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MANAGED MONETARY ACCELERATOR AS A CURE FOR THE GLOBAL FINANCIAL CRISES

Production of durable goods, both consumer and capital, undergoes the strongest fluctuations during a business cycle. This "acceleration principle" has been widely studied by Aftalion, Clark, Pigou, Harrod etc. But let's ask ourselves: does the acceleration principle operate in monetary sphere? Whether it is one of the causes of modern financial crises?

Let's turn to the theory. It is known that Fisher's equation was initially written down for the entire set of transactions made in economy (Q), i.e. for the GDP production transactions and for the securities market transactions:

$$M*V = P*Q, \qquad (1)$$

However this equation has been significantly modified: Y (real GDP) appeared instead of Q, P_Y deflator appeared instead of P and V_Y (income velocity of money) appeared instead of V:

$$M*V_Y = P_Y*Y = nominal\ GDP \qquad (2)$$

We suggest returning to the original interpretation of Fisher's equation. Now we represent it as follows:

$$M*V = M_1*V_1 + M_2*V_2, \qquad (3)$$

where $M_1*V_1 = P_Y*Y$ on condition that the nominal GDP production is not being served by the entire money supply M but only its part $M_1<M$, and that V_1 is velocity of M_1 circulation;

M_2*V_2 – the total value of assets transactions not included in GDP. In our opinion, it is primarily the value of transactions with corporate and government securities.

V, V_1 and V_2 from (3) are subject to the condition: $V_1<V<V_2$. It is crucial that the V_2 is several orders of magnitude greater than V_1. We don't know an exact assessment actually. But if we assume V_2 prevail over V_1 for the range of 10 to 10000 times, then the share of M_2 in M will make a negligible amount – nearby 1%. Consequently, weak fluctuations of the M_1 growth rate concerning the M growth rate must necessarily generate strong fluctuations of the M_2 growth rate.

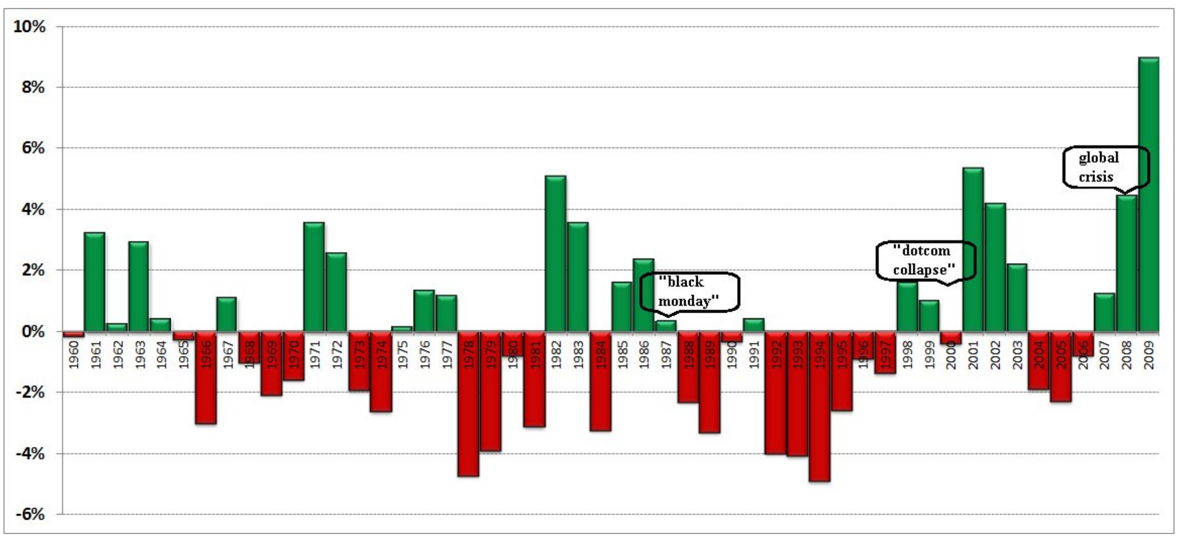
According to our estimates, if the difference between the M growth rate and the M_1 growth rate makes only 1 percentage point, M_2 has approximately twofold increase. If the difference makes 2 percentage points, M_2 increases by three times etc. This is "**a principle of monetary accelerator**." This principle has not been yet considered by economists, though, in our opinion, it represents one of the major reasons of financial instability.

To move from theoretical discussions to a real estimation of monetary accelerator, we replace $\lambda(M)-\lambda(M_1)$ by $\lambda(M)-\lambda(GDP)$ which can be statistically measured. The dynamic diagram of $\lambda(M)-\lambda(GDP)$ was built according to U.S. statistics during 1960-2009. It shows the rates range in the following way:

$$-4.9 \text{ p.p.} \leq \lambda(M)-\lambda(GDP) \leq +8.9 \text{ p.p.}$$

It means that M_2 fluctuations were very significant. The M_2 share decreased by 5 times in some years (at -4.9 percentage points) and increased ninefold in other years (at +8.9 percentage points).

Statistics show that financial shocks occurred at positive values of $\lambda(M)-\lambda(GDP)$.



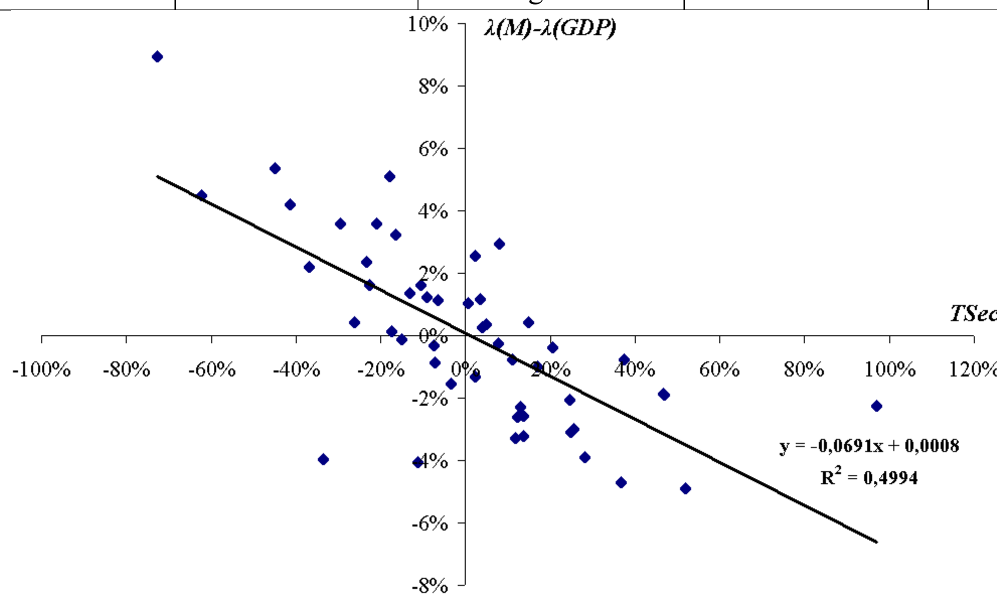
Although the "dotcom collapse" happened at the negative value of $\lambda(M)-\lambda(GDP)$, it is necessary to remember that this value was calculated for a whole year. The difference was positive and amounted to 0.6% when the collapse occurred in the first quarter of 2000. It means that M_2 – stock markets money – increased by half from January to March 2000. The same happened in 2008 when the global financial and economic crisis had begun. Thus, cases where *λ(M)-λ(GDP)*>0 are extremely dangerous. It is a threat not only to U.S. economy but the whole world.

The question arises: is it possible to manage *λ(M)-λ(GDP)* in order to minimize the risk of global financial and economic crises? We believe that this difference depends on U.S. Federal Reserve purchases and sales of U.S. Treasury securities in the market. There is a growth of monetary base to convert into *λ(M)* – the money supply growth rate – due to the money multiplier.

To test our hypothesis we consider correlation between *TSec* – an average annual growth rate of the market yield on U.S. Treasury securities at 1-year constant maturity – and *λ(M)-λ(GDP)* over 1960-2009. We further divided results into 4 clusters.

Correlation between *TSec* and *λ(M)-λ(GDP)*

Years	Sample volume	Positive/negative correlation	Correlation coefficient	
1960-1976	17	negative	- 0,66	-0,71
1977-1989	13	negative	- 0,91	
1990-1999	10	negative	- 0,36	
2000-2009	10	negative	- 0,92	



Equation for correlation between *TSec* and *λ(M)-λ(GDP)*

Stable negative dependence between *λ(M)-λ(GDP)* and *TSec* shows that influence of the Fed's open market operations on *λ(M)-λ(GDP)* fluctuations was very significant in the last half of the twentieth century (the determination coefficient is equal to 49.94%). Nevertheless U.S. Federal Reserve did not pay attention to it. Fed's well-known monetary base formation targets are as follows: price stability, economic growth initiation, high employment, stability of external payments and international trade. As we see there is no purpose to minimize $\lambda(M)$-$\lambda(GDP)$. Why?

Statistical calculations on the U.S. economy show that increase of the stock market money supply (an M_2 increase) led to an increase of corporate and government securities yields spread and was not accompanied by financial disaster in 1960-1999. In other words, when M_2 supply was in excess there was corporate securities growth (e.g., increase of S&P500) and *TSec* decrease simultaneously, while financial markets have maintained their stability. That is why the task of $\lambda(M)$-$\lambda(GDP)$ minimization was not relevant to the U.S. Federal Reserve policy in the second half of the twentieth century.

Correlation between $\lambda(M)$-$\lambda(GDP)$ and corporate and government securities yields spread

Years	Sample volume	Positive/negative correlation	Correlation coefficient
1960-1976	17	positive	0,81
1977-1989	13	positive	0,29
1990-1999	10	positive	0,50
2000-2009	10	negative	-0,89

However, the situation has changed dramatically during 2000-2009. Correlation between $\lambda(M)$-$\lambda(GDP)$ and the yields spread became negative. We can assume that the widespread derivatives are the reason for it. These are derivatives that have become the excess M_2 supply distraction. They compete successfully with corporate securities (hence there is a strong negative correlation), but unlike the latter, do not pass through the listing and include higher risks.

Therefore, U.S. regulators must pay attention to the behavior of $\lambda(M)$-$\lambda(GDP)$ along with regulating derivatives transactions. To limit the speculative derivatives transactions it is necessary for U.S. Federal Reserve to establish critical levels of this indicator and not to allow their excess by managing effective federal funds rate, which is tightly linked to *TSec*. In our opinion, the upper level is very important. We believe that $\lambda(M)$-$\lambda(GDP)$ must not exceed 1-1.5 percentage points per year and 0.25-0.30 percentage points per quarter.

We should mention that our practical recommendations are based on Fisher's original equation. We believe it is time to return to this equation and investigate it more thoroughly.