Use of Consumer Credit Data for Statistical Purposes: Korean Experience

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The Bank of Korea has sought to obtain micro data that can help us to analyze our household debt situation and to assess the financial soundness of households more accurately. This type of data, Consumer Credit Data, has been gathered by credit information registries (or credit reporting companies) primarily to assist creditors in evaluating the credit quality of current and prospective customers. Using this consumer credit data in cooperation with one of Korean Credit Bureaus, the Bank of Korea is constructing a new longitudinal databases that tracks consumers' access and use of credit at a quarterly frequency from 1Q 2010 to present. Now our pending task is to constitute a nationally representative random sample of individual consumers in any given quarter. With these processes completed successfully, the Bank of Korea will obtain more detailed and timely information on the debt status, loan payment behavior, and overall credit quality of Korea consumers. Such information will facilitate our analysis of macroeconomic conditions, improve its understanding of the way credit is provided to consumers, and enhance the bank's monitoring function of financial stability.

Keywords: Household credit, consumer debt, micro data, panel data

1. Introduction

There has been a global trend toward strengthening the role of a central bank in monitoring financial stability. In accordance to this trend the Bank of Korea Act was revised in 2011 for the Bank of Korea, which is not a supervisory regulator of the financial market in Korea[1], to monitor the implications for financial stability when implementing monetary policy. While the rapidly snowballing household debt in Korea is likely to become a destabilizing factor to domestic financial market, the existing aggregated household debt statistics provide only limited information. Ever since the revision of the Act, the Bank of Korea has paved the way for the use of micro-data from Consumer Credit to produce statistics to replace or control the quality of the currently compiled monetary and financial statistics and to investigate domestic financial market so as to more accurately diagnose the economy. Currently, the Consumer Credit data statistics provided by CBs are in an aggregated form, not in a micro form. It is believed that constructing a new longitudinal database using raw Consumer Credit data is necessary to track individuals' and households' access to and use of credit on a periodic basis.

In this article, we first take a look at the household debt status in Korea and the relevant statistics. We then review the sharing system of Consumer Credit in Korea, explain how the Bank of Korea utilizes Consumer Credit data for statistical and analytical purposes, and describe our approach to the construction of the panel database, called Consumer Credit Panel DB (CCP DB), using a sample Consumer Credit information. The major hurdles the database development has recently faced, such as a series of Consumer Credit data leaks that has led to the increased demands for information security, is also introduced. At the end, we review the framework of CCP DB under construction and the way forward.

2. Household debts in Korea

The size of the household debt in the whole economy is obtained from the data on Household Credit and the Households' Flow of Funds account. Household credit is defined as the sum of household loans offered by financial institutions including banks and credit sales (household loans + credit sales) offered by credit card and finance companies[2]. Household debt (household credit statistics basis) stood at 1,021 trillion won as of end-2013, having risen by 6.0% compared to end-2012 (964 trillion won) as its rate of increase expanded over that (5.2%) in 2012. This was a result mainly from banks' and public financial institutions' home mortgage lending (including leasehold deposit loans[3]) climbing, due to an expansion in housing transactions, to rises in leasehold deposit prices, etc., amid increased unsecured lending by non-bank financial institutions[4].

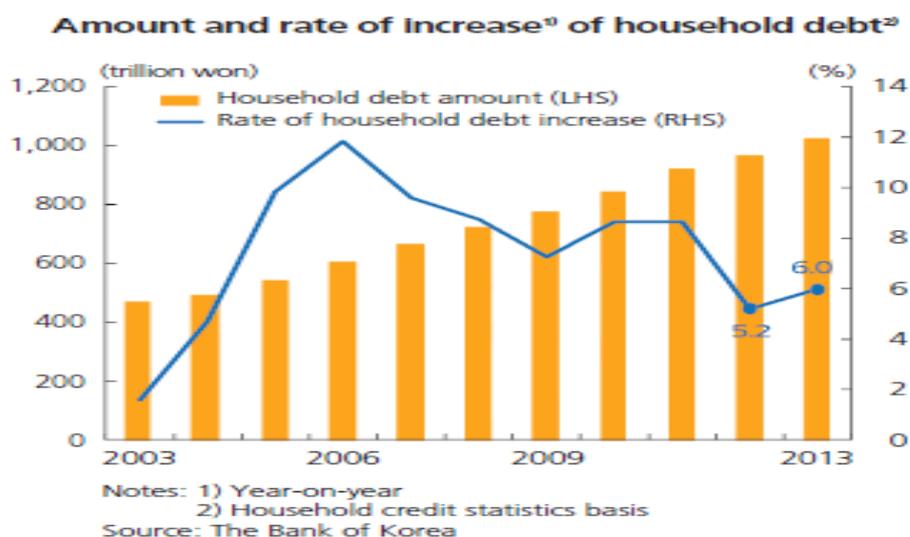As household debt in Korea has rapidly snowballed in recent years, concerns have been raised

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[1] The Financial Supervisory Service, in Korea, is responsible for the examination and supervision of financial institutions. FSS was established on January 2, 1999, under the Act on the Establishment of Financial Supervisory Organizations by bringing together four supervisory bodies-Banking Supervisory Authority, Securities Supervisory Board, Insurance Supervisory Board, and Non-bank Supervisory Authority-into a single supervisory organization.

[2] The Bank of Korea has gathered data on household credit (releasing quarterly statistics since 1996) in order to figure out the household credit supply situation since 1997.

[3] The majority of leasehold deposit loan products that banks are extending are secured by guarantees issued by the public guarantee organizations Housing Finance Credit Guarantee Fund and Korea Housing Guarantee Co., Ltd., or by the private guarantee organization Seoul Guarantee Insurance Co., Ltd.

[4] Non-bank financial institutions in the text related to household financial soundness include non-bank depository institutions and other financial institutions such as insurance companies, pension funds and public financial institutions

about households' debt servicing capacity. It is notable that as economic conditions deteriorate such concerns can exacerbate the situation and cause the fear for a 'financial crisis' or an 'economic crisis'. One of the reasons for the raised concerns is that no objective assessment and in-depth analysis of households' debt servicing capacity have been made in spite of the growing household debt. So far the approaches of Korean household debt studies and the relevant assessments of households' debt servicing capacity have mainly been based on aggregate data, and thereby having used aggregate statistics for the overall economy and all households. For the indicators for assessing households' debt servicing capacity, the capital gearing ratio and the debt-to-income ratio have been used.

Amount and rate of increase[1] of household debt[2]

Notes: 1) Year-on-year
2) Household credit statistics basis
Source: The Bank of Korea

However, the households' debt servicing capacity assessed based on aggregates using the indicators above has a limitation in that it does not reflect the differences in households' characteristics.[5] That is, if households' debt is assessed using aggregate measures, it is impossible to figure out which type of households is in a sound financial situation and which is facing bankruptcy. In addition, this method might provide unrealistic information in accordance with households' debt distribution. For example, in case the households with sound debt servicing ability (those having high level of income or assets) own most of the household debt, this will generate little problem to the economy. However, when assessed with the aggregate data alone, their financial soundness can be said to have deteriorated simply because their debts have grown faster than their income or assets. From this perspective, it is required to conduct analysis of household debt using micro data as well as macro indicators to more accurately assess the financial soundness of households.

For some time, the BOK has sought to obtain micro data that can help us to analyze our household debt situation. This type of data, Consumer Credit Data, has been gathered by credit information registries(or credit reporting companies) primarily to assist creditors in evaluating the credit quality of current and prospective customers.[6] In next chapter, after explaining credit reporting system in Korea,

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[5] The economic, social and demographic differences among the households (ages, occupations, delinquency, payment history, income, credit score, etc)

[6] Consumer credit data has been gathered by a "Credit information registry" which refers to a database of information on borrowers in a financial system. Information in these registries is available for individual consumers and/or firms. The core of this data is a borrower's past payment history. The data available may be only negative (information on late payments, defaults and other irregularities) or may also contain positive information such as debts outstanding even if the credits and loans have always been paid on schedule. Registries may also contain other types of information, including basic personal information such as address and age, as well as information from court records or other public or government sources, which could have a bearing on creditworthiness.

we introduce our current usage of consumer credit data.[7]

3. Credit Reporting System in Korea and usage of its data

For decades in Korea, consumer credit information has been gathered by the Korea Federation of Bank (KFB)[8], established in 1928[9], and Credit Bureaus(CBs). The KFB, as a centralized credit information collection agency under the applicable Korean law, pools and manages credit information from all financial institutions and public organizations[10] and provides this information to financial institutions, public organizations and CBs for their use. The KFB covers a broad range of data that encompass every financial institution and helps these institutions to perform more effective and efficient credit assessment of their customers and to better monitor their borrowers. The KFB also collect additional information from public records and courts (for information on lawsuits, tax liens, judgments and bankruptcies). CBs have full access to the concentrated KFB as well. CBs also gather other data which is useful for credit assessment of the borrowers but not included in KFB data.

Credit Reporting System in Korea
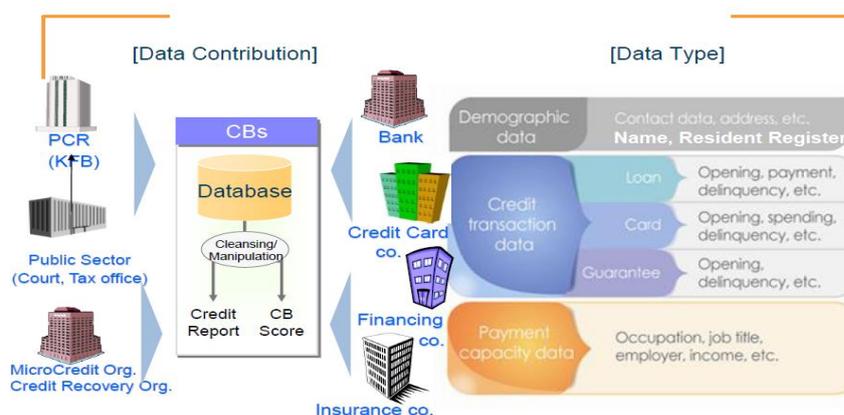
The KFB has characteristics of both a Public Credit Registries(PCR) and a CB. It is similar to a

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[7] Credit registries operated by governments, (usually by bank supervisors), are referred to as Public Credit Registries("PCR"). Those registries operated outside government, even if they are non-profit institutions, are referred to as Private Credit Registries or Credit Bureaus(CBs).

[8] The Korea Federation of Banks (KFB) is a trade association that represents and promotes the interests of the Korean banking industry as a whole.

[9] In 1986, the KFB began to offer credit information management services. In 1997, the government officially designated the KFB as Korea's centralized credit information collection agency and granted it the authority to collect and maintain credit information from all financial institutions, in accordance with the Use and Protection of Credit Information Act.

[10] As of December 2012, approximately 4,208 financial institutions and 560 other entities, including government agencies and courts, had submitted credit information to the KFB. This figure encompasses nearly every type of financial institution operating in Korea, including 18 domestic banks, two credit guarantee funds, one housing finance corporation, one policy-based finance corporation, the branches of 33 foreign banks, 45 securities companies, 37 insurance companies, 93 savings banks, 64 credit card leasing and finance companies, 1,255 agricultural and fisheries cooperatives, 949 credit unions, and 1,420 community credit cooperatives.
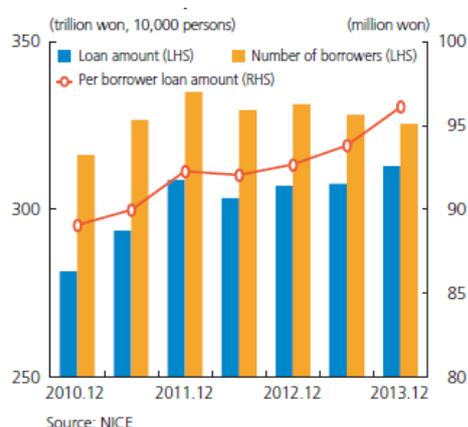
PCR in that its collection of credit information is required by law, while similar to a CB in that it pools a wide range of information and that its decision making is performed by a consultative body comprising representatives of financial institutions. KFB is not owned or administered by a central bank or a supervisory institution unlike PCRs in other countries; therefore, limitations exist to utilize the credit data concentrated by KFB for public interest.

The information gathered by CBs is vast and seeks to cover virtually all Korean consumer borrowing. To the extent that this information is complete, comprehensive, and accurate, it represents a potential new source of statistical data for the BOK on consumer credit markets and behavior. To analyze the households' debt more accurately using consumer credit data the BOK has obtained the aggregate consumer credit data from one of the CBs in Korea. These statistics are produced from the entire consumer database in Korean financial market and help the BOK to diagnose the current situation of households' debt. The figures below show some of these statistics included in "Financial Stability Report".

Proportions of low-credit borrower[1] household loans, by financial sector[2]
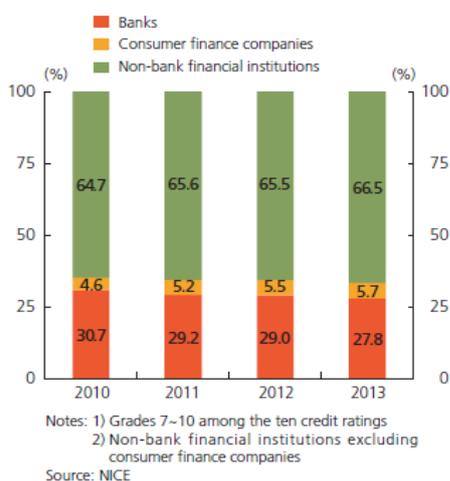
Multiple loan amount, multiple loan borrower number, and household loan amount per multiple loan borrower

Notes: 1) Grades 7~10 among the ten credit ratings
2) Non-bank financial institutions excluding consumer finance companies
Source: NICE

Source: NICE

The primary sources for current information on consumer debt and credit consist of the aggregate data from financial institutions and CBs using consumer credit data. These databases have several important shortcomings for analysis of loan behavior. To overcome these shortcomings, the Bank of Korea engaged one of the three CBs to supply the records of a nationally representative sample of individuals to make a panel DB. This plan, however, has been delayed due to several cases of personal information leakages. In the next chapter, we introduce our framework of Consumer Credit Panel DB and the reason why the start-up of constructing DB was delayed.

4. A Big Picture of BOK's Consumer Credit Panel DB

To address these shortcomings of existing data sources and to meet a rising need for up-to-date high quality information on household debt and credit at an ongoing basis, the Economic & Statistic Department of BOK set out to create a new and unique quarterly panel dataset, 'Consumer Credit Panel DB(preliminary title)', a new longitudinal database with detailed information on consumer debt and credit, based on information contained in individual credit reports. Our main objective is to create a longitudinal panel of individuals that tracks their access and use of credit at a quarterly frequency from 1Q 2009 to the present, with future updates added each quarter. The panel is supposed to constitute a nationally representative random sample of individual consumers in any given quarter. According to our plan, the panel DB will be comprised of a 5% sample and contain information

derived from consumer credit reports to track individuals' and households' access to and use of credit on a quarterly basis. The DB will be used for statistical purposes, as the panel can compute nationally representative estimates of the levels and changes in various aspects of individual and household liabilities.

With respect to the legal environment for using Consumer Credit Information in Korea, since our planned DB would not include any personal information, such as name, national ID number, street address, and so on, our work is in compliance with the current law. However, regardless of legal compliance, public desire to reinforce the protection of personal information is growing after the recent events of consumer credit data leakages. Recently, in Jan 2014, one of the largest information theft cases occurred in Korea. [11] Regulators are preparing to announce a set of measures that will better protect personal information handled by financial firms following a recent massive data leak.[12] These moves toward the reinforcement of the protection of individual information delayed our plan of constructing CCP DB. As the importance of enhancing personal information security has increased along with personal information leaks, CBs had been reluctant to provide the individual Consumer Credit data until recently. The Economic Statistical Department of the BOK had consistently persuaded CBs that their data would be a substantial contribution to pursuing the public interest and they finally agreed to provide the individual Consumer Credit data.

Regarding the information from managed by CBs, the data to be contained in our DB can be broadly categorized into certain personal information, credit account information, including credit card information, and public records. Personal Information includes consumer identification number[13], date of birth, gender, address, income [14], employment information(occupation), and nationality(Korean/foreigner).[15] For credit account data usually occupy a major portion among other credit records, it can easily be assumed that credit account-related information would do so for the planned DB as well. In addition to loan account information provided by creditors, the consumer credit panel contains information from public records, including records of bankruptcy and tax liens.

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[11] An official of the Korea Credit Bureau (KCB) stole the customer information from the databases of the three of the country's major credit card firms and sold the data to an advertiser, and the information was used for marketing activities. Data of over 20 million consumer was leaked. Regulators are facing criticism that they failed to properly monitor the financial firms.

[12] The measures under review include curbing financial firms from asking for "too much" personal information such as citizen registration numbers and strictly regulating information sharing among affiliates.

[13] It is important to note that all individuals included in our database are anonymous: we do not know their names, street addresses or national ID numbers. Individuals in our data are distinguished and can be linked over time through a consumer identification number.

[14] Not all individual's income information is included, in which case the estimated income, by CBs for the purpose of credit evaluation of borrowers, is used for proxy.

[15] Inquiries Records and Credit scores would be also included. Inquiries consist of information on the consumer's credit history requested by a creditor and include date and purpose of the inquiry.

Contents of Credit Information in CCP DB

Classification	Content
Personal information	• Consumer identification number, Date of birth, Sex, Address, etc. • Income, Employment information(occupation), Nationality • Inquiries Records, Credit score, etc.
Credit Account Information	• Outstanding loans (dates, amounts, names of lending institutions, mortgage collateral) • Outstanding card loans • Guarantees on repayment (dates, amounts, names of guarantee institutions) • Openings and closures of household checking accounts and credit card and debit card accounts • Delinquencies on debt and Defaults on credit card debt, etc.
Public Information	• Delinquencies on national taxes, local taxes, and customs duties • Failures to honor court repayment orders • Exemptions from debt repayment due to court decisions to discharge upon request from debtors • Individuals in the process of debt recovery in accordance with the Individual Debtor Recovery Act • Delinquencies on customs duties • Delinquencies on industrial insurance premiums and employment insurance premiums, etc.

5. Concluding Remarks : The Way Forward

The large culmination of consumer debt and defaults served to highlight the importance of understanding the liabilities side of households' balance sheets. To that end, the BOK has planned to establish a Consumer Credit Panel, a dataset on household liabilities based on consumer credit data. The Consumer Credit Panel would be designed to provide detailed quarterly data on a panel of Korean consumers from 2009 to present.

The most important process that is required for the DB to be representative of Korean consumer is the sampling design. The BOK is now investigating on the sampling design. If the sampling design proves to be appropriate, the dataset can be used to calculate national and regional aggregate measures of individual-level credit balances and delinquencies by product type. The panel also provides new insights into the extent and nature of heterogeneity of debt and delinquencies across individuals. The longitudinal nature of the data enables research on loan origination and repayment behavior at the individual consumer level over time, across refinances and loan modifications and across different loan types. The panel tracks consumer obligations from 2009 to present, and an analysis of a wide array of previously obscured debt behaviors is ongoing.

The next task, then, would be making household-level data. While consumer income and assets are commonly measured and analyzed at the household level, consumer debt traditionally has been measured at the individual level. For studying household economic behavior and in particular, for understanding life-cycle household finance, it would in fact be more informative to examine debt and credit aggregated at a household level rather than at an individual level.

With these processes completed successfully, the BOK could obtain more detailed and timely information on the debt status, loan payment behavior, and overall credit quality of Korea consumers. Such information could facilitate the BOK's analysis of macroeconomic conditions, improve its understanding of the way credit is provided to consumers, and enhance the bank's monitoring function of financial stability.