

4. Monetary Aggregates and Scope of Use

In essence there is no single definition for "money" in the theory of economics, and it is rather difficult to define it in practice. Yet, for estimating the quantity of the "money" in circulation it is necessary to give the following three characteristics of monetary aggregates:

- financial instruments that will be included in the definition of "money" or in the monetary aggregates;
- institutions or corporations issuing "money" in circulation in the economy (money issuing sectors of the economy);
- "money" holding sectors of the economy.

Inclusion of a financial instrument in the monetary aggregates or in other words, defining the "money" in circulation in the economy is closely linked with the functions of money. The following four basic functions can be mentioned:

- *medium of exchange* - the means for acquiring goods, services, financial and nonfinancial assets,
- *store of value or means of holding wealth* - money as means of holding wealth and savings,
- *unit of account* - a standard for denominating the prices of goods and services, and the values of financial and nonfinancial assets, thereby providing a means for comparisons of values and for preparation of financial accounts,
- *standard of deferred payment* - a means of relating current and future values in financial contracts.

Money, which takes the form of various types of financial assets, is held for its usability as a medium of exchange and store of value. For including a financial asset in monetary aggregates it is necessary to evaluate the extend to which the financial asset provides liquidity and a store of value.

By definition, all financial assets have value, and therefore are stores of value or means of holding wealth. However they vary in their liquidity characteristics. So, different monetary aggregates include financial assets with different liquidity levels.

The level of liquidity of financial instrument arises from the following characteristics:

- Legal tender or general acceptability,
- Fixed nominal value,
- Transferability, i.e. financial asset can be used to make third-party payments,
- Transaction costs, i.e. financial or other costs that occur when financial asset is to be used for making payments,
- Divisibility, the level of divisibility of the asset for making extremely small payments,
- Maturity,
- Yield.

For defining monetary aggregates the identification of "money

issuers" in the economy is very important. Money issuers are all financial corporations whose liabilities represent financial assets treated as "money". In view of the sectors of economy money issuers are units included in depository corporations sub-sector of the financial sector, i.e. the central bank and depository corporations.

Finally, for defining monetary aggregates it is necessary to define all the entities of economy that are money holders. Money holders are usually defined to include all resident sectors except the central government and depository corporations. That is, money holders usually comprise:

- the above-mentioned real sector, including nonfinancial corporations, households and nonprofit institutions serving households;
- all institutional units in the financial corporations sector other than the depository corporations sub-sector.

Deposit holdings of nonresidents and the government are usually excluded from the monetary aggregates based on the following considerations:

The center of economic interest of nonresidents is abroad and their deposits are not used primarily for domestic transactions⁹. That is, they do not serve to finance the transactions (and the GDP) of the country.

In view of expenditures the government sector is unique. Unlike individuals and other economic units the government's expenditures are not confined to its deposits, and in principle, the volume of the government's deposits is not a result of liquidity preference.

Composition and structure of monetary aggregates are various for different countries and it depends on the features of their economies and financial systems.

4.1. Features of Armenia's Financial Market and Monetary Aggregates

When selecting monetary aggregates, both international standards on monetary statistics, and features of Armenian economy and financial market shall be considered. It should be noted that monetary indicators can change during time due to the variety of financial instruments used, further development of markets. In this case it is also necessary to change national definitions of money to obtain correspondent monetary aggregates.

Monetary policy makers (the Central bank in case of Armenia) pay much attention to monetary aggregates, as changes in the latter give them a possibility to evaluate the policy-making process. This kind of policy is based on the assumption that there is a stable and predictable relationship between monetary aggregates and the basic objective of monetary policy - the inflation¹⁰. The monetary policy is carried out through volume and price regulation depending on the development level of financial markets.

For monetary policy implementation purposes, according to volume regulation, the Central Bank of Armenia has defined operational and intermediate targets, respectively monetary base and broad money.

⁹ Even if non-residents in some cases use their deposits for domestic transactions, their objectives differ from that of residents' deposits.

¹⁰ The basic objective of most of the central banks is the inflation.

Monetary aggregates include elements that can be treated as money. The concept of "narrow money" includes all instruments that serve as medium of exchange, and the concept "broad money" includes also instruments that serve as means of holding wealth. Usually, currency and demand deposits¹¹ (transferable deposits) perform the function of medium of exchange.

Narrow money is usually called M1. Broader monetary aggregates include savings and time deposits (nontransferable deposits). M2, M3, M4 and lower liquidity aggregates are separated based on level of liquidity. In countries with developed financial markets monetary aggregates also include liquid liabilities of nonbank financial institutions to residents. Generally, the number of broader monetary aggregates depends on the package of available financial instruments.

In most developed countries monetary aggregates usually include deposits of residents in national currency. As foreign exchange is not treated as legal tender, the liquidity of foreign currency deposits is rather low from the point of view of domestic transactions. The situation differs in transition economies, particularly in Armenia. Though foreign exchange is not a legal tender for transactions between the residents according to Armenian legislation, and it is only legal tender for current account transactions of balance of payments, most of the population savings are in foreign exchange. Moreover, foreign currency deposits sometimes are used as a medium of exchange. In case of such high level of dollarization foreign currency deposits can not be excluded from the definition of "money" and shall be included in broad money aggregates. It is necessary to consider also the foreign currency in circulation, which is of substantial volume according to the survey conducted by the CBA in 2003, which can be used to calculate Effective Broad Money.

Thus, when defining monetary aggregates in our economy the following features of the financial system are considered:

- Limited choice of financial instruments. As the banking system and financial markets are poorly developed in Armenia, the existing choice of financial instruments is limited.
- High level of dollarization.
- Small portion of nonbank financial institutions in the financial market of Armenia.
- Definition of monetary aggregates as intermediate targets when implementing monetary policy; that is, the programming of monetary aggregates is important.

According to above mentioned peculiarities the monetary aggregates in Armenia have the following features:

- Types of monetary aggregates are limited.
- Monetary indicators include foreign currency deposits of the banking system.
- Monetary aggregates do not include liabilities of nonbank financial institutions (nevertheless, attracted borrowings of credit institutions are included in liquidity aggregates).
- Monetary indicators and their analysis are very important for the policy implementation.

4.2. Armenian Monetary Aggregates

¹¹ Demand (transferable) deposits include also accounts.

4.2.1 Monetary Base

The monetary base comprises central bank liabilities that support the expansion of broad money and credit. The monetary base is sometimes called high-powered money, because changes in the monetary base usually lead to increases in money and credit that are larger than the changes in the monetary base. The monetary base, essentially, is not a monetary aggregate, because it is rather a measure of the funding base that underlies the monetary aggregates and promotes money expansion due to the money multiplier effect. The monetary base of Armenia is compiled by the central bank based on the bank's balance sheet data on a daily basis¹². It includes (Appendices 2.3, 2.13):

- currency outside CBA,
- required and excess reserves of commercial banks at the central bank,
- dram and foreign currency deposits of the resident real sector (households, enterprises and nonprofit institutions serving households) with the CBA.

For compilation of Armenian monetary base a few specifications should be done:

- Some difficulties arise in delimiting government and real sector deposits. Deposits of some government departments are registered separately from government deposits depending on their activity. They are registered as deposits of resident economy and are included in the monetary base.
- Special attention should be paid to the accounts of Project Implementation Units (PIU). Although part of these accounts can be in foreign currency, these are the accounts of Armenian government, and therefore are not treated as deposits of economy and not included in the monetary base.
- The monetary base does not include time deposits of commercial banks with CBA, as well as reverse repo agreements and foreign currency (allocation) swap with CBA.
- The monetary base does not include also capital paid-in accounts of commercial banks with CBA given the restrictions on those accounts.

4.2.2. Broad Money

Broad money is the sum of liabilities of the financial system that corresponds to the mentioned features of "money". In Armenia nonbank financial institutions are still very passive in financial intermediation that is why their liabilities are not included in the monetary aggregates.

In Armenia broad money (Appendices 4.1 and 4.2) is compiled by the CBA based on the balance sheets of the Central Bank and commercial banks. The commercial banks submit their balance sheets to the Central Bank on weekly and monthly bases. That is, broad money aggregates are calculated on weekly and monthly bases¹³.

For policy making and analytical purposes in Armenia a number of monetary aggregates (Appendix 4.3) are used which may be reviewed both

¹² The compilation procedure of monetary base is presented in details in Appendix 1.1.

¹³ The compilation procedure of broad money is presented in details in Appendix 1.2.

separately and as a whole.

Currency in circulation: This indicator is named currency outside the banking system as well, that is Armenian dram in circulation. Armenian dram in circulation is calculated as currency outside the CBA minus Armenian dram in vaults of commercial banks:

Currency in circulation = currency outside the CBA - currency in vaults of banks

Dram narrow money: M1. Narrow dram money includes:

- Armenian dram in circulation,
- dram demand deposits (including accounts) of residents (real sector units).

Dram demand deposits of residents are calculated as a total sum of demand deposits of the central bank and commercial banks. Demand deposits include deposits of enterprises, households and nonprofit institutions serving households, as well as financial corporations other than banks, in the banking system.

M1 is treated as narrow money. It includes banking system liabilities that perform the function of medium of exchange. Narrow money does not include foreign currency demand deposits, as according to the legislation they cannot be direct medium of exchange. For analytical purposes a type of narrow money can be calculated that will include foreign currency demand deposits.

Dram broad money: M2. It includes Armenian dram in circulation and all dram deposits (including accounts) of residents in the banking system (real sector units). Besides demand, time and savings deposits of enterprises, households, nonprofit institutions serving households in the banking system and nonbank financial corporations, M2 also includes:

- Certificates of deposit in dram issued by banks,
- Reverse repo agreements and foreign currency swap operations in dram with real sector entities.

These instruments are very close to time deposits, though their liquidity is lower. The volume of these instruments is still limited.

Broad money: M2X - is the sum of M2 and all foreign currency deposits (including accounts) of residents (real sector entities). In spite of the above-mentioned classification of monetary indicators monetary base and broad money are basic aggregates used for the implementation of monetary policy. Narrow money indicators are not used much as the most appropriate indicator of money in circulation is the broad money. Dram broad money: M2 is also used for analytical purposes.

When describing Armenian monetary aggregates, it is necessary to mention the fact that broad money indicator would be more precise, if it included foreign currency in circulation in which a significant part of transactions are performed. Meanwhile, the inclusion of foreign currency in circulation in monetary indicators is currently impossible due to the following:

- Foreign currency in circulation cannot be derived through reports, i.e. the way other monetary aggregates are obtained. It shall be estimated through statistical surveys or analysis.
- The estimation of foreign currency in circulation, more or less

accurately, is very difficult and expensive.

- It cannot be estimated weekly or monthly, on the bases of which broad money is compiled.

Nonetheless, the CBA's survey in 2003 for detecting the level of dollarization made it possible to estimate the volume of foreign currency in circulation. The estimation is approximate, and the foreign currency for now is impossible to estimate with required periodicity, i.e. on a weekly and monthly basis, as is the case with broad money.

Dollarization is usually determined as co-circulation of several currencies in the same economy or the circulation of currencies of other countries parallel to the currency of the given country. Dollarization in a broader sense is characterized as follows: a currency is used as unit of account, means of payment and store of value or accumulation of savings. The currency is not necessarily to be US dollar.

There are many ways to measure the level of non-official dollarization, the most common of which is the calculation of different coefficients of dollarization. Among them is the share of foreign currency deposits in broad money. Another measure, sometimes called an assets substitution index, is calculated as a share of foreign currency deposits in total deposits.

However, in countries like Armenia, where foreign currency is partly or fully used as means of payment, it is necessary to calculate also the currency substitution index, which is the share of circulating foreign currency in total currency. For calculation of this index, it is necessary to estimate the foreign currency in circulation. The estimation would enable calculating also the so-called Effective Broad Money (EBM):

$$EBM = BM + FCC$$

$$ENBM = NBM + FCC,$$

where

BM is Broad Money,
FCC is Foreign Currency in Circulation,
EBM is Effective Broad Money,
NBM is Narrow Broad Money,
ENBM is Effective Narrow Broad Money.

In countries like Armenia where the level of dollarization is high, the best indicator for dollarization can be the share of all foreign currency assets (including cash and deposits) in EBM.

References

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