

Interbank Withdrawal Protocol (IWP)

Complementary System of Rastin Banking

Bijan Bidabad¹

Mahmoud Allahyarifard²

Abstract

Despite of taking collaterals, guarantees and binding of contracts, executive debt collection process through Department of Documents and Properties Registry and Execution or courts are major challenges that banks, non-banking financial institutions and persons are facing. The legal and executional process of debt collection through collaterals and guarantees are complicated, lengthy and costly.

Interbank Withdrawal Protocol (IWP) is a protocol whereby bring the required preparations for the bank to withdraw from debtor account in all banks and financial institutions that have signed the protocol. On the basis of this protocol and under central bank supervision, the bank as claimer of check, promissory note, draft (as owner or attorney of the third party) or whereby a permission from Department of Documents and Properties Registry and Execution or courts, or has been initiated by customer's commitment based on collaterals or guarantees, withdraws his claim from all customer's accounts (according to a unique identification number) in all banks and financial institutions through Automatic Clearing House (ACH) and notifies the debtor.

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JEL: L86, L87, G21, G24

Introduction

In conventional banking, specifically, in those countries that inflation rate is high and executive process for debt collection is weak, there are many cases, that a person is indebted considerable amounts to one or some banks but put his deposits into his other accounts in other banks, and does financial transactions just through the latter bank. Consequently, the debts are made outstanding claims in former banks. Moreover, the volumes of bounced checks are increasing and too many of dishonored check issuers keep their money resources in different banks and the claimer is not able to obtain his claim. Legal support of claimer does not solve the claimer's trouble due to being tough, lengthy and costly judicial processes. This subject also causes behavioral exasperation of debtors in drawing dishonored checks and fear not to take up.

In order to solve these difficulties, Interbank Withdrawal Protocol (IWP) has been devised in Rastin Banking³ that based on Information and Communication Technology (ICT) to collect the bank and his customer claims which have been put in other banks and are out of access the claimer.

IT Based Rastin Banking Subsystems

The legacy facilities in Information Technology can solve many existing banking problems. Speed,

¹- Professor of economics and chief Islamic banking advisor to Bank Melli Iran. Tehran, Iran. <http://www.bidabad.com/>
Bijan@bidabad.com Tel: +98.21.88360810 Fax: +98.21.88369336

²- Senior Expert of Research, Planning and Risk Management Department., Bank Melli Iran, Tel.: +98.21.88916343, Fax: +98.21.88905436, Allahyarifard@gmail.com

³ Bidabad, Bijan, General Characteristics of Rastin Banking, 2013. <http://www.bidabad.com/doc/rastin-bank-general-en.pdf>

validity, monitoring, controlling, real time information accessibility are some services that web-based systems provide to banks and their customers as well. In Rastin Banking some web-based systems have been devised that also can be applied in conventional banking. Each one of these systems is responsible for solving a problem among all banking problems. Generally, these systems can be connected to other systems through internet. Some of these systems are as follow:

Complementary Systems

Rastin Banking Complementary Systems refer to innovations, systems and complement methods in Rastin Banking system; and are as follow:

1. Rastin Certificate Market (RCM)⁴: bank establishes RCM with specific characteristics and capabilities. Different Rastin Certificates and Rastin Swap Bonds can be transacted in this market. Bank activates the information portal about projects and entrepreneurs of Rastin PLS bank through RCM and releases information about Rastin PLS financial projects to public. The system should be capable of online updating the information about available certificates, transactions, settlements, capitalization, transfer or any other activity on Rastin Certificates transactions.
2. Operation Control and Monitor (OCM): this system is a web-based inspection and monitoring system, which controls the activities of bank personnel. By establishes this system, bank has online control over the personnel activities to be in accordance with operational instructions of Rastin Banking system. Online unnoticeable monitoring of all activities of bank units, clients and personnel of different departments and branches, incompatibility of accounts and documents, embezzlement, cheating and fraud detection and etc. with various levels of accessibility, reporting and analysis routines, data mining, distinguishing and follow up systems for cyber-attacks and establishment of internal control are of the tasks of this system.
3. Collateral Registration System (CRS): Department of Registry of Documents and Properties establishes the integrated Collateral Registration System (CRS) for registering movable and immovable collaterals and introduces it to notary offices. Banks, notary offices and other related authorities (determined by Department of Registry of Documents and Properties) at the time of mortgaging collaterals or restraining properties should register all mortgage information in this system. This system is integrated and each asset has a unique identification number. Therefore, it can easily show whether an asset has been collateralized or restrained before or not. Department of Registry of Documents and Properties provides this capability for banks and other organizations and real persons and legal entities to find out online whether an asset has been collateralized or restrained before or not. On the other hand, in order to provide a safer environment for conducting collaterals auction and sale and enforcing the subjects of enforceable documents, Department of Registry of Documents and Properties establishes a website for auction with Relational Database Management System, auction and sale capabilities and dynamically connected to CRS.
4. Mortgage Securitization System (MSS)⁵: by assessing the value of asset, bank can issue Guarantee Certificate in different lots and periods for owner of the asset. The holder of this certificate can apply to banks and other institutions or real persons and legal entities (who accept these certificates as guaranty) for themselves or on behalf of other people. Obtaining these certificates can be through ordinary or official contracts.
The issuer bank by using Interbank Withdrawal Protocol (IWP) can gain his claims from the accounts of the indebted after restraining the Guarantee Certificate. If the issuer bank becomes bankrupt, the beneficiary of Guarantee Certificate can obtain his nominal claim from settlement manager.
5. Interbank Withdrawal Protocol (IWP): allows bank to obtain his claim created through binding contracts or commercial documents (check, promissory note and draft) from other accounts of the

⁴ Bidabad, Bijan. Rastin Certificate Market (RCM), Supplementary System of Rastin Banking, 2013.

<http://www.bidabad.com/doc/rastin-bank-rcm-en.pdf>

⁵ Bidabad, Bijan, Mortgage Securitization System (MSS) in Rastin Banking, 2012. <http://www.bidabad.com/doc/mss-paper-en.pdf>

debtor at other banks, or accounts belonging to his guarantors at other banks in an online way, after the debtor's first bank account is depleted.

6. Non-Usury Scripless Security Settlement System (NSSSS)⁶: Central bank establishes the integrated Usury-free Scripless Security Settlement System with specific characteristics and capabilities and activates the registration portal for entrepreneurs of Rastin PLS banking. Compliance with Sharia is the necessary condition for entrance of financial documents and instruments in this portal. Portals of Rastin Certificate Markets (RCM) of banks are to be designed in accordance with central bank's standards, so that the information concerning financing projects through Rastin PLS banking, entrepreneurs and Rastin Certificates will be updated online in NSSSS system. This system should be capable of online updating of information concerning Rastin Certificates and Rastin Swap Bonds of bank's portal for each transaction, settlement, capitalization or any other kinds of transaction and transition of Rastin Certificates and Bond by registering them in the system.
7. Money Laundering Detection System (MLD)⁷: all commercial and financial transactions, whether with the aim of gaining profit or not, are regarded as economic transaction and are included in Value Added Tax System. In addition, there should be a spot or delayed payment for each transaction of commodity or service. The two information of each transaction, that is transaction of commodity (or service) and its payment, should be matching; otherwise, there will be suspicion of money laundering. The MLD system will provide the structural and electronic conditions for comparing and matching banking and tax information. If necessary conditions be forced that underground economy parties be obliged to use banking system; and tax authorities do special supervision on large and medium transactions and transition of commodities, money-laundering activities can be detected and traced through matching tax information and banking information. To do so, a special organization is to be established at the Ministry of Finance and Economic Affairs to collect and process the information.

Interbank Withdrawal Protocol (IWP)

Interbank Withdrawal Protocol (IWP) is an interbank agreement under central bank supervision that allows bank to obtain his or customer claims from other accounts of the debtor at other banks after depleting the debtor's bank accounts in the issuing bank online.

Central bank provides the legal and electronic infrastructures for operation of this protocol. The software of IWP should contain withdrawal capability from debtor accounts. In the case that any money has been carried in a debtor account, at the same time it will be transferred to the claimer account automatically and consequently the transactions under this process is registered in central bank databases and information systems. Moreover, central bank hands over the withdrawal information from debtor's account or gives permission to access to the information to judicial authorities for monitoring and making confidence about the amounts of the debts of debtors as real time before passing any sentences by legal authorities.

All banks and non-banking financial institutions are obliged to accept IWP and create the required preparation for operation of this protocol. Each person including legal entity or real person must have just one banking identification number in all banks throughout the banking system. Implementation of this arrangement is determined by central bank. All checks, promissory notes and drafts must contain unique serial number. Implementation of this subject is arranged by central bank and is announced to banks and financial institutions.

According to this protocol, bank provides the necessary conditions for receiving outstanding and delayed debts, doubtful debts, unpaid debts of his own claims and his client's claims that initiated through loan, check, promissory notes, drafts, that had been initiated in traditional system before.

Banking identifier must be published in a specified place on checks, promissory notes and drafts.

⁶ Bidabad, Bijan, Mahmoud Allahyarifard. IT Based Usury Free Financial Innovations. Proceeding of ECDC 2010, 5th International Conference on e-Commerce in Developing Countries: with focus on e-Banking & e-Insurance. ECDC 2010, 15-16 September 2010. <http://www.bidabad.com/doc/non-usury-finance-it-en.pdf>

⁷ Bidabad, Bijan, Money Laundering Detection System (MLD), 2013. <http://www.bidabad.com/doc/mld-paper-en.pdf>

The debtors and guarantors of check, promissory note or draft at the time of signing must write down own banking identifier accompanying with other required information on the documents. The manner of this preparation is arranged and informed by finance ministry with central bank cooperation. It is necessary that finance ministry cooperates with central bank in compiling the operational regulation of trade law regarding draft, note and check with respect to contents of this protocol and pass it through the legal authorities. The mentioned regulation should simplify protest and debt collection steps of check, promissory note and bill and prepares to obtain claim document from debtor or guarantor accounts in all banks through IWP. Banks on basis of IWP are allowed to obtain all claims, which initiated from financial facilities, check, promissory note or draft at maturity. Banks also obliged to provide required preparations for collection of his own or customer's claims whose are mature, outstanding, delayed, doubtful or bad debts arising from financial facilities, check, promissory note or draft through IWP for all claims that have ever been created through the old non-integrated traditional system.

Bank is not allowed to use IWP in relation to ministries and other governmental organizations accounts that have a row in government budget bill. However, bank is allowed to use IWP in relation to the accounts of governmental companies and other affiliated organizations and institutes to government, and non-governmental public institutions that do not use public budget, including pension and social security organizations, revolutionary foundations and organizations and holly shrines.

IWP Operational Process

Claim document including check, promissory note and draft could be withdrawn with respect to authentication standard characteristics after IT and legal infrastructures preparations and identifying connected accounts to unique identity number of debtor through IWP section of Automatic Clearing House (ACH) under central bank supervision. Operational process should be designed in a way that all operations be conducted in a secure platform. Based on IWP, claimer gives his claim document to bank officer and gets receipt. Bank after authentication of claimer loads the digital image of claim document into IWP section of ACH through interactive and IT-based channels after authentication of debtor; attaches Magnetic Ink Character Recognition (MICR)⁸ code line or Radio-Frequency Identification (RFID)⁹ label and uses asymmetric cryptography with digital signatures on the document into the interface. ACH uses the public key of issuing bank for decrypting document signature and makes confidence about document authenticity and accuracy and other fields such as unique identity numbers of the claimer and debtor then make query for loading debtor's accounts balance and other financial assets including trust assets or dealing assets like bonds in all banks or non-bank financial institutes. The system bases upon a logical algorithm withdraw the amount of the claim document from debtor's accounts and consequently carry to claimer's account through Real Time Gross Settlement (RTGS) system.

Withdrawal Algorithm through IWP

IWP and its dependent systems will reduce executive processes of Department of Documents and Properties Registry and Execution and opened cases in courts and consequently related costs as well. IWP algorithm accompanying with IT, legal and organizational infrastructures is based upon the following steps:

1. The amount of claimed document is withdrawn from debtor's accounts in issuing bank.

⁸ Magnetic Ink Character Recognition (MICR) is a character-recognition technology used mainly by banks to ease the processing and clearance of checks and other documents. The MICR encoding is called MICR line. It is at the bottom of checks and other vouchers and typically includes the document-type indicator, bank code, bank account number, check number, check amount, and control indicator. The technology allows MICR readers to scan and read the information directly into a data-collection device. Unlike barcodes and similar technologies, MICR characters can be read easily by humans. For more information see: Troy group (2010), MICR - Magnetic Ink Character Recognition, What is MICR, <http://www.whatismicr.com/index.html>

⁹ RFID is an automatic authentication technology that uses less energy and short-range electromagnetic wave which increase the ability to access data significantly. For more information refer to following link:
Tektronix, (2004), Radio Frequency Identification (RFID) Overview,
<http://www.isotest.es/web/Soporte/Formacion/Notas%20de%20aplicacion/TEKTRONIX/TEKTRONIX%20RSA/RFID.pdf>

2. In case of insufficient cash balance in the debtor's accounts at the issuing bank, the image of claim document is submitted to ACH through IWP using MICR or RFID attached with digital signature to document with asymmetric cryptography.
3. ACH on basis of central bank permission makes query from debtors' accounts according to his unique identification number.
4. Balance of all accounts in different banks is determined by aggregate function in Relational Database Management System (RDBMS)¹⁰.
5. In case of sufficient cash balance and equal possible withdrawal: the amount of the claim document is withdrawn in equal amounts from existing accounts in the banking network and debt documents of banks are submitted through IWP.
6. In case of sufficient cash balance and impossible equal withdrawal from debtors' accounts, the output records from query operations are sorted descendingly.
7. Depletion of debtor's bank accounts is done from high to low amounts.
8. In case of insufficient cash balance, depletion process from debtor's accounts is done with respect to withdrawal algorithm then insufficient cash balance document is issued and delivered to claimer.
9. Based on the customer request, withdrawal operations repeat on basis of scheduled time through ACH until the full settlement of the claim.
10. Withdrawal figure from banking accounts is informed to bank.

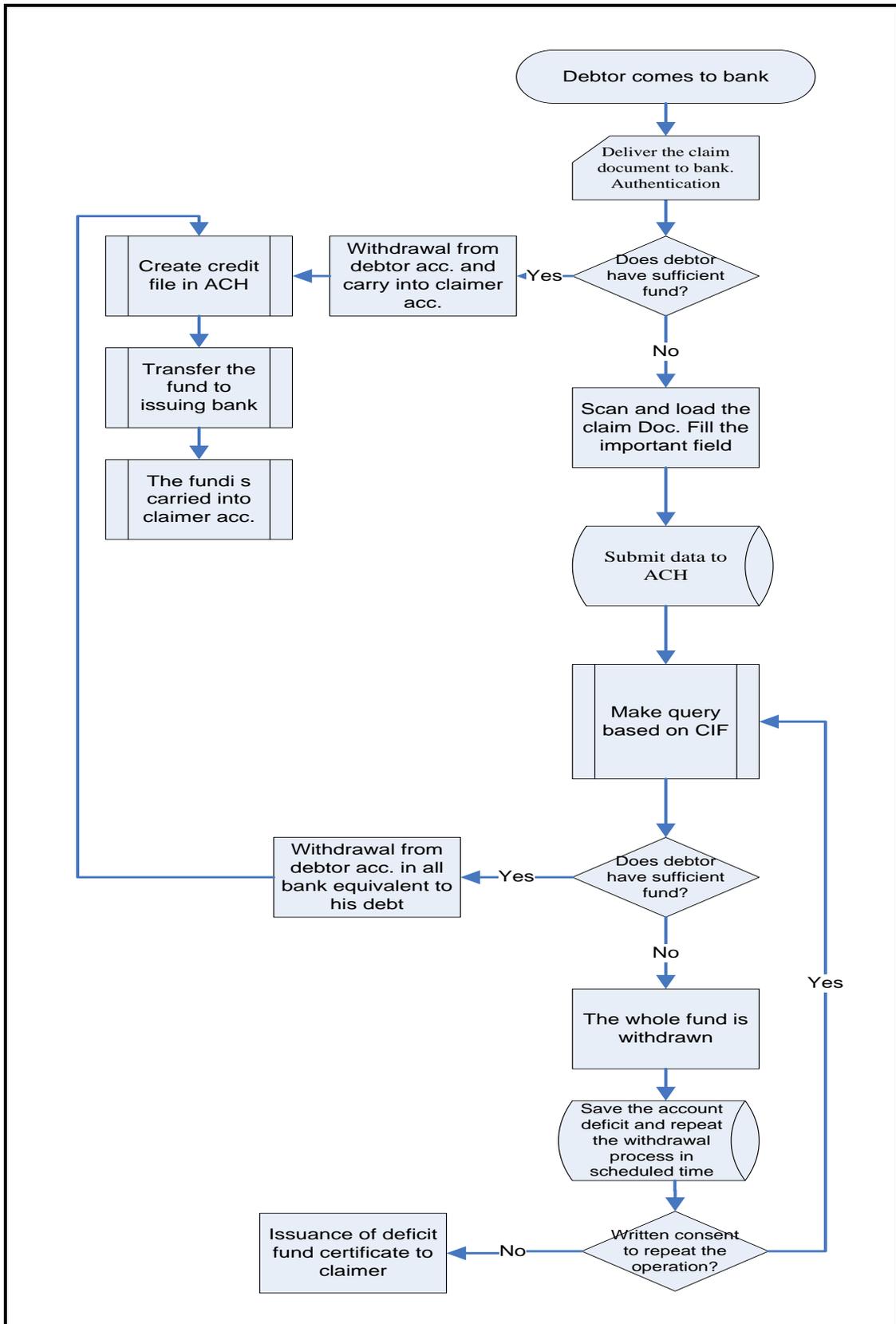
Regarding the above algorithm, the priorities of debtor accounts for withdrawal operations through IWP are as follow:

1. Current deposit account.
2. Saving deposit account.
3. Time deposit account from low to high durations respectively.
4. Other accounts
5. Bonds
6. Foreign exchange accounts according to above priorities for domestic currency.

The following legal and formal arrangements are mandatory for IWP implementation:

1. Banks and non-banking financial institutions are obliged to accept this protocol and provide required preparations.
2. Every real or legal person must just have a unique banking customer identification number in all banks in the banking system.
3. All checks, promissory notes and drafts must have a unique serial number.
4. The insert location for banking identification number of the debtor must be considered and printed on check, promissory note and draft.
5. Debtor and endorsers insert their banking identification numbers and other required information on check, promissory note and draft when sign or endorse the document.
6. It is necessary that finance minister with central bank cooperation to compile the operational regulation of trade law about draft, obligation note and check respect to the contents of this protocol and gets legal authorities approval.
7. Banks are obliged to provide required arrangements for debt collection of his own or client's claims in any types of matured, outstanding, delayed, doubtful or bad debts, checks, promissory notes and drafts through IWP even all the claims that have been created before through the old non-integrated traditional system.

¹⁰ A relational database management system (RDBMS) is a database management system (DBMS) that is based on the relational model as introduced by Codd. What constitutes a relational database system is composed of Codd's 12 rules. E. F. Codd, (1970), A Relational Model of Data for Large Shared Data Banks, IBM's San Jose Research Laboratory <http://www.seas.upenn.edu/~zives/03f/cis550/codd.pdf>



IWP in Action

Article (1): IWP is an interbank contract under central bank supervision that allows bank to obtain his claim (which could be created through binding contracts or commercial documents) and his client's claims regarding commercial documents (check, promissory note and draft) after depleting the debtor's accounts in bank and then other debtor's accounts in other banks and then after the accounts belonging to his guarantors at any bank online.

Note (1): Ministries and government agencies whose incomes and expenditures are recorded in government budget bill and have budget row are not included to withdrawal from debtor's account through IWP.

Note (2): Government companies and other organizations and institutions affiliated to government and non-governmental public organizations that do not use government budget as municipalities, insurance, healthcare, pension and social security funds, foundations, revolutionary organs and holy shrines are included and subjected to this protocol.

Article (2): For IWP implementation, Interbank Withdrawal Protocol Unit (IWPU) at the ACH and Interbank Withdrawal Protocol System (IWPS) under central bank supervision are established and activated.

1. IWPU is responsible for settlement of claim document from debtor's accounts in banking system and submits daily electronic reports of the received and paid amounts under central bank supervision.
2. IWPS is responsible for the whole processes of recording claim documents, withdrawal and funds transfer from debtor's accounts in all banks, authentication of debtor based upon unique banking customer identification number and notice of withdrawal issuance to banks, management reports, settlement process and work-in-process management according to definable parameters at IWP.
3. It is necessary that every banking customer (including real persons or legal entities) have unique identification numbers in banking system.
4. All check and promissory notes and drafts must have unique serial numbers.
5. It is mandatory that debtor and guarantor, at time of signing and endorsing check, promissory notes and draft to insert their banking identification numbers.

Article (3): Operational process of IWP is as follows:

1. The beneficent of the claim document submits the document to bank and after authentication and verifying the document, bank issues a receipt in favor of beneficent.
2. The claim document is withdrawn from debtor's accounts in agent bank.
3. In case of insufficient funds in all existing accounts of debtor or his and guarantors in agent bank, the bank submits and loads the image of claim document and banking identification and amounts of claimed funds of claimer to IWPU of ACH through secure communications channels.
4. The ACH after getting confidence regarding document authenticity and available data in the received filed makes query about debtor's accounts and other trust financial assets in different banks and non-banking financial institutions automatically. Accounts balances in different banks are sorted descendingly and are reported to the ACH. ACH respectively makes withdrawal from highest balance account to lowest.
5. The amounts of claim document is withdrawn from debtor's accounts and carried into beneficent accounts in agent bank through Real Time Gross Settlement System (RTGS) then debt document is submitted to banks through IWP.
6. In case of insufficient fund in debtor's accounts in all banks, depletion of accounts are carried out with respect to this algorithm and deficit document is issued to claimer thereby obtain his claim in other ways.
7. On basis of client's request, withdrawal operation could be repeated at frequent intervals until the claim be collected.

Article (4): Regarding the algorithm of the above article (3), the priority debtor accounts for withdrawal through this protocol is as follow:

1. Current Gharz-ol-hasanah account.
2. Saving Gharz-ol-hasanah account.
3. Time deposit investment account from low to high durations respectively.
4. Other accounts
5. Foreign exchange accounts according to above priorities for domestic currency.

Note: Regarding withdrawal from time deposit investment accounts including local and foreign exchange currencies, primarily bank blocks the account equal to claim and withdrawal operation from the accounts will be delayed for 10 days after then. The debtor is noticed in appropriated ways. If debtor pays his debt within the specified period, bank unblocks the blocked deposit.

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