



Improving sectorial accounts of non-financial societies using micro-data on credit

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Abstract

As other financial crises, the last crisis revealed the increasingly needs of data from economic agents for a deeper understanding of economic and financial imbalances. In this sense, several international data initiatives were implemented to improve financial information. The G-20 Data Gap Initiative in their 15th recommendation promotes the compilation and dissemination of sectorial balance sheets. This paper explores the use of micro-data including a newly available database from credit bureaus in Mexico to identify credit by non-regulated non-banking financial intermediaries and other sources of financing, allowing an improved estimation of the financial balance sheet of the non-financial societies under a “whom-to-whom” identification of institutions and sectors.

Keywords: non-financial societies; sectorial financial balance sheet; micro-data.

1. Introduction

As other financial crises, the last crisis revealed the increasingly needs of data from economic agents for a deeper understanding of economic and financial imbalances. This paper explores the use of micro-data including a newly available database from credit bureaus in Mexico to identify credit by non-regulated non-banking financial intermediaries and other sources of financing, allowing an improved estimation of the financial balance sheet of the non-financial societies under a “whom-to-whom” identification of institutions and sectors.

The rest of the paper contains three more sections. The second section describes briefly the main idea behind the Sectorial Balance Sheets approach (SBS) and some of its principal methodological issues; the third section presents an exercise that uses micro-data to fill up some blanks, focusing on describing data sources used and the usefulness of new information finally, the fourth section concludes.

2. Sectorial balance sheets: in brief

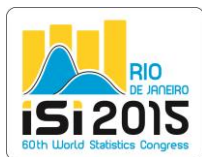
The financial sectorial balance sheets is an important piece of information for policy makers and researchers as it summarizes the relationships and interactions between institutional sectors.

The idea of improving information to estimate sectorial balance sheets has been on academic and policy world task for a while.¹ The institutional sector classification was already at the origins of the System of National Accounts (SNA), nonetheless the concept of SBS was not included until 1993 version of the SNA (Lequiller and Blades, 2014). This version of the SNA includes the Financial Account, which implicitly allows for the possibility of building financial accounts for each institutional sector.

The central idea of SBS is very simple, but very useful, it is observe the inter-linkages between institutional sectors in an economy. The SNA 2008 defines five main domestic institutional sectors: non-financial

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¹ Goldsmith (1985) contain an overview of the evolution of the national balance sheet and concepts related whit it. Also a brief review of the methodological evolution of System of National Accounts is included in Lequiller and Blades (2014).



corporations, financial corporations, general government, non-profit institutions serving households (NPISH) and households, and an extra sixth sector, the rest of the world.²

Under a standardized layout, defined in SNA 2008, sectorial balance sheets records stocks of non-financial and financial assets and liabilities including conceptually almost all possible economic activities from the agents.³ Accordingly to the SNA 2008: “The balance sheet completes the sequence of accounts, showing the ultimate result of the entries in the production, distribution and use of income, and accumulation accounts”.

The standardized layout mentioned includes as non-financial assets (produced and non-produced): i) fixed assets; ii) inventories; iii) valuables; iv) natural resources; v) contracts, leases and licenses; and; vi) goodwill and market assets. On the financial side, the layout is symmetric about the main concepts included as financial assets and liabilities.⁴ The core concepts in the layout are: i) currency and deposits; ii) securities other than shares, except financial derivatives (classified by term); iii) financial derivatives (distinguishing the instruments and employee stock options); iv) loans (classified by term); v) shares and other equity, except mutual funds shares (distinguishing type of shares); vi) mutual fund shares; vii) insurance technical reserves;⁵ and viii) other accounts receivable/payable.

The data availability in each economy limits SBS breakdown; nonetheless in an ideal situation this breakdown should only be limited by the needs of research and analysis. Even though the “ideal world” for compilers and users could imply have detailed data from institutional sectors to fill the SBS’s, it is not always possible for diverse reasons. First, for some sectors is not mandatory declare their financial statement, specifically households and NPISH. Second, in the case of the non-financial corporations in a lot of cases for small and micro-enterprises is not compulsory to declare their financial statements. It is worth mentioning that in emerging market economies these kinds of firms could represent a big share of the total firms in these economies, creating a potential data gap for analysis and policy purposes. Third, small or new financial intermediaries in economies could “underreport” data (few breakdowns, few micro-data, etc.) disallowing to get information about their exposures with other institutional sectors and, as result hinder the building of SBS’s.⁶ Fourth, in some economies there are non-regulated non-banking financial intermediaries, that do not report their data to authorities, creating as in the previous case potential data gaps.⁷

Keeping in mind these facts, in a lot of cases data from non-financial corporations, households and some non-regulated non-banking financial intermediaries, usually are gotten indirectly, through the information

² Some institutional sectors have sub-sectors, for example private non-financial corporations and public non-financial corporations are subsectors of non-financial corporations. Additionally, a current challenge is to identify, from a domestic economy perspective, the inter-linkages between domestic sectors, or subsectors, and specific sectors or subsectors from the rest of the world. These efforts are embedded in the G-20 Data Gaps Initiative (G20-DGI). Is worth mentioning that in this paper the concepts of “non-financial societies” and “non-financial corporations” are used as a synonyms.

³ In this paper we focus only on financial assets and liabilities from private non-financial corporations as result of availability of information and for length restrictions.

⁴ Financial side have an exception in the financial assets, “Monetary gold and SDR’s”. It is a row reported only in the balance sheet of central bank, however, for symmetry it is included in the rest of sectorial balance sheets.

⁵ The breakdown of insurance technical reserves considers: “Net equity of households in technical reserves” and “Prepayments of premiums & reserves for outstanding claims”. Former is a row exclusively for households. However, as in the case of Monetary gold and SDR’s” row, it is included in the rest of sectorial balance sheets.

⁶ Report data to financial authorities implies regulatory costs for financial intermediaries. In some cases, underreport could be result of financial authorities’ decisions, which as a way to supports development of new financial intermediaries tries diminish some regulatory costs, or since the new financial intermediaries could be smalls, them could not represents a higher risks for financial system; then detailed information is not required.

⁷ Data gaps mentioned in this paper are addressed in diverse recommendations of G-20 Data Gaps Initiative (IMF & FSB (2009)).



reported by regulated financial intermediates when data availability and breakdown of information allows to do it. A way of tackle this data gap is require information from different sources, one of those is the centrals of credit registers, the credit bureaus. By the scope and granularity of data gotten by these latter, the information collected could represent an extraordinary asset to fill some data gaps in the SBS. About the data of credit bureaus, maybe the core usefulness of information is to have information from non-regulated financial intermediates and from other institutional sectors non-obligated to report their financial statements.

Even the potential information sources of non-financial corporations data, get detailed and precise information from institutional sectors trying to close data gaps is an issue faced by national statistics offices, financial authorities and central banks in most economies, and it still represents a big challenge.

3. Sectorial financial balance sheets in Mexico

In Mexico, the National Institute of Statistics and Geography (INEGI by its acronym in Spanish) is the main responsible for elaborating and disseminating the sectorial balance sheets. Nowadays INEGI is working on developing and improving different methodological aspects of these balance sheets. However, richness of model of information of Banco de Mexico could very useful for build and improve SBS's. It is worth mentioning that since the second part of 90's decade Banco de Mexico has developed a model of information rich in micro-data, fact that allows a better identification of financial positions of institutional sectors (Gaytan (2014)).⁸

Currently, model of information is built through: i) information requirements to diverse regulated financial intermediates (mainly banks, brokerage houses and exchanges houses) issued by Banco de Mexico, and ii) information coming from data sharing with other financial authorities.

At this time, data in the information model allows plenty identification of financial position from non-financial corporations with banks and brokerage houses in deposit, loans, derivatives, securities and foreign exchange markets. However, due to not availability of information about other financial intermediates, it is a data gap for build the SBS from this institutional sector.

Recently, as a result of improvement of the information model scope, Banco de Mexico has started works to issue, in the near future, a mandatory regulation that allows ask for information to credit bureaus; data collected by those auxiliary entities is an operation by operation data base. Currently, Banco de Mexico has as part of their model of information a sample of data collected by credit bureaus; this sample, contains information of credit issued to firms for diverse time periods. Notice that the use of data collected by credit bureaus in Mexico is still limited. This as result of the characteristics of the data –very detailed private data; however there are few papers that explores this data, for example Ponce *et al* (2014).

Due to data availability of most recent information of credit bureaus, the exercise developed in this paper about construction of SBS of non-financial private corporations in Mexico, takes data of December 2011. Notice first that as part of their responsibilities, Banco de Mexico report data to diverse international organism, among these is the OECD, some data reported to this international organism is the SBS of the Mexican economy, including the sectorial balance sheet of non-financial corporations. Currently, data reported to OECD is under methodological revision, for this reason the last data available correspond to 2009. Second, the exercise presented is exploratory and preliminary. Nonetheless these caveats, data presented in Table 1, by itself, is an improvement on this analytical tool.

Table 1 presents the exercise based on a proposed data breakdown, it tries to capture different aspects: i) distinguish between banking and non-banking loans, ii) financial position faced by non-financial corporations with non-banking non-regulated financial intermediates, and iii) the gross financial position

⁸ Currently from all registers in the databases of model information approximately 95% are in operation by operation base (micro-data).



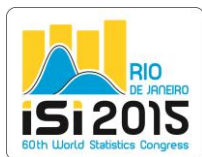
faced by non-financial corporations in derivatives. It is worth mentioning, that the first two aspects are related with financial position of non-financial corporations with potential shadow banking activities. The exercise has diverse information sources. In the financial assets side, data on “Transferable deposits” and “Other deposits” were extracted indirectly from aggregate, at sectorial level, data reported by banks to Banco de Mexico. “Securities other than shares except financial derivatives” and “Financial derivatives” come from operation-by-operation data reported by banks to Banco de Mexico; “Securities other than shares except financial derivatives” includes holdings of securities issued by diverse institutional sectors, then it can be interpreted as a financing of non-financial corporations to issuer sectors. Data of “Trade credit and advances” was taken from financial statement of listed firms on Mexican Stock Exchange (BMV by its acronym in Spanish) due to unavailability of other information sources, and even though this information can be underestimated, currently this is the best proxy of this concept. “Currency” was build using an assumption resulted of the ratio between currency of listed firms and bills and coins holding by the public. In the liabilities side, “Securities other than shares except financial derivatives” was obtained from operation-by-operation data reported to Central Securities Depository about issuance of commercial paper, bonds and placements abroad; in the case of external debt issuance was assumed that the bigger share corresponds to long term debt. As in the financial assets case, “Financial derivatives” come from operation-by-operation data reported by banks to Banco de Mexico. “Banking loans” are data shared to Banco de Mexico by National Banking and Securities Supervision Authority (CNBV by its acronym in Spanish) and data reported in Banco de Mexico's survey: "Outstanding Consolidated Claims on Mexico". The classification by term was done assuming proportions taking data reported on financial statements of listed firms. Given the richness of data from credit bureau, I decided to classify data from “Other financial non-banking corporations” into two concepts: First, data from “Regulated” corresponds to data reported to CNBV by other non-banking financial intermediaries; second under the concept of “Non-regulated” is reported the information collected by credit bureau. The latter represents an important improvement on SBS, since never before these data were explored. Data of “Quoted shares” is the market value of all shares issued, reported by the BMV. As in the case of financial assets, “Trade credit and advances” was taken from financial statement of listed firms on BMV. Finally, the concept “Other” were built using data from credit bureau.

Table 1
Mexican Private Non-financial Corporations Financial Balance Sheet
December 2011. Stocks in billion pesos

Financial assets	2,421.1	Liabilities	8,823.1
Currency and deposits	1,269.9	Currency and deposits	0.0
<i>Currency</i>	251.5	Currency and deposits	
Transferable deposits	656.8	Transferable deposits	
Other deposits	361.6	Other deposits	
<i>Securities other than shares</i>	547.9	Securities other than shares	893.6
<i>Securities other than shares, except financial derivatives</i>	531.5	Securities other than shares, except financial derivatives	858.4
<i>Short-run</i>	88.1	<i>Short-run</i>	27.9
<i>Long-run</i>	443.3	<i>Long-run</i>	830.5
<i>Financial derivatives</i>	16.4	Financial derivatives	35.2
<i>Swaps</i>	11.3	<i>Swaps</i>	32.2
<i>Forwards</i>	4.1	<i>Forwards</i>	2.8
<i>Options</i>	1.1	<i>Options</i>	0.3
Loans	0.0	Loans	1,740.1
Short-run		<i>Banking</i>	1,579.3
Long-run		<i>Short-run</i>	334.3
		<i>Long-run</i>	1,245.0
		<i>Other non-banking financial corporations</i>	160.8
		<i>Regulated</i>	98.4
		<i>Non-regulated</i>	62.3
Shares and other equity	0.0	Shares and other equity	5,703.4
Shares and other equity, except mutual funds shares	0.0	Shares and other equity, except mutual funds shares	5,703.4
Quoted shares		Quoted shares	5,703.4
Unquoted shares		Unquoted shares	
Other equity		Other equity	
Mutual funds share		Mutual funds share	
Insurance technical reserves	0.0	Insurance technical reserves	0.0
Net equity of households in technical reserves	0.0	Net equity of households in technical reserves	0.0
In life insurance reserves		In life insurance reserves	
In pension funds		In pension funds	
Prepayments of premiums & reserves for outstanding claims		Prepayments of premiums & reserves for outstanding claims	
Other accounts receivable	603.3	<i>Other accounts payable</i>	450.8
Trade credits and advances	603.3	<i>Trade credits and advances</i>	326.2
Other		<i>Other</i>	124.6

Notes: Preliminary information. In *Cursive* concepts not reported before. Totals may not add up exactly, due to rounding off.
Sources: Credit Bureau, Banco de Mexico, CNBV and Mexican Stock Exchange.

As an example of importance of these new data, and keeping in mind limitations of the exercise, the breakdown of the loans on the liabilities side allows us observe the relative importance of financing from potential sources related with shadow banking activities. Information shows that financing from other non-banking financial intermediaries represents close to 10% of banking financing, if we consider the issuance of debt as other “non-traditional” source of financing, this proportion ascends to 54% of banking loans. In other hand, financing from non-regulated non-banking financial intermediates is more than a third of the total financing of non-banking financial intermediates. Having more time periods of these data, this SBS could be used to analyze the evolution of exposure of the private non-financial corporations with shadow



banking activities, showing with it the potential analytical uses of SBS's about inter-linkages and relationships between institutional sectors in an economy.

What can we extract from this exercise? First, it represents an advance regarding data reported to some international organisms. The exercise contains more information and, for some concepts, more detailed than information reported at present to the OECD. Second, it explores the use of new data sources and as result, it shows the usefulness of potential new information. In this sense, build SBS's could be used as a way to identify domestic data gaps, or other aspects to improve, in models of information. Third, even though limitations, potential uses of this analytical tool are shown.

Also, the exercise shows some weakness and data gaps on the model of information of Banco de Mexico; among others: i) expand coverage of information reported by non-financial corporations, including data of smaller firms; ii) get detailed information on terms and rates of all instruments reported on the SBS, these data could help to improve analysis shedding light on risks taken by firms and their creditors and iii) improve information on currency firm's holdings.

4. Conclusions

This paper expose an exploratory and preliminary exercise of a new financial balance sheet for non-financial corporations. Even though exercise limitations, data gathered shows the usefulness of the SBS's as analytical tool. The exercise was too useful to identify some data gaps in the model information of Banco de Mexico, among them expand coverage of information from non-financial corporations and improve data collected on financial instruments characteristics.

Finally this exercise could be very useful to try fulfill part of 15th recommendation of G20-DGI and also could serve to fulfill, in an indirect way, other recommendations of this international initiative. This last does not imply that the efforts and improvements to get information of non-financial corporations still represents a big challenge for Mexican financial authorities and statistic office.

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