The experience of the Bank of Mexico: compiling data on domestic debt securities

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1. Introduction

The Bank of Mexico (Banxico) has been publishing on its website (www.banxico.org.mx) a wide set of time series on domestic debt securities statistics, which are obtained from different sources and using different methodologies. This paper describes the central bank's experience in compiling, organising and publishing debt securities data. In particular, it provides an assessment of the advantages and disadvantages of each source of information and the changes that are planned to be implemented to improve the consistency and accessibility of the available information. Banxico's experience suggests that the information obtained for the payments settlement system from the central securities depository institution (Indeval) is the best source for constructing a security-by-security database. This is because the database available at Indeval incorporates, comprehensively, accurately and promptly, the most relevant characteristics (maturity, payment flows, breakdown of holders by sector etc) of each security that has been issued and/or traded in the domestic debt market.

This paper is divided into four sections. Section 2 focuses on describing the information available at Indeval and how it has been exploited by Banxico to obtain its government securities database. Section 3 presents the information received from financial institutions, which has been used to complement its debt statistics. Finally, section 4 presents a summary of this note and makes some final remarks on the strategy to improve Banxico's domestic debt securities statistics.

2. Debt statistics assembled from Indeval's database

Banxico's methodology for gathering information on domestic debt instruments has been facilitated because in Mexico the majority of the trades involving securities are settled through the same settlement system, operated by Indeval, which also provides the only central securities depository. Indeval has been operating as a private enterprise since 1986 and its relevance for the money market has increased since 1996, when Banxico transferred to this system the settlement of government securities transactions. It is important to mention that Indeval's system, as well as the corresponding legal and regulatory framework, has been subject to continuous upgrades to comply with the CPSS-IOSCO "Recommendations for Securities Settlement Systems".

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[2] The opinions expressed in this document are those of the author and thus do not necessarily reflect those of the Bank of Mexico. The author acknowledges the comments and the technical assistance of Rodrigo Cano and Daniela Gallardo. Any inaccuracy in the paper is the sole responsibility of the author.

This section describes the methodology used to compile statistics on government securities,[3] which have been obtained from Indeval's database. It should be noted that this section focuses on government securities, as the methodology for compiling information is fully operational and has been exploited to assemble the most complete section of Banxico's securities database. Government securities represent more than two thirds of the outstanding stock of domestic debt instruments. With the forthcoming update of Indeval's system, to be implemented in the second half of this year, it is intended to apply the same methodology to collect a comprehensive database for the entire set of domestic debt instruments.

The first part of this section describes the available database at the level of a particular issue in order to understand its components and its potential application to elaborate consistent and timely debt security statistics. The second part considers aggregate statistics that have been assembled and published by Banxico regarding the outstanding stock of government securities.

2.1 Description of the security-by-security database

Each debt security deposited at Indeval's system is distinguished through several identification fields that are designed to describe all its characteristics, such as issuer, maturity date, face value, number of titles placed, coupon, coupon payment date and periodicity (Table 1). The next upgraded version of the system will also include an ISIN code to identify each domestic debt security. It is important to note that all the data presented in this part of the paper refer to a specific security, identified as M-Bond 15/12/2016, and for a particular date queried: 20 February 2008.

Table 1

Debt security description

Issuer	Federal Government
Type of instrument	M-fixed coupon bond
Maturity date	15/12/2016
Nominal value	100
Currency	MXP
Coupon	7.25%
Frequency (days)	182
Request date	20/02/2008
Titles placed	733,356,217
Accrual days	55
Coupons to be paid	18

Source: Indeval.

[3] Broadly defined, government securities include the debt instruments issued by the Federal Government, Banxico and those of the Deposit Insurance Agency (IPAB) with the explicit support of the Federal Government. Government securities are placed by Banxico either as part of their own sterilisation instruments or acting as the Federal Government or IPAB's financial agent.

Indeval's database provides a breakdown of the number of titles placed of each debt security, based on the amount deposited in the system by every financial institution that has a custodian account. Furthermore, Indeval's regulation requires that any financial institutions with a custodian account segregate its own holdings from those held as clients' positions.

Table 2 gives an example of the distribution of the M-Bond[4] 15/12/2016 between financial institutions that have a custodian account at Indeval. It is important to note that Banxico is included among these institutions in order to integrate the position of this particular debt security held by the central bank as collateral from its open market operations conducted through reverse repurchase agreements (repos) with financial intermediaries.

Table 2

Breakdown of holdings by custodian

Nominal value in MXN million

	Total	**Own**	**Clients**
Institution 1	34,999	0	34,999
Institution 2	13,356	0	13,356
Institution 3	9,798	0	9,798
Institution 4	2,783	0	2,783
Institution 5	2,775	2,705	70
Other Inst.	2,425	1,042	1,383
Sum	**66,136**	**3,747**	**62,389**
Banxico	7,200	7,200	0
In circulation	**73,336**	**10,947**	**62,389**

Source: Indeval.

To obtain a more comprehensive breakdown of the M-Bond 15/12/2016 held by custodians in the name and account of their clients, several regulations have been issued. These include, in particular, Banxico's requirement for the custodian institutions to deposit the securities holdings of foreign residents in a separate account. To preserve banking secrecy, the custodian institutions do not reveal the names of their clients. Even though the central bank is aware of the problem that the residency breakdown may not necessarily correspond to the nationality of the final holder, but is associated with the nationality of the institutional client who deposits the securities in custody, this has been the only available information source.[5]

The segregation of debt securities held by custodians in the name and account of their clients has also been facilitated by specific regulation imposed by other official entities. In particular, to gather timely information of the securities held by a specific group of institutions,

[4] M-Bonds are fixed-coupon notes and bonds placed by the Federal Government, since 2000, with maturities of 3–30 years.

[5] The residency problem arises, for example, when a Mexican resident requests a foreign financial institution to manage his/her position in domestic debt securities. In this case the foreign financial institution will request a Mexican custodian to deposit these securities at Indeval. However, on the basis of the available information, the custodian will wrongly classify such position as holdings of the foreign financial institution.

the National Commission for the System of Pension Fund Managers (CONSAR) has requested each manager to deposit the securities integrating its portfolio in a specific account at Indeval. Taking advantage of this regulation, Banxico has been able to identify the government securities maintained by pension funds, at either the level of a particular participant or the aggregate of the system. Similar types of regulations with the same objectives have been issued for their constituency by the National Banking and Securities Commission (CNBV) in the case of mutual funds, and by the National Commission of Insurers (CNSF) in the case of insurance companies. Table 3 presents information on the breakdown of the M-Bond 15/12/2016 held by specific clients that Banxico is able to assemble daily from Indeval's database.

Table 3

Breakdown of holdings by type of client

Nominal value in MXN million

	Pension funds	**Investment funds**	**Insurance cos.**	**Foreign residents**	**Non-specified**
Participant 1	11,186	150	630		
Participant 2	9,232	125	275		
Others	21,534	826	136		
Sum	**41,952**	**1,101**	**1,040**	**14,754**	**3,541**

Source: Indeval.

By applying this methodology Banxico has been able to keep track of a comprehensive debt security database, which is assembled on a security-by-security framework that provides information at different layers. For one thing, it gives data on the total amount outstanding of each security, including maturity and coupon payment dates, which are useful for computing statistics on terms to maturity. For another, it provides information on the breakdown of each security by type of holder, which in some cases can be identified by a specific participant. By relying on Indeval's system, under which most of the securities transactions are conducted, this information is updated daily and then assembled and processed by the central bank. There is therefore no need to implement surveys to obtain information or to monitor closely specific placements of securities by public and/or private entities. In the particular case of Mexico, surveys of this type have been distorted by buybacks and exotic transactions, such as warrants, that might affect the total amount outstanding of a security.[6]

The operation of the Market Maker programme implemented since 2000 by the Ministry of Finance (SHCP) is prominent among the transactions in the money market that has given rise to relevant changes in the outstanding stock of fixed or zero coupon government securities. As part of this programme, the institutions selected as market-makers have the right to access a securities lending facility through which they can borrow up to 4% of the outstanding amount of each government security. In particular, this facility operates by allowing the financial intermediaries[7] to borrow government securities that have been issued

[6] The Federal Government of Mexico has used warrants to exchange domestic debt (M-Bonds) for external debt (UMS Bonds).

[7] For the purpose of this paper a financial intermediary is defined as a bank or a brokerage house.

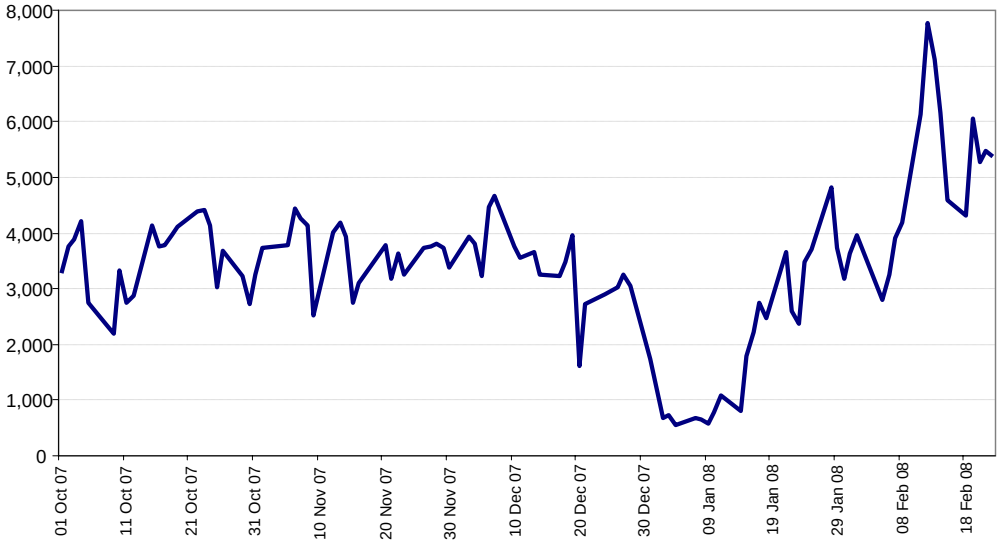
but not yet placed in primary auction, so that the outstanding amount in circulation of such debt instrument is temporarily enlarged.

Figure 1 shows the position of the M-Bond 15/12/2016, which was put into circulation in the money market through the market-makers' securities lending facility. From this graph it is evident that the outstanding stock of this government security has fluctuated significantly in the last 3 months, reflecting the activity of the market-makers' securities lending facility and their particular views with respect to the evolution of the yield curve. In particular, due to the market-makers' securities lending window, the amount of this particular instrument in circulation increased between 1% and 10% with respect to the stock placed through primary operations.[8]

Figure 1

Position from the securities lending facility, M-Bond 15/12/2016

Nominal value in MXN million



Source: Banco de México.

Table 4 gives a complete breakdown by holders of the M-Bond 15/12/2016, including the amount placed through the securities lending facility. From this layout it is possible to identify, at least partially, the holdings of financial intermediaries, which correspond to their own positions plus the securities maintained by Banxico from repurchase agreements.

[8] The amount of debt securities placed through primary operations corresponds to the nominal amount of titles placed through primary auctions, direct private placements, bond swaps, warrants, or other type of operations with the exception of the market makers' securities lending window, less those withdrawn from circulation via anticipated redemption transactions (bond swaps, outright purchases etc).

Table 4

Total breakdown by holders

Nominal value in MXN million

1. Placed in primary operations	68,049
2. Placed through the securities lending window	5,287
3. In circulation (1 + 2) = (4 + 5)	73,336
4. Held by domestic residents:	58,582
a. Financial intermediaries[1]	10,947
b. Pension funds	41,952
c. Investment funds	1,101
d. Insurance companies	1,040
e. Others	3,541
5. Held by foreign residents	14,754

[1] Includes the securities held by Banxico from repos conducted with financial intermediaries.

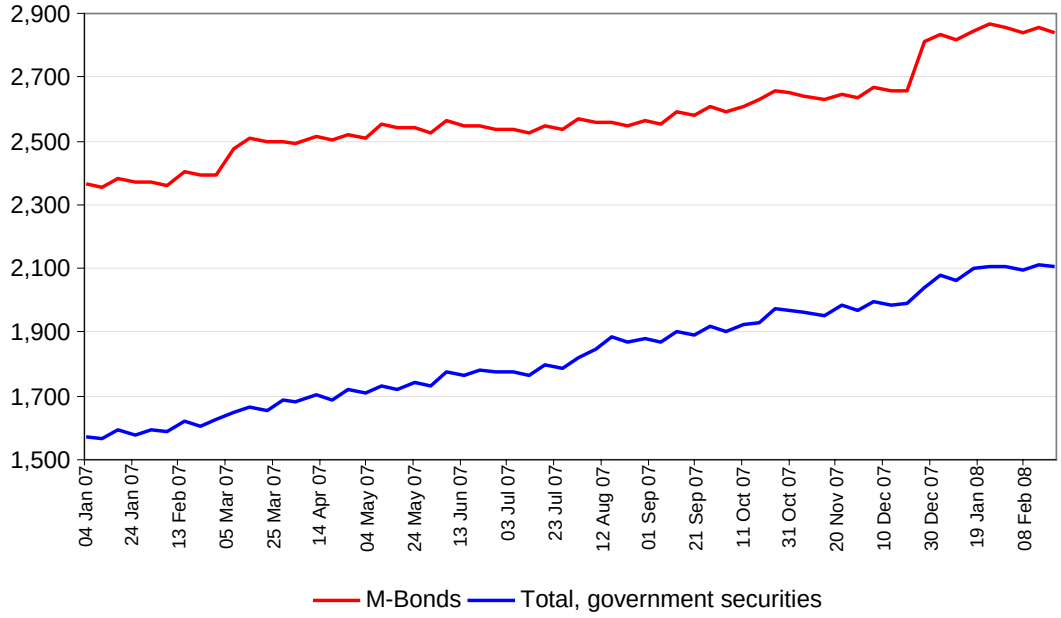
Source: Indeval.

2.2 Description of the aggregate statistics on government securities

The information presented at the level of a specific security (the M-Bond, 15/12/2016) is aggregated in this section for the whole group of government securities to obtain the statistics that Banxico publishes on its website. In particular, from the data describing the characteristics of each security, the central bank obtains statistics on the term to maturity and the duration of government securities (Figures 2 and 3).

Figure 2

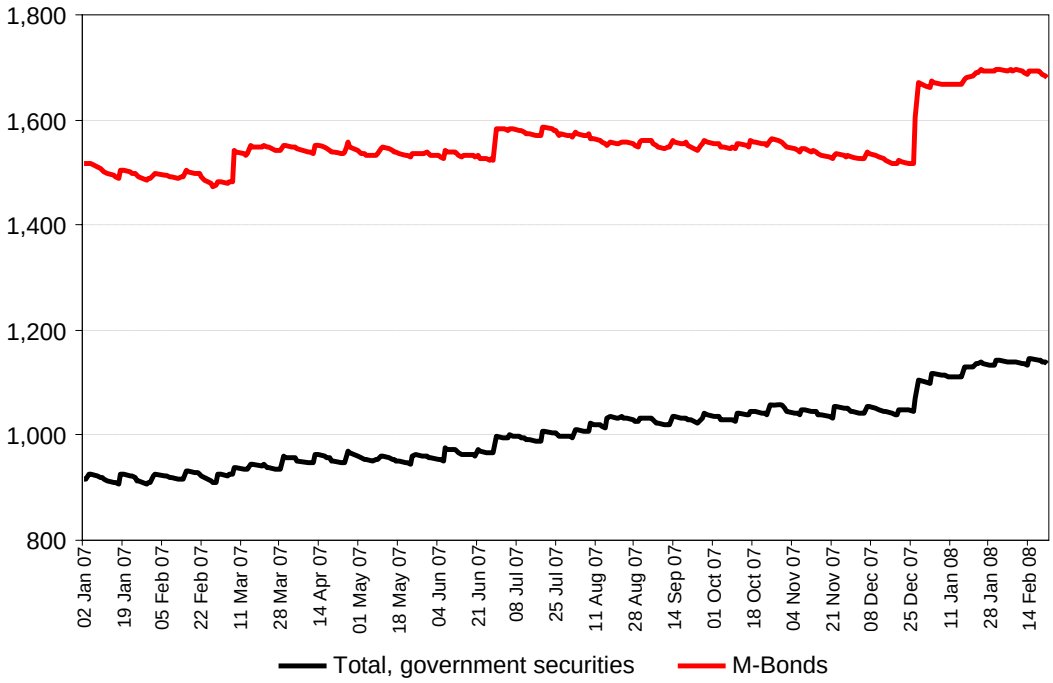
Average term of maturity, days



Source: Banco de México.

Figure 3

Duration of the government securities portfolio, days



Source: Banco de México.

Figures 2 and 3 show that M-Bonds have contributed significantly to extending the average term to maturity and duration of the overall portfolio of government securities. The corresponding statistics for the rest of the government securities portfolio are smaller, reflecting the relative importance of other types of instruments such as Cetes,[9] Udibonos[10] and Bondes,[11] which have a shorter term-to-maturity and/or a smaller outstanding amount in circulation. The relative importance of each type of government security is shown in Table 5, which presents the aggregate set of government securities statistics published daily by Banxico using Indeval's data as a source. In particular, the information given in this section corresponds to a specific date: 31 January 2007.

[9] Cetes are zero coupon bills placed by the Federal Government at discount with maturities from 28 days to 1 year.

[10] Udibonos are fixed-coupon notes and bonds denominated in UDIs (a unit of account, the value of which is updated daily with respect to the latest inflation rate) placed by the Federal Government with terms-to-maturity of 3–30 years.

[11] Bondes are floating rate notes. Currently the Federal Government has placed Bondes D, the coupons of which are determined with reference to the overnight interbank funding rate, placed by the Federal Government and Banxico with maturities of 3 and 5 years.

Table 5

Government securities in circulation

Nominal value in MXN million

Security	Placed through		In circulation (A + B)
	Primary operations (A)	Securities lending window (B)	
Cetes	353,925	5,518	359,443
Bondes-D	492,396	0	492,396
M-Bonds	895,053	46,482	941,535
Udibonos	235,327	0	235,327
Total	**1,976,701**	**52,000**	**2,028,701**

Source: Banco de México.

Table 5 illustrates the relevance of M-Bonds since they represent close to half of the outstanding government securities in circulation. Additionally, this type of security makes up almost all the operations conducted through the securities lending window for the market-makers.

SHCP also publishes information on the outstanding stock of government securities placed through primary auctions. However, such statistics are not consistent with those presented in Table 5, as the SHCP does not publish information on the total stock of government securities in circulation. This is because, for public debt purposes, the relevant information is related to those securities placed at the primary market to finance the Federal Government.

Additionally, when comparing the statistics published by Banxico and by SHCP it is important to take into account the following methodological and practical distinctions:

- Cetes are recorded by SHCP at placement value.
- Bondes-D is placed both by Banxico and SHCP. In particular, the central bank uses this type of instrument to sterilise the excess of liquidity.[12] Given that the SHCP publishes statistics to measure the outstanding amount of public debt, the stock of Bondes-D placed by Banxico are not recorded in their statistics.

This last discrepancy can be resolved by distinguishing in Banxico's statistics whether the primary placement of Bondes-D was conducted to finance the Federal Government or for liquidity sterilisation purposes, as shown in Table 6.

[12] By law, Banxico is allowed to acquire in the primary market government securities if those securities are matched with a Deposit of Monetary Regulation. This is a liability of Banxico to the Federal Government with the same financial characteristics (payment flows) as the government security with which it is associated. If Banxico sells a government security (now Bondes-D) its position will be short, implying that the central bank will be obliged to reimburse to the Federal Government the entire flow stream associated with the instrument placed (at the corresponding payment date). This allows for the government securities placed by Banxico to be indistinguishable from those placed by the Government.

Table 6

Comparison of government securities statistics

Outstanding stocks in MXN million

Security	Banxico: debt security placed through primary operations			SHCP: public debt statistics[1]
	Total (i + ii)	For monetary regulation (i)	For Federal Government financing (ii)	
Cetes	353,925	0	353,925	340,454
Bondes-D	492,396	167,396	324,999	324,999
M-Bonds	895,053	0	895,053	895,053
Udibonos	235,327	0	235,327	235,327
Total	**1,976,701**	**167,396**	**1,809,305**	**1,795,833**

[1] Source: "Federal Government Quarterly Report on the Economic Outlook, the Public Finances and the Public Debt".

Source: Banco de México and Ministry of Finance, Mexico (SHCP).

The statistics published by Banxico regarding distribution between sectors of the government securities held by the public is presented in Table 7. In this table residents and pension funds are identified as the main holders of M-Bonds.

Table 7

Distribution by sector of the government securities in circulation

Nominal value in MXN million

Sector[1]	Cetes	Bondes-D	M-Bonds	Udibonos	Total
In circulation, held by (A + B):	359,443	492,396	941,535	235,327	2,028,701
A. Domestic residents (a + b + c + d)	350,085	492,293	737,367	230,125	1,809,870
a. Financial intermediaries[2]	39,232	154,863	110,496	2,105	167,285
b. Pension funds	96,788	45,727	213,754	118,640	474,910
c. Investment funds	59,176	82,600	120,276	18,002	280,054
d. Others	154,889	209,103	292,840	91,377	748,209
B. Foreign residents[3]	9,358	103	204,167	5,203	218,831

[1] The stock of securities held by a sector includes the net position generated by repurchase agreements. [2] Includes the securities held by Banxico from repos conducted with financial intermediaries. [3] The holder's residency is obtained from the nationality of the agent who deposits the securities in custody.

Source: Banco de México.

It is important to notice that foreign residents are identified using the same methodology described in the first part of this section, so that it represents an approximation of their actual position. Another problem in interpreting these statistics relates to the impact of repurchase agreements. As these statistics are obtained from the accounts of the custodian institutions

at Indeval, they measure the position maintained by a specific sector. In particular, the statistics do not distinguish whether the position comes from an outright purchase or from a temporary repurchase agreement.

3. Complementary statistics for analysing the government securities market

The previous section mentioned that the total position of government securities held by financial intermediaries can be approximately estimated by adding up the debt securities deposited in their own accounts, plus those securities received by Banxico from repurchase agreements to control the liquidity in the money market. However, it was also remarked that Indeval's statistics may not be the best alternative for measuring the positions at risk because it is not possible to distinguish between outright purchases and temporary holdings coming from repurchase agreements. Due to this problem, the statistics obtained from Indeval reflect only the very short-term final holder of a security[13] and, consequently, do not reveal the real position at risk of the final holder. This is particularly relevant for the financial intermediaries involved in most of the repo transactions.

To gather the information that is needed to conduct a thorough analysis of the positions at risk in the government securities market, Banxico relies on complementary information provided directly by the financial intermediaries. The central bank has been able to collect this complementary information since, under the law governing the Bank of Mexico, financial institutions are obliged to report any information requested. The broad set of operative data that have been assembled is described below. The first part of this section deals with the use of the information obtained by Banxico on a daily basis regarding the operations conducted by financial intermediaries in the money market. The second part focuses on the use of information from the financial statements of the intermediaries.

3.1 Detailed data on the financial intermediaries' daily operations with government securities

To obtain information about the microstructure functioning of the money and foreign exchange markets, Banxico has requested each financial intermediary to report, on a daily basis, all the operations conducted in these markets. The objective of these directives is to obtain the elements that will allow the central bank to monitor, almost in real time, the positions at risk of the financial intermediaries. The scope of the information received is as wide as possible. For instance, in the case of government securities, it includes the outstanding position from outright and repo operations, plus unsettled transactions including those with financial derivatives. The compilation of these statistics has not incurred additional cost for the financial intermediaries since Banxico's system has been designed to operate as an interface with their back office system. This detailed database was initially used to estimate the market and liquidity risk exposure of specific financial intermediaries, but it has evolved to become an important information source complementing Indeval's statistics.

As mentioned above, one of the problems with Indeval's data is that the market participants' position at risk in securities cannot be identified. The position at risk is defined as the amount of securities that could affect the net income of a market participant. For instance, in the case of repurchase agreements, the institution that sold a security will have a positive (negative) net income flow by the appreciation (depreciation) of that security, depending on the money

[13] In Mexico, more than 90% of the repurchase agreements are settled overnight.

market conditions at the end of this short-term agreement. The same applies for securities lending and for unsettled transactions. The complementary information obtained from financial intermediaries allows the central bank to obtain information about these operations.

The detailed database constructed by Banxico from the operations of the financial intermediaries distinguishes the transaction at the individual level of:

- Name of the domestic financial institutions involved
- Sector
- Type of security
- Type of operation (outright buy/sell, repo, securities lending)
- Agreed price
- Use of broker's system.

With this extensive information set, Banxico is also able to compile a security-by-security database and update it daily. Since the detailed database provided by financial intermediaries includes identification fields for the same type of sectors as those published by Banxico, a breakdown of the position at risk can be provided by sector. Table 8 presents this breakdown for the case of M-Bonds, to simplify the table. It is important to note that this information complements the statistics provided in Tables 5 and 7 for the corresponding column of M-Bonds.

Table 8

Distribution by sector of the position at risk in M-Bonds

Nominal value in MXN million

Sector	In circulation (A)	Net repo position[1] (B)	Net unsettled transactions[2] (C)	Net securities lent[3] (D)	Position at risk (A + B + C + D)[4]
Total (A + B)	941,535	0	0	–46,482	895,053
A. Domestic residents (a + b + c + d)	737,367	1,919	0	–46,482	692,805
a. Financial intermediaries	110,496	347,404	–7,709	–51,572	398,620
b. Pension funds	213,754	–9,733	–1,110	4,900	207,812
c. Investment funds	120,276	–94,822	–292	190	25,352
d. Others	292,840	–240,930	9,111	0	61,021
B. Foreign residents	204,167	–1,919	0	0	202,248

[1] A positive sign indicates that a sector has sold M-Bonds through a repurchase agreement to another sector, the contrary if it is negative. [2] Incorporates the net unsettled outright purchases of securities between sectors. A positive sign implies that a sector has already purchased a security but the transaction has not been settled yet, the contrary if it is negative. [3] Incorporates the net position from securities lending between sector. A positive sign implies that the sector has temporarily lent a security, the contrary if it is negative. The activity of financial intermediaries in the Market Makers securities lending facility is included as a negative position of this sector. The total amount is equal to that of the Market Maker securities lending facility. [4] By construction the amount of the position at risk equals that of the securities placed through primary operations.

Source: Banco de México.

Table 8 shows that the total amount of the M-Bonds position at risk is equal to that of the total primary placements for that specific security (see Table 5 for M-Bonds). This is because

the amount of securities in circulation on a particular day is affected by the activity of the market-makers, who might temporarily be borrowing securities from the standing facility. In this regard, the securities obtained by market-makers from the securities lending window increase the amount of securities in circulation (M-Bonds in this particular case). However, since the borrowers have the obligation to reimburse these securities to the Federal Government, such operations have to be deducted from their direct holdings to compute their position at risk. From this argument it follows that the total amount for column D "Net securities lent" is the negative of the corresponding amount for M-Bonds of "Securities lending window" in Table 5.

With respect to the impact of the other entries identified in Table 8 for the computation of the position at risk, it is important to notice that the total amount recorded at the items of "Net repo position" and "Net unsettled transactions" must come to zero, given that the transactions recorded indicate a distribution of securities between sectors but without altering the total amount in circulation.

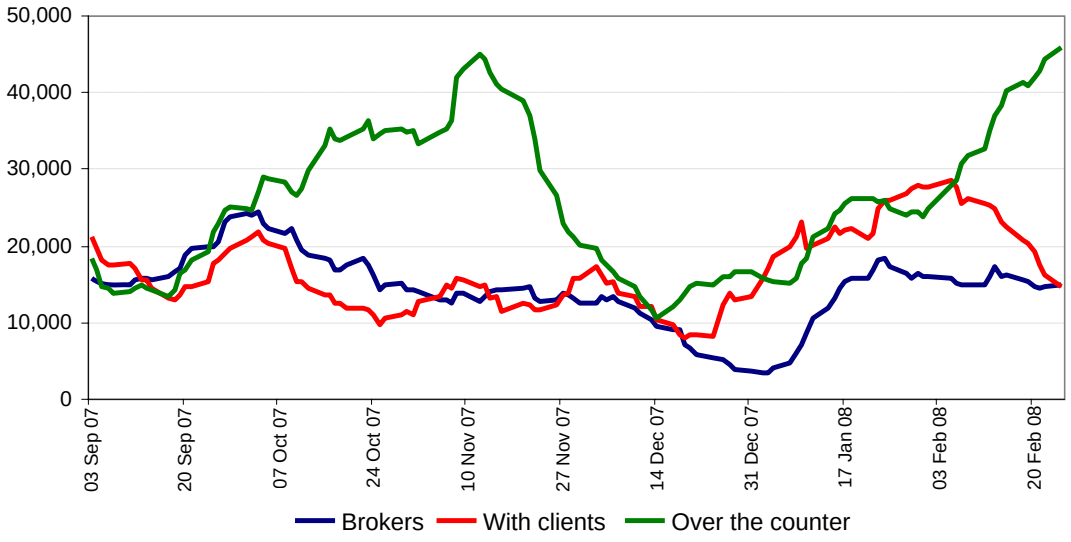
In Table 8 it can also be seen that the financial intermediaries' position at risk is almost four times that of the amount reported as their own holdings (column A). This is because most of the M-Bonds included in the position at risk of the financial intermediaries are registered at Indeval as securities maintained by other sectors (mainly other domestic residents and investment funds), which receive them as part of repo transactions.

As previously mentioned, the complementary database from the financial institutions allows the central bank to identify the segment of the secondary market in which a particular transaction has been conducted. Additionally, the Bank of Mexico has been able to segregate the interbank operations, in which the counterparties are financial intermediaries, from those with clients (the rest). It is important to mention that, in the case of interbank operations, the information is double-crossed to verify that the data provided by each counterparty match. Furthermore, interbank transactions can be disaggregated between those carried out through the broker's system and those over-the-counter. Figures 4 and 5 depict the recent data on the daily (average of 10 days) volume and number of operations with M-Bonds at the secondary market.

Figure 4

Trading of M-Bonds in the secondary market

Volume at nominal value in MXN million

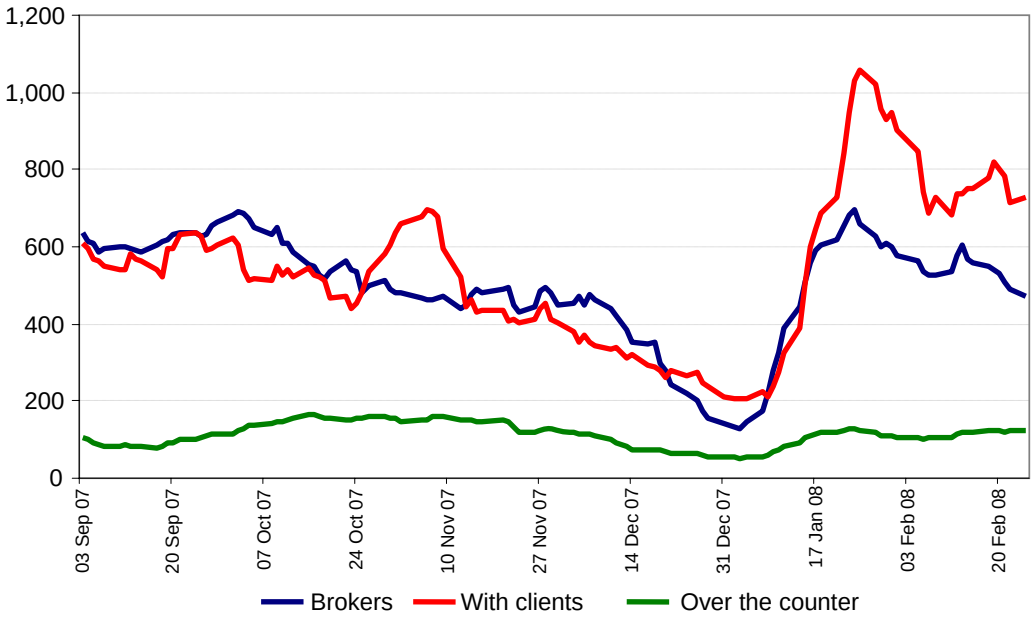


Source: Banco de México.

Figure 5

Trading of M-Bonds in the secondary market

Number of operations



Source: Banco de México.

3.2 Information from the financial intermediaries' analytical and consolidated financial statements

The financial intermediaries also submit their analytical and consolidated financial statements monthly to Banxico. This information is compiled by the central bank to elaborate the banking statistics available on its website. Such statistics include, as part of its assets, the financial intermediaries' investments in government securities. In terms of comparison these positions are not, and should not, be equal to those registered at Indeval in the aggregate account of own holdings. Notable among the differences between these concepts is the fact that financial statements are registered at market value while Indeval's statistics are reported at nominal value. However, as Figure 6 shows, even though the general trend in these two concepts is similar, the difference between them is not constant but is inconsistent in some cases, as in December 2007.

Although the information is not presented in this paper, in order to make the statistics presented by banks comparable in their financial statements, the debt securities data obtained from Indeval, registered as the outstanding number of titles, can be transformed into mark-to-market values, just by applying a price vector provided by price vendors.

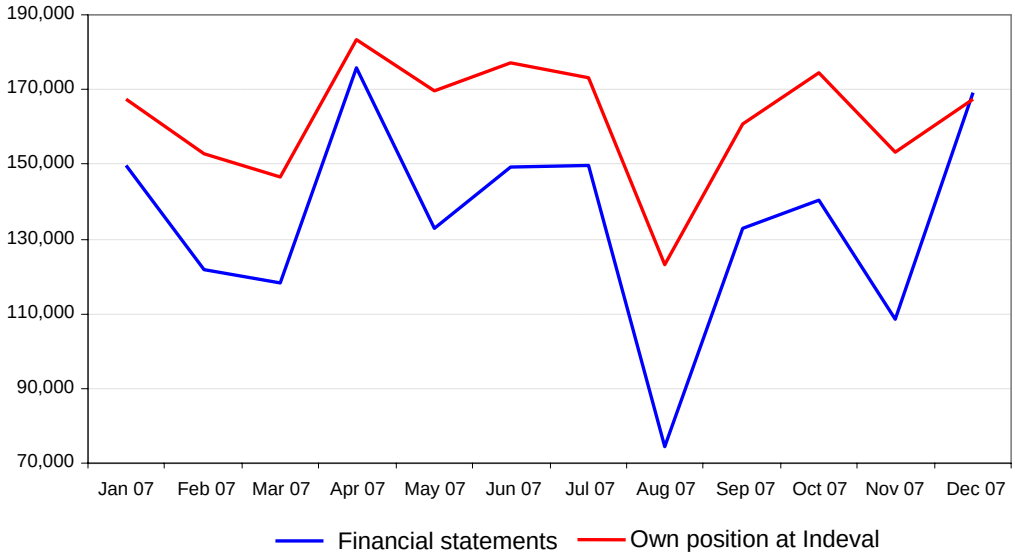
Price vendors are institutions, authorised and supervised by the banking and securities regulator (CNVB), that compute prices for most of the financial instruments traded in the Mexican financial markets. The prevailing regulation states that, in order to mark-to-market their financial statements, most of the financial intermediaries have to apply the price vectors provided by private price vendors to their marketable securities positions. Even though the vendors compute prices applying different methodologies, they have some similarities that can briefly be described as follows:

- They take the prices observed in primary and secondary markets to price securities.
- The source for the secondary market information is that provided by the five institutions that act as brokers in Mexico.
- From the secondary market, they use the prices observed in settled transactions and the prices observed in bid-ask offers.
- If there is no information available in the primary and the secondary market, they interpolate the price of the security, using the information available for other securities.
- Taking the previous information, they create a weighted average to obtain the market price of a security. The weight for settled transactions is higher than the weight used for bid-ask offers.

Figure 6

Financial intermediaries' position in government securities

In MXN million



Source: Banco de México

4. Concluding remarks on Banxico's experience in compiling domestic debt securities statistics

Banxico's experience in compiling, organising and publishing debt securities data indicates that using the information available at the central securities depository institution (Indeval) is the best source for constructing a security-by-security database. This is because the available database incorporates comprehensively, accurately and promptly the most relevant characteristics of each security that has been issued and/or traded in the domestic debt market. The use of Indeval's database has been facilitated because in Mexico the majority of the trades involving securities are settled through the same settlement system and held with the same central securities depository. The use of the data available at the central depository institution could also be the best alternative for other emerging countries, since it is likely that only one of these institutions is operating in the payment system.

The sections above have given evidence of the advantages of compiling statistics obtained from a central depository of securities, such as Indeval:

- The database is accurate and timely as it is the source for settling transactions with securities at the payment systems on a daily basis.
- The database is comprehensive at a security-by-security level, as transactions in the payment systems are settled at the level of each security by each financial intermediary.
- The breakdown by sector can be obtained within the same database by requesting the specific sectors or entities to deposit their holdings in separate accounts at the central depository of securities.
- For statistical purposes the information can be aggregated at the level of each security, debt instrument type, financial intermediary, or sector.

The methodology for elaborating debt security statistics is incomplete and thus requires improvement in the following:

- The identification of each security has been designed for the case of Mexico, but this can be improved in the next version of Indeval's system, which will include the ISIN code. Banxico is willing to include the identification fields of a standard security-by-security database. For this it is necessary for the central banks and international financial organisations to agree on those basic fields.
- The methodology has been applied to government securities alone. In this case, the upcoming Indeval system will facilitate the implementation of the methodology for the rest of the domestic debt securities.
- The available statistics are designed for specialists of the Mexican money market, so they are not friendly or consistent with basic financial concepts. To rectify this problem, we are planning to publish statistics using the proposed BIS template.
- The published statistics on the securities distribution by sector indicate who is holding the securities, without distinguishing whether these are temporary positions such as those coming from repos or securities lending. Banxico has obtained operational data from the financial intermediaries to relieve this deficiency, but the data received from financial intermediaries are not yet public.
- The information available to Banxico on microstructure operative activity in the government securities market is still scarce and fragmented. However, the process of collecting such data is advancing fast. For this process of data collection to be efficient and consistent it would be good for central banks and international financial organisations to agree on a standard methodology for assembling statistics, not only on the outstanding amount of domestic debt securities but also on the microstructure operation of the securities market.
- Discrepancies can distinguished, even within government securities holdings. These discrepancies are most evident between the data published by Banxico and those of SHCP, or in the information reported by financial intermediaries in their financial statements. The first discrepancy is minor and is easily resolved, as shown in section 2.2. The second is a more complex problem. A possible alternative is to use the information provided by the price vendors, so that Banxico could also obtain and publish its statistics at market value, and these could be compared with the financial statements by the financial institutions. After that, the discrepancies should be confronted at the level of each institution and each security.