THE USE OF REGRESSION MODEL IN ANALYSING THE CORRELATION BETWEEN THE MONETARY SITUATION AND THE BALANCE OF PAYMENTS

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Abstract

The monetary situation (MS) shows us the way in which economy, starting from the monetary basis, obtains its means of payment, which constitute what we call „currency". It makes appear the financial relations between the bank institutions (Central Bank, commercial banks) which provide means of payment in the economy and the group of the other economic subjects (economic agents, public institutions, population).
The major purpose of the monetary situation is to facilitate the analisys of monetary aggregates, including that of intersectoral financing and of the connections which appear in relation with other macroeconomic aggregates.
Key words: *government, assets, reserves, credit, bank*

The indicators in Monetary Situation are obtained by aggregation and consolidation of the information we find in the balance sheet of the Central Bank and the aggregated balance of sheet of the commercial banks.

$$AE_E + CG_E + CB = PE_E + N + C + R + DG_E + APN_E$$
$$AE_C + CNG + CG_C + R + C =$$
$$= PE_C + DV + EP + DT + V + DG_C + CB + APN_C \quad + \tag{1}$$

$$\underbrace{AE_E + AE_C}_{AE} + \underbrace{\underbrace{CG_E - DG_E + CG - DG_C}_{CGN} + CNG}_{CI} =$$

$$= \underbrace{PE_E + PE_C}_{PE} + \underbrace{\underbrace{N + DV}_{M1} + \underbrace{EP + DT + V}_{QM}}_{M2} + \underbrace{APN_E + APN_C}_{APN} \tag{2}$$

or
$$AE + CI = PE + M2 + APN.$$ (3)

The MS is presented below in a simplified manner where inter-banking flows have been eliminated.

Monetary situation

Active	Passive
External Actives EA	External Passives – FP
Internal Actives– IA	Internal Passives– IP
-internal credit – IC	- monetary mass – M2
= non-governmental credit – NGC	= currency stricto sensu – M1
= governmental credit– GC	* cash outside the banking system– N
	* evident liquid assets EA
	= quasi-coin – QC
	*population savings – EP
	* time deposits– TD
	* residents' deposits of currency – V
	- other assets (net) – OA

It is obvious that the monetary mass is a heterogenous value consisting of all assets which can be used for obtaining goods and services and for the payment of debts. in other words, the monetary mass represents all the means of payment, including liquidity, at a certain time, in economy. It contains:

- Monetary mass stricto sensu–M1, that meaning cash outside the banking system (token money) and evident liquid assets, they having a high degree of liquidity;
- Quasi-coin–QC, which contains population savings, time deposits, non-residentals' deposits in currency; they have a lower degree, not being directly used as means of payment, but they can be easily turned into currency by their owners.

In practice, we have the consolidated monetary situation (CMS), which can be presented like:

Consolidated monetary situation

Assets	Passive
Net international reserves– NIR	Monetary mass – M2
Net internal assets–NIA	
- internal credit – CI	
= net governmental credit– NGC	
= non-governamental credit–NGC	
- other asstes (net) – ONA	

The identity we obtained describes the equilibrium state in the banking system:

$$M2 = NIR + NIA. \tag{4}$$

Net international reserves quantify the currency means which a country uses in order to maintain the desequilibrium of the balance of payments, either by using measures of direct financing, or by using intervention means aiming at influecing the exchange rate of national currency. NIR is not obtained by simply calculating the difference between external actives and passives. They represent the difference between external and reserve assets, immediately usable if needed, and currency passives on the short term.

Internal credit includes all the credits given by the banking system to the government, economic agents, population. All credits that banks give to other banks (for instance the credit given by the central bank to the commercial banks) dissapear in the consolidation process.

The governmental credit is a net one, so it results from the difference between the governmental credit and the public deposits. Consequently, when net governmental credit is negative, it means that the government is a creditor and, on the contrary, it is a net debitor. This treatment facilitates the measurement of the impact of central governmental operations on the liquidities in economy, aspect which is reflected in the structure of the net governmental credit by quantifying public debt, and budget excedents and deficits (state budget, local budgets, the budget of social insurances), as well as of net deposits of diferent extra-budget funds. .

- **The relation between the consolidated monetary situation and (CMS) and the balance of payments (BP)**

I have presented the relation between savings/ investments, on the one side, and the current stock account of BP (net external debt), on the other hand.

$$VND - ABS = EN - FNC =$$
$$= SCC = -SF = -\Delta DEN . \tag{5}$$

An increase in the net external debt (ΔDEN) leads either to a net increase in non-banking sectors debt (private sector and non-governmental sector) $-\Delta DEN_{PG}$, or to the modification of the net international reserves from t h e banking system $-\Delta RIN$. Consequently:

$$\Delta DEN = \Delta DEN_{PG} - \Delta RIN \tag{6}$$

The conection between the real sector and the monetary sector can be realised by using the net international reserves. (ΔRIN). The identity which expresses the equilibrium state in the banking system (M2 = RIN + AIN), transferred in dynamics ($\Delta M2 = \Delta RIN + \Delta AIN$) and replaced in the previous relation, leads to an equation which can be identified with the monetary

approach of the balance of payments.

$$VND - ABS = -\varDelta DEN = \varDelta RIN - \varDelta DEN_{PG}$$
$$= \varDelta M2 - \varDelta AIN - \varDelta DEN_{PG}$$

(7)

or

$$VND + \varDelta DEN_{PG} - ABS = \varDelta M2 - \varDelta AIN = \varDelta RIN -$$

(8)

This last relation indicates the fact that any excess of the expansion of internal credit (which forms the biggest part of net internal actives) over the desirable increase in currency will grow into an excess of absorbtion (consumption) bigger than the available national income and than the foreign loans given to the non-banking system, thus leading to a decrease in net internationale reserves. This approach emphsises the key- role of the internal credit creation in interpreting the balance of payments.

At the same time, the relation clearly emphasis the main sources of financial support for economic growth: internal credits, state currency reserve and external loans.

• **The main correlations between monetary aggregates**

The main correlations in the monetary system have to provide, simultaneously, an increase in GDP, monetary mass and credit, decrease of inflation, and relative stabilisation of currency exchange rate.

- A more rapid increase in monetary mass, comparing to the annual rate of inflation, proves an increase in the stock of money, in rea terms, and the continuation of the process of recurrency of national economy. This tendency has the consequence of an increase in savings and in internal credit, helping the process of economic recovery and growth.

- A more rapid growth in people savings than in monetary mass and non-governmental credit. This correlation has as consequence people's trust in national currency, implicitly showing that forcing the credit and the monetary mass lead to inflationary effects.

- A more rapid increase in the monetary mass in a larger sense (M2), than the increase in a smaller sense (M1) an than the monetary mass, as quasi-currency (especially peple's savings) have a non-inflationary character.

- Maintaining the currency exchange rate interest at a higher level than the inflation rate and depreciation of national currency (real-positive interests), so as to descourage saving currency.

From all fundamentable variables, the monetary mass is firstly correlated with the GDP. Milton Friedman, studying the evoultion of monetary circulation in the USA for nearly a century, observed the objective existance in the long run of a stable correlation between the dimensions of the GDP and the size of monetary mass. Consequently, in order to provide a healthy increase of economic life, Friedman recommends an average annual increase at a regular rate (5-6% in USA circumstances). This increase should be applied permanently, without taking into consideration certain circumstancial evolutions. The action of this rate in the long run, correlated with the tendency of economic growth, is, in the monetarist conception, the basic condition for providing the monetary stability.

But, in the short run, the correlation between the increase of the monetary mass (RM) and the rate of GDP growth (RPIB) must be completed with at least one more (the modification of the average rate of interest)– ΔRD, so:

$$RM_n = f\left(RPIB_n, \frac{1}{\Delta RD} \right),$$ (9)

where:
RM_n – rate of growth of nominal monetary mass;
$RPIB_n$ – rate of growth of nominal GDP

In other words, the monetary mass increases together with the increase of nominal GDP and the decrease of the interest rate.
In real terms, the correlation becomes:

$$RM_r = f\left(RPIB_r, RI, \frac{1}{\Delta RD} \right),$$ (10)

where:
RM_r - the rate of growth of real monetary mass (based on the rate of growth of real monetary mass (calculated based on the GDP deflator);
$RPIB_r$ - rate of real GDP growth;
RI – inflation rate, calculated based on GDP deflator

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