Shanghai and the other in Shenzhen.

1.2.2.2 Securities trading institutions

These can be classified as stock exchanges and national interbank lending center.

(a) Stock exchanges

There are two stock exchanges in China, namely Shanghai and Shenzhen stock exchanges. They provide trading places for listed stocks, close-end funds, government bonds and other securities, and engage in related trading management and services. They are directly supervised by the CSRC.

(b) National interbank lending center

This center is a government-sponsored institution directly led by the PBC. It organizes and manages interbank FX transactions and interbank lending business, and provides information services for central competitive pricing of interbank bonds.

1.2.2.3 Securities business-related institutions

These include securities companies and other financial institutions doing securities business.

There are two types of securities companies—comprehensive and brokerage. Comprehensive companies may engage in securities brokerage, self-supporting and underwriting business. Brokerages may only act as brokers. Both types of companies are engaged mostly in securities trading in the stocks market, with some over-the-counter (OTC) business.

Other financial institutions which can do securities business include commercial banks, insurance companies, securities investment funds, financing companies, leasing companies, foreign bank branches, rural credit unions and urban credit cooperatives. All institutions may engage in the trading of government bonds and financial bonds on their own accounts. The institutions, whose qualifications are approved by the PBC, may act as settlement agents for bond transactions. Some commercial banks, also approved by the PBC, may sell and make payments for paper-based government bonds and book-entry bonds, act as agent for issuing open-end funds, and provide services of underwriting and redemption. All of them, except for deposit-taking institutions, can participate in the corporate bonds market.

1.3 Central bank

Based on the law, the PBC can provide services such as cash payments, accounts administration, and clearing and settlement services by organizing and operating interbank payment systems and local clearing houses.

1.3.1 Cash payments

The PBC has the sole right to issue the RMB. Besides designing and printing bank notes, the PBC is also responsible for identifying counterfeit notes and destroying notes that have problems. The PBC also issues and withdraws the RMB by its network of 2,190 branches, in order to meet the requirements of the public in both quality and quantity terms.

1.3.2 Accounts administration

Required reserve accounts held by financial institutions may be used for their interbank payments and settlement. There are nearly 20,000 settlement accounts with the PBC, including those opened by treasuries of all levels.

Based on the *Regulations on Bank Accounts Management* formulated in 1994, the PBC supervises the opening and purpose of bank accounts held by enterprises.

1.3.3 Management of the interbank exchange systems

The PBC administers 2,334 local clearing houses, national interbank system (NIS), and electronic interbank system (EIS). Currently, the PBC is speeding up the set-up of China national advanced payment system (CNAPS) which will gradually replace NIS and EIS.

Meanwhile, the PBC is formulating unified regulations to govern the local clearing houses.

1.4 The role of other public entities

China financial science and technology committee as well as China financial standardization committee are also engaged in the research work on payment systems. Their research mainly focuses on technical aspects and standardization. They work through a number of working groups, studying issues related to the banking business, such as defining bankcard standards and technical specifications, with an aim to promote the standardization of banking process. Both of the committees are chaired by the PBC.

2. Payment methods

2.1 Cash payments

Cash refers to RMB bank notes and coins issued by the PBC. By the year-end 2000, cash in circulation was CNY 1,462.6 billion (USD 176.7 billion). Presently, there are 13 denominations of bank notes in circulation (1, 2, 5, 10, 20, 50 fen, 1, 2, 5, 10, 20, 50, 100 yuan), and 6 types of coins (1, 2, 5, 10, 50 fen and 1 yuan). In addition, the PBC also issues certain amount of commemorative bank notes or coins for significant events.

Cash is mostly owned by domestic residents and enterprises, with only very little abroad. In terms of transaction volume, cash payments usually take place in the face-to-face transactions. In terms of transaction value, deposit withdrawal, consumption payment, and purchase of agriculture product represent quite a high percentage.

Customers can withdraw cash in three ways: from commercial banks by bankbook; from banks or 33,000 ATMs by bankcards; by cash cheques.

2.2 Non-cash payments

Customers have the rights to use payment instruments approved by the PBC. In year 1988, the PBC conducted a reform on payment methods and formulated a new set of regulations, abolishing some instruments no longer suitable for China economic and financial developments, to call for using bills as major instruments. Therefore, bills have become the most widely used instruments in the past few years, where they represent approximately 70% of non-cash payment instruments, while bank drafts and cheques are the most commonly used. Moreover, some traditional instruments such as credit transfers, collections, and collections with acceptance are also being used.

2.2.1 Bank drafts

Banks issue bank drafts after customers have deposited their money. A draft can be used for non-local fund transfers or encashment. Enterprises, small businessmen and residents prefer it since it's rather convenient for non-local purchase. It can likewise be negotiated to others by endorsement. It's estimated that in year 2000, transaction volume of issued drafts amounts to 40% of that of non-local payments.

Bank drafts are issued in the form of paper vouchers. After cashing a draft, the related fund transfer between an issuing bank and a paying bank is processed by their intrabank electronic

funds transfer system. For those small and medium financial institutions, they may choose to use agents to issue the drafts as they have fewer branches. Generally, there are two ways by which bank drafts are issued by the agent: one is where the agent pays the drafts and the other is where the agent issues the drafts for the associated institutions.

The issuing bank will charge CNY 1 (USD 0.12) to each bank draft applicant.

2.2.2 Cheques

Cheques are the most commonly used non-cash payment instruments for drawing money from banks and making fund transfers. It can be used in purchasing goods and services within the same city or clearing region. In the year 2000, 454.1 million cheques were issued mainly by government agencies and enterprises, and rarely by the individual. Currently, cheques represent about 60% of the total volume of non-cash payments.

Cheques are processed by LCHs. In a case a payer and a payee of a issued cheque do not belong to the same bank, the payee shall entrust his bank to collect money while payee's bank presents the cheque to payer's bank through the LCH. If the cheque is not returned within the required period, the payee's bank shall credit the money to payee's account.

Cheques will be returned if they are dishonored, or bearing false signatures. However, the dishonored cheque payer shall be charged a penalty of 5% of the face value and should not be less than CNY 1,000 (USD 120.8). Meanwhile, the payee has the rights to seek for a 2% compensation charge of the face value from the payer. If one frequently issues the dishonored cheque, however, his bank shall disqualify him to issue cheques.

For each cheque sorted by manual work or machine, issuers will be charged by banks for CNY 0.6 (USD 0.07) and CNY 1 (USD 0.14), respectively.

2.2.3 Commercial drafts

Commercial draft includes commercial acceptance draft and bank acceptance draft. They are used for payment after delivery or postponed payment as agreed upon by both parties. Once a commercial draft is committed for payment by a payer or payer's bank, an acceptor will pay unconditionally on maturity date. Therefore, the draft has very strong binding force on the payer. The buying and selling parties may agree on the period of payment but not to exceed 6 months. The draft can also be used to buy commodities, even if its holder has insufficient funds, and be discounted from banks or negotiated to the third party by endorsement.

The amount of commercial drafts in use has been increasing since their introduction to the coal, metallurgy, electric power, chemistry and railway industries in year 1995.

2.2.4 Promissory notes

Promissory note was a new payment instrument introduced by the PBC after a reform on the payment and settlement regulations in year 1988. Banks issue it after customers deposited money. It may also be used for local fund transfers or encashment within a local clearing area. It's widely used in relative advanced cities and in those regions with active small commodities market. It can be negotiated by endorsement.

2.2.5 Credit transfers

Credit transfer is a payment instrument whereby a remitter entrusts a bank to make fund transfers to a beneficiary account. Remitters may make credit transfers by means of mail and telegraphy. Since its procedures are simple and do not require a minimum amount, it has become a main method for customers in making non-local fund transfers.

2.2.6 Collections with acceptance

Collection with acceptance is a payment instrument whereby a seller entrusts a buyer's bank to collect funds for him by sales agreement after delivering goods. In a planned economy, it played an important role in helping enterprises collect their funds. Currently, it is mainly used among the large and medium enterprises with higher creditability and with relatively closed marketing relationship. The required minimum amount of collections with acceptance is CNY 10,000 (USD 120.8).

2.2.7 Collections

Collection is a payment instrument wherein a payee entrusts his bank to get money from a payer if the payee can offer his bank commercial drafts, bonds or certificates received to prove his claims. Both enterprises and residents can use collections. This instrument may be used for local and non-local payments, and not be limited by the required minimum value. Collection's funds can be transferred from the payer's bank to the payee's bank by mail or by telegraph depending on the payee's choose.

Moreover, it is within a local area that utility fees, such as water, power, telephone bills and so on, may be charged by using local special collections in the light of relevant regulations.

2.2.8 Direct debits

China started to use direct debits for non-cash payment in 1980s. Though they account for only a small part in the non-cash payment, direct debits had been developing quickly in the past several years. They were mainly used for payments of utility fees, insurance fees, tax and tuition fees. The payer, payee and bank in this payment method must reach an agreement in advance. In agreed time, the payee submits payment instruction, by writing or on-line transmission, to his bank that will debit payer's account and credits payee's account. It's estimated that in year 2000, transaction volume of direct debits reached 19.4 million, with a total value of over CNY 280 billion (USD 33.8 billion).

2.2.9 Direct credits

Recently, banks have also used direct credits to make fund transfers among different accounts within the same bank for payments of wages, insurance, pension funds. Payment instructions were formerly in writing. Many large enterprises and government agencies, however, nowadays send the instructions by magnetic media or communication networks. In year 2000, transaction volume and value of direct credits exceeded 60 million and CNY 65 billion (USD 7.9 billion).

2.2.10 Bankcards

Financial institutions that engage in banking business issue bankcards. By year-end 2000, bankcards in circulation reached 277.4 million, and their transaction value was estimated to

CNY 1,219 billion (USD 147.3 billion).

Bankcards issued in China, in most cases, follow the basic principle that cardholders must deposit with their institutions before the bankcards can be used for consumption. Consumer credit is only an auxiliary function with bankcards. They may be classified as follows:

- 1) Golden cards and ordinary cards according to creditworthiness of the cardholders. The golden cards are only issued to those with higher creditworthiness.
- 2) Principal cards and attached cards according to different discharge responsibility. The principal cardholders have the rights to end the use of the attached cards.

Most of bankcards are debit cards and few are credit cards. For those with debit function, financial institutions do not allow overdraft to cardholders. As regards those with credit function, the institutions allow their customers to get certain amount of the overdraft in their bankcard accounts. Moreover, the institutions calculate the compound interest of the overdraft on international credit cards on a monthly basis. With regard to the bankcards with credit function, the institutions calculate the single interest of 0.5 per mill per day of the overdraft on a monthly basis.

Credit card holders may enjoy the following preferential terms for non-cash transactions:

- Repayment without interest during a period of time with the maximum length of time of 60 days.
- Minimum amount of repayment. If the holders have some problems repaying the overdraft amount when it is due, they may repay only the minimum amount according to the institutions' requirements.

With regard to fee charging, the institutions usually do not charge any annual fees to debit card holders, but do charge to credit card holders. According to agreements between institutions and retailers, the institutions charge certain percentage of commission on the basis of transaction value. The commission for hotels, restaurants, entertainment and travel agencies should not fall below 2% of the transaction value. On the other hand, the commission for other industries should be a minimum of 1% of the transaction value.

3. Interbank payment systems

The PBC operates 3 interbank payment systems, which comprise more than 2,000 local clearing houses, national interbank system and electronic interbank system. These systems process interbank payments (local and non-local) and high value intrabank payments. They also provide payment services to small banks that do not have their own payment networks.

3.1 Local Clearing Houses (LCHs)

There are 2,334 LCHs in China. All local interbank payments and most intrabank payments are processed via the LCHs.

3.1.1 Ownership

Most of the LCHs are owned by the PBC. The others are owned by their members.

3.1.2 Participation

Most of bank's branches within service area of a LCH are direct participants. Depending upon LCH's organizational structure, those small local branches belonging to the same bank may qualify to be direct members.

3.1.3 Types of transactions

All paper-based credit and debit payment items may be exchanged and settled via the LCHs. The bulk of items exchanged are cheques. In the largest LCH, its average volume of items processed exceeds 200,000 per business day.

3.1.4 Operation of the system

In most cases, PBC branches are responsible for the operation of the LCHs. While the LCHs that locate in the large cities and counties with high volume have two sessions in the morning and afternoon of each business day, the others have only one session in the morning of each business day. Rejected items are usually returned before the next session starts.

3.1.5 Settlement

Settlement of multilateral net positions occurs across accounts at the local PBC branch (or, in some case, the designated commercial bank). The settlement is done based on the principle of "debit first, credit second". Once the receivable members' accounts are credited, the settlement becomes final. The receivable members then may allow their customers to use funds.

3.1.6 Risk and risk management

Since LCHs' members must have sufficient balances with the PBC for settlement, the members may face credit risk and liquidity risk. If a member cannot find sufficient funds to cover its debit position within the settlement period, the PBC will impose a penalty equal to a percentage of the insufficient amount. If the debit position is not covered on the same day, the member will get overnight credit from the PBC. However, the member may be suspended on the next business day. Therefore, when the LCH opens on the next business day, there will be no defaulting members.

3.1.7 Technical aspects

Usually payment items are cleared manually. However, as the volume of local payments has increased, many LCHs have chosen to use computers to do the netting. Sorting machines have been installed in 17 metropolitan and medium-sized cities, such as Shanghai, Beijing, Guangzhou and Shenzhen. The LCHs, in many cities, exchange payment instructions by magnetic media or communication networks before presenting relevant paper-based items.

3.1.8 Pricing policies

The LCHs are non-profit entities. Members apportion the operational costs. In most cases, the LCHs charge members fees in terms of their transaction volume. The others charge members annual fees. It's planned that in the near future pricing standards of the LCHs will be unified, to reduce the cost of customers in using paper-based instruments.

3.1.9 Governance

The LCHs play a very important role in China's payment systems. They are generally managed by PBC branches. The PBC headquarters, however, will draw up the uniform rules and procedures for the LCHs and take steps to rationalize the use of sorting machines and communication networks.

3.2 National interbank system (NIS)

NIS manually handles non-local interbank fund transfers. The PBC headquarters manages the NIS. Different levels of PBC branches process interbank nostros and vostos by presenting vouchers directly to each other, keeping accounts separately, and being monitored centrally. Besides making fund transfers within the PBC and handling in-payment and out-payment of the Treasury, the NIS also make interbank, or on-us fund transfers, for other banks. However, with the development of China national advanced payment system (CNAPS), and most commercial banks gradually setting up their own funds transfer systems, this system will be replaced gradually.

3.2.1 Ownership

The NIS is owned by the PBC. The PBC headquarters is responsible for the construction of NIS electronic computing center, and PBC branches are responsible for the daily maintenance of their own relevant equipment.

3.2.2 Participation

All financial institutions that open their settlement accounts with the PBC qualify as NIS direct participants. All PBC branches and those commercial bank branches acting as agents for the PBC, are also NIS direct participants, and they are called as national interbank institutions (NIIs). Others may access NIS services by the direct participants.

3.2.3 Types of transactions

The NIS may process debit and credit items as follows: interbank credit payments, in-payment and out-payment of the Treasury, and fund transfers among PBC branches on behalf of themselves or their customers.

3.2.4 Operation of the system

In general, payment instruments are directly exchanged between NIIs, by telegraphic or mail remittance. Payment instructions from the sending NIIs may reach the receiving NIIs within the same day by telegraphic remittance.

A basic business procedure of the NIS is as follows: the sending NIIs completes 3 copies of NIS vouchers. The first copy is sent to the receiving NIIs. The second copy is sent to NIS electronic computing center. If truncated by the sending NIIs, relevant payment information will be sent to the electronic computing center. The sending NIIs keeps the third copy. The receiving NIIs will post payment items to relevant accounts trade by trade according to the first copy received.

3.2.5 Settlement

Balance amount between NIS direct participants and NIIs is netted every day and settled step by step in different levels of the NIIs at regular intervals. The NIIs must calculate bilateral net positions for credits and debits in the light of interbank payment items in each business day, and report their balances to the superiors by the end of each year.

3.2.6 Risk and risk management

There is no credit risk within the NIS, as NIS direct participants send their payment instruments only when they have sufficient funds in their settlement accounts. However, the direct participants may sometimes face liquidity risk. If there is liquidity risk, the direct participants may ask their superiors to solve it.

3.2.7 Technical aspects

Payment transactions are processed manually. Reconciliation information for the NIIs is transmitted by PBC Intranet, and processed by the electronic computing center. The NIS has a client/server architecture. There are servers in more than 200 cities and 2,500 client workstations, which are connected to the electronic computing center.

3.2.8 Pricing policy

It is no commission for NIS direct participants, but they shall pay relevant postage for their telegraphic and mail remittance.

3.2.9 Governance

NIS direct participants should comply with the provisions on interbank fund transfers set by the PBC. All transactions are centrally monitored by the electronic computing center. The direct participants may check the transaction by referring to the reconciliation sheet sent by the electronic computing center. In the event of a mistake, they shall consult the electronic computing center to solve it.

3.3 Electronic interbank system (EIS)

In order to reduce a large amount of float, as well as to speed up funds circulation, the PBC set up EIS using VSAT satellite communication technology (at the time, terrestrial communication was rather poor). However, as China national advanced payment system (CNAPS) gradually goes into operation, the EIS will also be replaced.

3.3.1 Ownership

The PBC and commercial banks are co-owners of the EIS. The PBC is its largest shareholder and operates the system.

3.3.2 Participation

All commercial bank branches with settlement accounts at PBC branches, as well as PBC branches, may participate in the EIS. They may send payment instructions on behalf of themselves or their customers. Since the system is not rolled out in every city and country, some financial institutions have been unable to utilize EIS service.

3.3.3 Types of transactions

The EIS only handles credit transfer among participants, including all interbank non-local payments, intrabank high value payment for commercial banks and fund transfers among PBC branches. In year 2000, this system processed, on average, 100,000 transactions per business day, with a total value of CNY 100 billion (USD 12.1 billion).

3.3.4 Operation of the system

The EIS is a distributed processing system. The major role of EIS active site is to forward payment messages between VSAT workstations. It processes payment transactions from 8:30 to 17:30 on business days. In some special case, its operation hours may be extended as required. The EIS processing flow is as follows:

The originating bank (commercial bank's branch) submits payment instructions, electronically or using paper voucher, to the local sending bank (PBC branch). The sending bank then debits the originating bank's account with the PBC, and sends the instructions to EIS national clearing center (NCC) by satellite communication. The NCC transmits it to the receiving bank (PBC branch) that then credits the accepting bank's (commercial bank's branch) account. The receiving bank is responsible either for creating the instructions into printed vouchers that will be collected by the accepting bank, or for sending the instructions via communication network to the accepting bank.

3.3.5 Settlement

All accounting activities for the EIS take place in PBC branches, namely the settlements are processed in both the sending and the receiving bank. If the originating bank does not have sufficient balance in its PBC account, its payment instructions will queue in the sending bank until there are funds available. Once the payee account is credited, then the payment becomes final.

3.3.6 Risk and risk management

Payments can be processed only when the originating bank has sufficient balance in its PBC account. Therefore, there is liquidity risk in the EIS. In the event of liquidity problem, a direct participant may ask its superior to solve it. Due to technical reasons, the EIS might suffer some operational risk. If there is a technical problem resulting in interest loss of direct participants, the PBC will adjust balance of their PBC accounts according to its internal rules and procedures.

3.3.7 Technical aspects

Considering China communication situation then, the PBC decided to set up a private satellite communication network using VSAT technology for the EIS. The network connects the IBM mainframe systems located in Beijing with the VSAT workstations (based on PCs or servers) in PBC branches. Most VSAT workstations have been connected to the accounting book systems of PBC branches. The active site has implemented hot standby, and the passive site for emergency has been set up in Wuxi. The VSAT workstations are also equipped with redundant facility.

3.3.8 Pricing policy

The PBC does not intend to recover its investment and operational cost by charging fees. It only charges postage of CNY 4.5 (USD 0.54) for each payment instruction.

3.3.9 Governance

The PBC manages this system. The PBC headquarters manages EIS national clearing center, and PBC branches administer other levels of clearing centers.

3.4 China national advanced payment system (CNAPS)

China national advanced payment system (CNAPS) is a key project that has two important application systems: high value payment system (HVPS) which is a real-time gross settlement system, and bulk electronic payment system (BEPS). The CNAPS will be operational from year 2002.

3.4.1 Ownership

The PBC will be the sole owner and operator of the CNAPS due to its systemic importance.

3.4.2 Participation

All institutions that open settlement accounts with PBC branches may participate in the CNAPS directly. CNAPS direct participants include bank's branches in cities, credit unions, PBC accounting departments and treasury departments at city level. Moreover, some institutions (such as CDC) approved by the PBC to engage in a given business, may become concessionary participants.

3.4.3 Types of transactions

The CNAPS will process all types of credit and debit transactions. For those high value payments, urgent low value payments and the third party payment instructions are processed by HVPS, which aims to transfer funds in real time. As for batch payments, including interbank debit and low value credit transactions, they are processed by BEPS.

3.4.4 Operation of the system

As HVPS and BEPS have different functions and design requirements, the CNAPS handles high value payments and batch payments differently.

HVPS is a real time gross settlement system that accepts credit payment instructions from 8:00 to 17:00 or to the prolonged time as required. It processes credit payments trade by trade. The instructions might not be executed in the arrival sequences, which will be adjusted by CNAPS direct participants as required.

BEPS operates 24 hours a day. In each business day, payment instructions may be received from 8:00 to 17:00. Batch transactions in city clearing processing centers (CCPCs) are cleared separately from that in CNAPS national processing center (NPC). For CCPC batch payments, the net position of each direct participant will be submitted to the NPC at regular intervals for settlement after CCPC sorts and forwards them. Batch payments across different CCPCs, are forwarded and settled by the NPC at regular intervals. The last batch payments across different

CCPCs are processed in the evening (until 0:00 midnight).

3.4.5 Settlement

Before debiting settlement accounts of direct participants, the CNAPS will check their balance (or daylight overdraft ceiling) in the book of the PBC. Once the accounts are debited or credited, payments become final.

Before 17:00 each business day, the CNAPS processes payment instructions according to direct participant's available balance (including daylight overdraft ceiling). If a participant is short of available balance, his instructions will be queued.

Between 17:00 and 18:00, the system only accepts the instructions that cover debit position or settle payments in queues.

At 18:00, the system will return high value instructions for those positions are still short of payment, and provide loans with high penalty interest to other payments in queues (such as net settlement).

3.4.6 Risk and risk management

One of the PBC's objectives in design of the CNAPS is risk minimization.

The system allows direct participants to check their expected positions in the book of the PBC as soon as possible. It also automatically reminds them of their balances, in order to enhance their liquidity management ability.

The PBC also requires collateral on daylight overdraft of direct participants, and also has the rights to limit types of collateral. The PBC will monitor and assess each direct participant's creditworthiness and payment ability daily. The PBC may cancel a direct participant's daylight overdraft ceiling as necessary.

If the PBC rates that borrowing frequency, or other factors of a direct participant are unsatisfactory, the PBC may also freeze his settlement account, stop debiting, or even close his account in line with relevant regulations. When providing high penalty interest loans at the end of each business day, the PBC may ask for effective collateral to reduce its credit risk.

Daylight liquidity

In order to enhance each direct participant's liquidity, the CNAPS was designed with automated repo and daylight overdraft ceiling mechanism. CNAPS direct participants are required to use the automated repo first. Repo and overdraft cannot be used at the same time.

For those direct participants with access to the automated repo, the CNAPS will automatically ask PBC open market operation system for an automated repo when they are short of liquidity. The PBC open market operation system then responses to the CNAPS according to the rules or agreements between the PBC and direct participants, financing the participants or not.

For those participants with access to the daylight overdraft, PBC branches decide local CNAPS direct participants' ceiling according to their creditworthiness and expected amount of overdraft, and submit this into the system. The participants might pay interest for the daylight overdraft.

3.4.7 Technical aspects

Payment instructions processed by the CNAPS will be transmitted by PBC private satellite network during the initial stage of operation. To ensure a reliable transmission of payment instructions, the PBC will mainly use terrestrial lines to transmit the payment instructions in the near future, and then the private satellite network will be retained as backup.

Mainframes in CNAPS national processing center will be connected by a hot standby structure. A non-local disaster recovery center of CNAPS national processing center will be constructed. As CCPCs are also very important, the PBC will take measures to ensure their availability.

Taking into account the international environment and interdependence of all payment systems, CNAPS message types will conform to the international standards where possible.

3.4.8 Pricing policy

The PBC is reviewing CNAPS pricing policy.

3.4.9 Implementation

The CNAPS will be implemented in different phases. The HVPS will start its operation in Beijing and Wuhan from July 1, 2002. It is expected that the CNAPS will be rolled out to over 300 cities by the year-end 2003.

4. Securities settlement systems

China's securities comprise bonds and equities. Bonds trading are settled by central government bonds depository and clearing corporations limited (CDC) and China securities depository and clearing corporations limited (SD&C). The later is the sole settlement agent of equities.

4.1 Bonds market

China's bonds market is composed of the interbank bonds market and the stock exchanges market. Both markets have different functions, and have not been unified. It is envisaged that both markets will be unified in the future and accessible to all financial institutions, enterprises and residents.

4.1.1 Trading

4.1.1.1 Market overview

The interbank bonds market comprises OTC transactions in which institutional investors play a major role, and transactions effected over the counters of banks by medium and small sized enterprises and residents. This market is an important arena where the Treasury collects funds by issuing bonds, financial institutions adjust their liquidity and rationalize their asset structures, and the PBC conducts open market operation to achieve its monetary policy goals. The bonds issued and circulated in this market include government bonds, central bank bonds and financial bonds of policy banks. This market also supports issues of bonds by market principles. Transaction value for this market has been increasing each year - CNY 30.7 billion

(USD 3.7 billion) in year 1997, and CNY 2,150.9 billion (USD 259.9 billion) in year 2000, increasing more than 70 times. In year 2000, there were 27 bond issues for the MOF, State Development Bank, and Import and Export Bank of China, with a total amount of CNY 390.4 billion (USD 47.2 billion).

Bonds listed in the stock exchanges are government bonds, corporate bonds, and convertible bonds. Government bond transactions in the secondary market, including spot trading and repos, mainly take place in the stock exchanges. It is at the early stage of Shanghai stock exchange that bonds played a dominant role, and now they still maintain a relatively large share. In year 2000, the total value of government bonds in the custody of SD&C Shanghai and Shenzhen branches was CNY 83.2 billion (USD 10.1 billion), and transaction value reached CNY 1,889.1 billion (USD 228.2 billion).

There are several types of transactions in the bonds market. In the interbank bonds market, it's mainly repos and spot trading. Trading parties may define maturity of government bond repos, up to a maximum of 365 days. There are 7 types of repo maturity for PBC open market operation: 7, 14, 21, 28 days, and 2, 3, 4 months. In the stock exchanges, there are 6 types of repo maturity in Shanghai stock exchange: 3, 7, 14, 28, 91 and 182 days; and 9 types in Shenzhen stock exchange: 3, 4, 7, 14, 28, 63, 91, 182 and 273 days.

4.1.1.2 Trading systems

Transactions between members of bonds settlement system are matched in the national interbank lending center by asking price, or made in the form of OTC trading by their own agreements. Open market operations are made by agreements between the PBC and the primary dealers of bonds business system.

In the stock exchanges, the centralized competitive pricing of bonds' transactions shall follow the principle of price precedence and time precedence.

The corporate bonds issued and registered with CDC are, except for negotiation by agreements, not allowed to circulate in the interbank bonds market. However, they can be listed in the stock exchanges.

(a) Governance

The interbank bonds market is managed by the PBC. CDC direct participants must comply with relevant regulations and provisions formulated by the PBC, business rules set by the CDC, and must sign a "master contract for bonds repo" with the CDC. The CDC shall report to the PBC regularly on statistical data or relevant information of bond transactions.

Bond trading in the stock exchanges shall comply with all regulations set by the stock exchanges, and is monitored by the CSRC.

(b) Participation

Direct participants of the interbank bonds market include state-owned commercial banks (headquarters and their authorized branches), share-holding commercial banks (headquarters and their authorized branches), rural credit unions, insurance companies, security companies, security investment fund, financial companies and so on. At this time, there are more than 600 direct participants, including 30 foreign bank branches. Indirect participants include small and medium sized financial institutions, and incorporated enterprise.

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Members of the stock exchanges are their direct participants. Other institutional investors and residents registered with SD&C Shanghai and Shenzhen branches may only trade bonds through the direct participants (also see 4.2.1.2).

4.1.2 Pre-settlement

4.1.2.1 Trading confirmation

Bond transactions in the interbank bonds market are confirmed by CDC members, and matched by the central bonds book-entry system. If matched, the transactions can be settled. There is no confirmation for bond transactions in the stock exchanges (also see 4.2.2.1).

4.1.2.2 Clearing house

There is no specialized clearing house for bond transactions. The clearing process of the transactions is done by the CDC and the SD&C, respectively.

Bond transactions in the interbank market are processed trade by trade, therefore there is no bonds clearing (also see 4.1.3).

Bond transactions, as the same as that of other securities in the stock exchanges, are cleared in SD&C Shanghai and Shenzhen branches (also see 4.2.2.2).

4.1.2.3 STP ability

At this time, the CDC cannot provide STP services because the transactions need to be confirmed by its members, but the SD&C can do that for bond transactions.

4.1.3 Settlement

Settlement cycle

In the interbank bonds market, the transactions are settled trade by trade in real time at the designated date by the CDC.

Bonds trading in the stock exchanges is settle by SD&C Shanghai and Shenzhen branches, respectively. Settlement cycle of the trading is T+1.

4.1.3.2 CSD

There are two CSDs in China, namely the CDC and the SD&C.

The CDC is the general custodian for government bonds, financial bonds of policy banks and corporate bonds. By the end of year 2000, the total amount of bonds in the custody of the CDC was CNY 1,749 billion (USD 211.3 billion). The SD&C is the general custodian and settlement agent for stock, funds and bonds listed in Shanghai and Shenzhen stock exchanges. The following is a brief introduction of the CDC.

(a) Governance

The CDC is not only a general custodian for the bonds market of the whole nation, but also an important financial intermediary and an infrastructure provider for the markets. Moreover, it

contributes to standardization of the market by issuing a set of business rules, operational procedures, and organizing participants to sign the “master contract of bonds repo”.

(b) Participation

Members that can be classified as first, second and third class include all financial institutions, and institutional investors holding corporate bonds or special financial bonds.

The first class is that financial institutions (FIs) are approved by the PBC as settlement agents. The second class is FIs that only trade for themselves. They are both direct settlement members of the CDC. The third class is indirect members who entrust the first class for bond settlements.

(c) Risk management

The following measures are adopted to reduce the relevant risk.

- Gross settling each transaction in real time after matched. This will improve efficiency, reduce mistakes and system risk.
- Providing “Payment After Delivery (PAD)” and “Delivery After Payment (DAP)” (see 4.1.3.4) services on the condition that DVP is not available now, so as to reduce credit risk of related parties in the system.
- Intensifying safety of the central bonds book-entry system. In order to ensure the uniqueness of members, it adopts bilateral identification and business authorization for each member. Trading data are encrypted to prevent tampering and to ensure data integrity.
- Strengthening infrastructure reliability. Currently, the CDC has carried out hot standby for the system and equipped redundant communication facility.
- Setting up internal auditing and monitoring mechanisms, to reduce operational risk and moral hazards.

4.1.3.3 Central counterparty

There is no central counterparty in the interbank bonds market. However, SD&C Shanghai and Shenzhen branches are central counterparty for bond transactions made in the stock exchanges (also see 4.2.3.3).

4.1.3.4 Payment (including DVP)

There are 3 types of funds settlement for the interbank bonds market, namely FOP, PAD and DAP.

PAD refers to that at a delivery date, a buyer makes fund transfers by his bank to a seller’s bank after informing the CDC to make bonds delivery on the condition that the seller has enough payable bonds.

DAP is that at a due date, a seller informs the CDC to make bonds delivery to a buyer after receiving funds.

The funds settlement for bond transactions in the stock exchanges is as the same as that of stock trading (also sees 4.2.2).

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It's expected that DVP will be realized after connecting the central bonds book-entry system with the CNAPS.

4.2 Stock market

4.2.1 Trading

4.2.1.1 Market overview

China started to issue stock in year 1987, which was traded over-the-counters in the first few years. Shanghai and Shenzhen stock exchanges began operation in December 1990, and then gradually formed a national stock market. By the end of year 2000, there were 1,088 companies listed (including A and B shares) in the stock exchanges with a total market value of CNY 4,809.1 billion (USD 581 billion), and market value of the public shares reached CNY 1,609.7 billion (USD 194.5 billion).

Stock listed in China include A and B shares (there are also H, N and S shares outside China). A shares are RMB ordinary stock, traded by the domestic investors (citizens in Hong Kong, Macao and Taiwan are not included). B shares are RMB special stock, which can be traded by both domestic residents and overseas investors using US dollars or Hong Kong dollars. Currently, only spot trading is allowed for the listed stock.

4.2.1.2 Trading systems

Stock is traded in Shanghai and Shenzhen stock exchanges. The centralized competitive pricing of stock trading follows the principle of price precedence and time precedence. Stock investors should, firstly open securities trading accounts with their local securities companies, and entrust them to buy/sell securities, in writing, by telephones, terminals or Internet. The securities companies transmit requests to the trading systems according to their customers' instructions. The stock exchanges monitor the trading and publish trading information in real time, and report abnormal transactions to the CSRC.

(a) Governance

Shanghai and Shenzhen stock exchanges are directly administered by the CSRC. Based on the *Securities Law*, the stock exchanges should set up computer systems to monitor the market in real time, and establish information disclosure mechanism, in order to monitor illegal trading and control market risks.

The stock exchanges define the rights and obligations of their members, which include internal supervision, risk management, standards and maintenance of the systems, and others related to securities trading and clearing. The approval and cancellation of membership should be reported to the CSRC for putting on record.

(b) Participation

Members of the stock exchanges are domestic and overseas securities companies. They act as the agent for investors. Some members can also trade for themselves.

4.2.2 Pre-settlement

4.2.2.1 Trading confirmation

Stock trading is automatically processed according to the principle of price precedence and time precedence. There is no need for domestic investors to confirm their trading. However, overseas investors need to confirm their B shares trading.

4.2.2.2 Clearing house

SD&C Shanghai and Shenzhen branches provide clearing services for the Shanghai and Shenzhen stock exchanges.

(a) Governance

According to the *Securities Law*, the establishment of securities registration and settlement companies must be approved by the CSRC. Their operating capital shall not be less than CNY 200 million (USD 24.2 million), and they must have required infrastructure to provide clearing services for the securities trading and other services approved by the CSRC. The articles of association and business rules of the stock exchanges must also be formulated by laws and be subject to approval by the CSRC.

(b) Participation

The domestic and overseas securities companies, after approval by the CSRC, may become a member of the SD&C, and may participate directly in the clearing. Other securities investors can do indirectly via SD&C members.

(c) Risk management

According to the *Securities Law*, the SD&C must have sufficient service facilities and data protection measures. It must formulate comprehensive business, financial and safety regulations and a sound risk management system, to ensure the reliable operation of the system. It should also set up settlement risk funds to cover losses caused by technical errors, operational mistakes and majeure.

Members of SD&C Shanghai and Shenzhen branches should hand over the securities settlement risk funds in a proportion of their trading value. In a case that a member is unable to make payment, the SD&C may use the funds to complete it.

Meanwhile, SD&C Shanghai and Shenzhen branches require their members to save customers deposit in the designated banks, and not to finance or lend securities to their customers. The members must also deposit a certain amount of reserves for securities trading in the designated banks. The securities companies that engage in securities business either for their customers or on their own accounts shall not misappropriate customers' money or mix their trading with their customers'.

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(d) Novation

SD&C members' novation must be approved by the CSRC and other relevant departments.

(e) Role of the central counterparty

The SD&C is a non-profit legal entity. It's responsible for clearing and delivering the securities registered with and for distribution of stock dividend if entrusted by the issuers.

4.2.2.3 STP ability

Shanghai and Shenzhen stock exchanges can provide STP services for stock trading made by the domestic investors (including A and B shares), and not for the overseas investors.

4.2.3 Settlement

4.2.3.1 Settlement cycle

SD&C Shanghai and Shenzhen branches conduct stock settlement. Settlement cycles for A and B shares are T+1 and T+3 days, respectively.

4.2.3.2 CSDs

Stock listed in China is kept centrally in the custody of SD&C Shanghai and Shenzhen branches. Before trading, the shareholder shall register his stock in the SD&C.

4.2.3.3 Central counterparty

SD&C Shanghai and Shenzhen branches are central counterparties of stock trading. After closing of each business day, SD&C Shanghai and Shenzhen branches work out the net amount of all members. The delivery of A and B shares takes place on the T+1 and T+3 day, respectively.

4.2.3.4 Payment (including DVP)

Funds settlement of stock trading is completed in a two-level model. The first level is that between SD&C Shanghai and Shenzhen branches and their members, the second level between securities companies and their customers.

As for A shares, SD&C Shanghai and Shenzhen branches work out the net receivable and payable for all members on T day after the trading, and inform the payable member to prepare sufficient funds. On T+1 day, settlement banks credit or debit all settlement members, based on the T day funds settlement report; and securities companies debit or credit the trading deposit accounts of their investors according to the settlement report.

As regard to B shares, on T+1 day, SD&C Shanghai and Shenzhen branches work out the net receivable and payable for all members and inform them to confirm. On T+3 day, settlement banks debit or credit member's accounts according to the settlement report or the trading confirmation by investors. Funds settlement for the domestic and overseas investors is different. For the domestic investors, the securities companies debit or credit their trading deposit accounts according to the settlement report; for the overseas investors, the bank will be the agent of the securities companies to settle their trading.

4.3 Major projects and policies being implemented

4.3.1 *Over-the-counter bonds trading by banks*

Over-the-counter bonds trading by banks refers to government bonds, financial bonds and other bonds approved by the PBC, in the form of book entry, are issued to the public, enterprises and other institutions, and listed by banks for OTC trading.

4.3.1.1 *Trading*

The bonds issued to investors by underwriting banks are kept in the custody of the CDC, and quoted for trading. The underwriting banks sell new bonds over their counters, and quote bilateral prices of the bonds every business day.

The underwriting banks will set up accounting management systems for OTC bonds trading, which centralize OTC bonds trading data in their head offices, and transmit the data to the CDC using private communication lines.

The CDC will establish a data processing center for OTC bonds trading, and an inquiry system accessible to the public and institutional investors. The data held by the underwriting banks will be transmitted to the inquiry system in time to be accessed by the investor. Thus, the public investors could inquire their investment status through the underwriting banks or through the inquiry system.

4.3.1.2 *Settlement*

There are two levels of bonds settlement for OTC bonds trading. At the end of each business day, the underwriting banks' head offices will collect all trading data, and transmit them to OTC central processing center in the CDC. After sorting the data, the central processing center works out the net trading value of the underwriting banks. According to volume and net value of bonds trading, the underwriting bank will send settlement instructions to the central bonds book-entry system after confirmation. The central bonds book-entry system will automatically initiate bonds delivery between correspondent accounts and self-support accounts of the underwriting banks. OTC bonds trading of the investors is settled by the underwriting bank in a real time.

5. Role of the central bank

5.1 Provision of settlement accounts

The PBC is responsible for managing required reserve accounts opened by financial institutions, and for supervising the opening and purpose of bank accounts.

Financial institutions may apply to open required reserve accounts with the PBC. This account can be used for settlement of interbank and intrabank funds transfer. The PBC also manages the opening and purpose of settlement accounts opened with banks. Based on the *Provisions on Bank Accounts Management* issued in 1994, commercial banks must apply to a PBC branch or notify the PBC when they open and cancel customers' accounts. After approval from the PBC, non-individual customers may open four kinds of savings accounts with commercial banks: basic, general, temporary and specific savings accounts. However, these customers are only able to choose one bank to open their basic saving account with.

5.2 Operation of payment systems

According to the *Law of the People's Republic of China on the People's Bank of China*, the PBC must maintain the sound operation of payment, clearing and settlement systems. The PBC, by the LCHs, NIS, EIS and CNAPS, has provided, or will provide, payment services to institutions that open settlement accounts with it.

The CNAPS, which will be operational soon, will have higher processing capability and reliability. By means of well-defined assistance programs, supporting teams, necessary hardware and communication facility, the PBC will aim to enhance its disaster recovery capability for the CNAPS.

5.3 Operation of securities settlement systems

As a leader and manager of the interbank bonds market, the PBC supervises and guides trading behavior of market intermediaries and participants by approval of market access, formulation of regulations, and supervision.

The PBC conducts open market operations with the primary dealers in the interbank bonds market, to achieve monetary policy goals. In the near future, the PBC will provide daylight automatic repos for CNAPS direct participants by the central bonds book-entry system. This will play a very important role in adjusting liquidity of CNAPS direct participants, improving efficiency of the system, reducing risk and flourishing markets.

5.4 Supervision

According to the law, the PBC has the rights to supervise, manage and provide guidelines to financial institutions doing banking business, and may monitor payment services provided by financial institutions by on-site auditing and analysis of their regular reports. Regulations require banks to report regularly to the PBC transaction information on high value payments, including statistical data on intrabank high value funds transfer and their flow. The PBC has also recently taken measures to monitor high value transactions and possibly abnormal payment activities, in cooperation with other government department to fight money-laundering activities.

5.5 Other roles

In addition to providing payment and settlement services to financial institutions, the PBC has the sole right to issue the RMB and to regulate RMB circulation. The PBC also runs its own banknote printing and coin minting plants. As a bank of the government, the PBC is responsible for managing the Treasury.

The PBC closely cooperates with other entities in China's financial sector, coordinating on organizational and technical issues concerning payments system. The PBC also plays a very important role in China financial science and technology committee and China financial standardization committee. It also actively participates in formulating pricing policy and in managing the current payment systems.

STATISTICAL TABLES

China

Table 1

Basic statistical data

	1996	1997	1998	1999	2000
Population (millions)	1,224	1,236	1,248	1,259	1,295
GDP (CNY billions)	6,788.5	7,446.3	7,834.5	8,191.1	8,940.4
GDP per capita	5,554.2	6,024.5	6,277.6	6,506.0	6,903.8
Exchange rate vis-à-vis USD:					
<i>year end</i>	8.2982	8.2798	8.2787	8.2793	8.2781
<i>average</i>	8.3142	8.2898	8.2791	8.2783	8.2772

Table 2

Settlement media used by non-banks

(end of year)

	1996	1997	1998	1999	CNY billions 2000
Bank notes and coins	880.2	1,017.8	1,120.4	1,345.6	1,465.3
Transferable deposits	1,971.3	2,464.9	2,774.9	3,238.2	3,849.5
Narrow money deposits (M1)	2,851.5	3,482.6	3,895.4	4,583.7	5,314.7
<i>Memorandum items:</i>					
Broad money supply (M2)	7,609.5	9,099.5	10,449.9	11,989.8	13,461.0
Outstanding value on e-money schemes	nav.	nav.	nav.	nav.	nav.

Table 3

Settlement media used by banks ¹⁾

(end of year)

	1996	1997	1998	1999	CNY billions 2000
Transferable balances held at central bank	1,306.3	1,547.1	1,414.6	1,430.5	1,601.9
of which ²⁾ :					
<i>required reserves</i>	654.6	914.3	1,414.6	1,430.5	1,601.9
<i>free reserves</i>	651.7	632.8	nap.	nap.	nap.
Transferable deposits held at other banks	1,901.0	2,133.9	784.8	745.2	847.7
<i>Memorandum item:</i>					
Institutions' borrowing from central bank	1,421.0	1,400.3	1,203.3	805.3	893.9

¹⁾ Statistical range is limited to deposit-taking institutions, including state-owned commercial banks, other commercial banks, city commercial banks, rural credit cooperatives, urban credit cooperatives, financial companies and China agriculture development bank.

²⁾ Figures have been not divided between required and free reserves since year 1998.

Table 4

Institutional framework

(end of 2000)

Categories	Number of institutions	Number of branches	Number of accounts (millions)	Value of accounts (CNY billions)
Central bank	1	2,190	nav.	nav.
Commercial banks	117	nav.	nav.	nav.
Credit cooperatives	37,624	49,108	nav.	nav.
Postal institution	1	2,495	nav.	nav.
Total	37,743	nav.	nav.	nav.
of which:				
<i>virtual institutions</i>	<i>nav.</i>	<i>nav.</i>	<i>nav.</i>	<i>nav.</i>
Branches of foreign banks	158	6	nav.	nav.

Table 5

Payment instructions handled by selected interbank settlement systems: volume of transactions

	1996	1997	1998	1999	2000	millions
LCHs ¹⁾	490.0	505.9	513.5	495.0	517.2	517.2
NIS	5.5 ²⁾	5.4	4.5	4.6	4.7	4.7
EIS	6.2	10.7	17.6	24.2	31.6	31.6
Total	501.8	521.8	535.7	523.8	553.5	

¹⁾ Figures are estimated by sample survey.²⁾ It is estimated.

Table 6

Payment instructions handled by selected interbank settlement systems: value of transactions

	1996	1997	1998	1999	2000	CNY billions
LCHs ¹⁾	95,239.7	96,069.9	96,613.4	93,288.4	95,741.2	95,741.2
NIS	22,462.2 ²⁾	21,254.4	22,416.1	18,220.4	17,828.9	17,828.9
EIS	10,079.6	17,801.3	20,396.3	17,258.4	23,544.8	23,544.8
Total	127,781.5	135,125.6	139,425.8	128,767.2	137,114.9	

¹⁾ Figures are estimated by sample survey.²⁾ It is estimated.

Table 7

Indicators of use of various cashless payment instruments: volume of transactions ¹⁾

Instruments	millions				
	1996	1997	1998	1999	2000
Cheques	441.5	459.8	458.6	440	454.1
Payments by debit card	84.7	88.7	111.7	291.3	637.6
Payments by credit card	21.5	28.3	34.4	37.8	47.6
Credit transfers	90.8	122.4	125.5	176.5	240.1
Direct debits	2.1	4.9	8.7	14.0	19.4
Total	640.6	704.1	738.9	959.6	1,398.8

¹⁾ Figures are estimated.

Table 8

Indicators of use of various cashless payment instruments: value of transactions ¹⁾

Instruments	CNY billions				
	1996	1997	1998	1999	2000
Cheques	50,924.7	52,012.2	52,432.1	47,735.7	51,958.7
Payments by debit card	432.6	609.8	519.2	676.4	952.0
Payments by credit card	146.6	209.5	208.7	193.1	267.0
Credit transfers	43,001.3	44,522.2	49,127.9	41,154.2	57,000.8
Direct debits	26.1	49.1	97.9	177.3	280.5
Total	94,531.3	97,402.8	102,385.8	89,936.7	110,459.0

¹⁾ Figures are estimated.

Table 9

Transfer instructions handled by securities settlement systems: volume of transactions

	millions				
	1996	1997	1998	1999	2000
Government bonds settlement system	1,743.0	1,617.3	2,031.6	1,707.2	1,979.8
of which:					
Interbank bonds market	<i>nap.</i>	<i>nav.</i>	0.002	0.007	0.03
Stock market	1,743.0	1,617.3	2,031.6	1,707.2	1,979.8
Equities settlement system	253,314.4	256,001.9	215,410.6	293,238.9	475,840.0

Table 10

Transfer instructions handled by securities settlement systems: value of transactions

	CNY billions				
	1996	1997	1998	1999	2000
Government bonds settlement system ¹⁾	1,804	1,578	2,440	2,931	4,040
of which:					
Interbank bonds market	<i>nap.</i>	40	280	1,112	2,151
Stock market	1,804	1,538	2,160	1,819	1,889
Equities settlement system	2,133.2	3,072.2	2,355.4	3,131.9	6,082.7

¹⁾ Figures are estimated.

Table 11

Number of participants in securities settlement systems

	1996	1997	1998	1999	2000
Interbank bonds settlement systems	nap.	139	489	507	705
of which:					
<i>Banks</i>	<i>nap.</i>	<i>nav.</i>	130	148	178
<i>Securities companies</i>	<i>nap.</i>	<i>nap.</i>	<i>nap.</i>	12	18
<i>Other types of financial institutions</i>	<i>nap.</i>	<i>nap.</i>	359	347	509
Stock exchanges	1,066	840	659	628	631
of which:					
<i>Other types of financial institutions</i>	<i>nav.</i>	<i>nav.</i>	<i>nav.</i>	<i>nav.</i>	203