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Some Considerations on the Challenges to the Economic Science

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ABSTRACT

The recent crisis of 2008 has revealed several challenges for the economic science, sparking a considerable amount of debate regarding the profession of economists and the role of macroeconomics and monetary policies. The first question that arose was why there was a lack of anticipation of the crisis (especially from the mainstream economists) and, secondly, how could policy makers "fix the economy" after the crash of the markets. The metaphor "economics as a machine" is a good reflection of how people think of the economy and economists today, although the author of this paper, among many other researchers, believes otherwise. Therefore, this paper gives preliminary answers to the questions above and describes today's challenges to macroeconomic models and to monetary policy frameworks in particular, in terms of methodology.

Keywords: Economic methodology, financial crisis, monetary policy

JEL codes: B41, E58, G01, G10, H12

1.Introduction

The fallacies of today's view on the economy at national and international level have been exacerbated by the recent events in the world, mainly by the sub-prime crisis and its transformation in a global economic crisis. Economists and policy makers have been put in a difficult situation, trying to find causes for the crisis and solutions to it. Their inability in foreseeing the events of the last four years is explained by many as a failure of the models used to evaluate complex financial assets or of the macroeconomic models used to set monetary policy by central banks. Therefore, in their opinion, the economists should work at designing new more complex and encompassing models in order to better predict such infrequent events (Colander et al., 2009: pp. 257-259, Sollow, 2003). Other researchers believe these fallacies are inherent by default, as one cannot consider "economics as a machine" or macroeconomics as

being “hydraulic” (Kling, 2009) for several reasons, but the economy resembles much more an ecosystem (Borders, 2011). The paper addresses the problems raised by the use of modern macroeconomic models while the critics of the present theories, models and policy recommendations in economics will be approached from two perspectives: a theoretical one, more general (Section 2- The general view), and a technical one with concrete deficiencies found in the macroeconomic models used so far (Section 3- The case of monetary policies). The discussion is rooted, from a methodological perspective, in what is today seen as heterodox economics. This topic will not be tackled in the present paper, as it does not represent the scope of it and is better suited for an entire separate study. Instead, the article critically analyzes macroeconomic models and is intended to be a starting point for debate, while further rigorous research is necessary.

2. The General View

In his Nobel Prize Lecture, Frederich A. Hayek pointed out the error of “the scientistic attitude”, comprising of trying to mechanically apply “habits of thought to fields different from those in which they have been formed”. Hayek was comparing social sciences with physical sciences, the latter being able to use measurable information and make precise predictions. But the field of economics is different and we seem not to acknowledge this: although the quantitative data is limited and may not include important information, we still try to predict patterns with the pretence of exact knowledge.

If we had access to complete information, the answer to the optimal allocation of resources problem would be mathematical (Hayek, 1945), and, thus, the economy would be run just by governments pushing the right buttons. But in reality, information is initially dispersed among all people, there exists an important amount of unorganized knowledge – the knowledge of the particular circumstances of time and place – giving some advantage to every individual over all others (Hayek, 1945). Plus, information is constantly changing and the importance of change isn’t quite acknowledged. In Hayek’s words from 1945, economists are preoccupied “with statistical aggregates, which show a very much greater stability than the movements of the detail.” Nowadays, the topic seems more contemporary than ever.

Besides the problem of complete information, one other general reason why economists failed to predict the current crisis is the fact that we are human beings and the markets are the result of our interactions. You cannot compare the economy with a machine, as machines are created by the human mind, they can break and be repaired. Instead, the economy and its evolutions find themselves in a constant change, many times giving surprising outcomes precisely because they are functioning based on human decisions and actions, which are many times emotional decisions, and not necessarily rational.

Therefore, it is not unusual that economists reached the conclusion that within the last hundred years the crisis occurrence was random (Jordà et al., 2010: p.36, Taleb, 2007) and that, even more, the incidence of financial crises has increased continuously after the abandonment of the Bretton-Woods system (Bordo et al., 2001: p. 7), without any clear explanations. Mainstream economics has tried to find causes for the recurring financial crises, without managing to give a convincing business cycle theory or crisis theory, since economists and policy makers always seem to be taken by surprise by the occurring financial crisis. One theory that could have a great explanatory power is the one elaborated by the Austrian School of Economics. It considers that a crisis is caused by malinvestments induced at the monetary level, by lowering the interest rate below its equilibrium rate or by artificially creating new money. The recovery cannot be achieved through new government intervention, but only after settling the erroneous capital investment (allowing firms and banks to go bankrupt) and restoring the coordination function of prices. I will not develop the theory because the purpose of this paper is not to explore the Austrian business cycle theory and its validity, but to understand the fallacies of the current macroeconomic models used in making important decisions for the national and world economy.

The current macroeconomic models are highly criticized for the fact that they do not take into account the heterogeneity of actors taking part in the economy and the heterogeneity of their decision making process. The representative-agent model and the rational-expectation hypothesis have not been empirically validated and have a great role in the unrealistic approach to model the economy (Colander et al., 2009: pp. 256-257, Sollow, 2003: pp. 1-2). Thus, the representative agent means that only one individual is considered for the entire economy, homogenizing the various kinds of market participants. The rational-expectation assumption gives the agents the capability to know how the economy works, by implying that they have complete information about the probability distribution of all future events. Obviously, these hypothesis largely used in modern macroeconomics are far from describing the reality. Plus, the models are not encompassing the possibility of a real disturbance and its effect (Sollow, 2003: p.3), their methodology lacking the notions of “systemic risk” or “coordination failure” (Colander et al., 2009: p. 258). Accordingly, the predictions made by different models using them have been erroneous, both in forecasting the financial market evolutions and in forecasting the economic growth of the economies.

In particular, the mathematical devices and risk-management models gave confidence to market players. They were under the impression that nothing can go wrong, everything can be determined and more trading and creation of even more complex financial instruments based on these models were encouraged. But the models consistently ignored systemic risks and gave only an approximate for real-world dynamics (Colander et al., 2009: p. 254). Moreover, one of the current crisis causes is seen as being the sophistication of the 2007 financial products that made their risk not to be correctly evaluated by rating agencies and for which there was a challenge even to determine the market price (Schwarz, 2009: p. 47). Therefore, the current crisis revealed the weaknesses of the mathematical portfolios, asset-pricing and risk-

management models. Some economists are of the opinion that there is a need for an ethical code for professional economic scientists, since they didn't indicate to the public the difficulties and the flaws in their models. In the same spirit, Nassim Nicholas Taleb (2007) believes that the Nobel Prize in Economic Sciences legitimizes the mathematical models that incorrectly assess the risks and, so, the investors are exposed to understated risks because of these models they are using and trusting. But in his opinion, the financial market patterns do not exist, their evolutions being random.

In conclusion, the mathematical modeling of the economy and the financial instruments' risk assessment models in particular, lacks complete information. It is physical impossible, at least for the time being, to create an all-encompassing model. Plus, the aggregates used as variables have the shortcoming of hiding the variations of the details. The imperfect frameworks give some insights on the functioning of markets and participants' behavior, but, as we have seen, cannot accurately forecast the evolution of the economy or sector of the economy. However, policy makers use the modern macroeconomic models as instruments when taking decisions, despite their weaknesses, and one of the fields in which mathematical modeling has an important role is monetary policy conducted, usually, by a central bank.

3. The Case of Monetary Policies

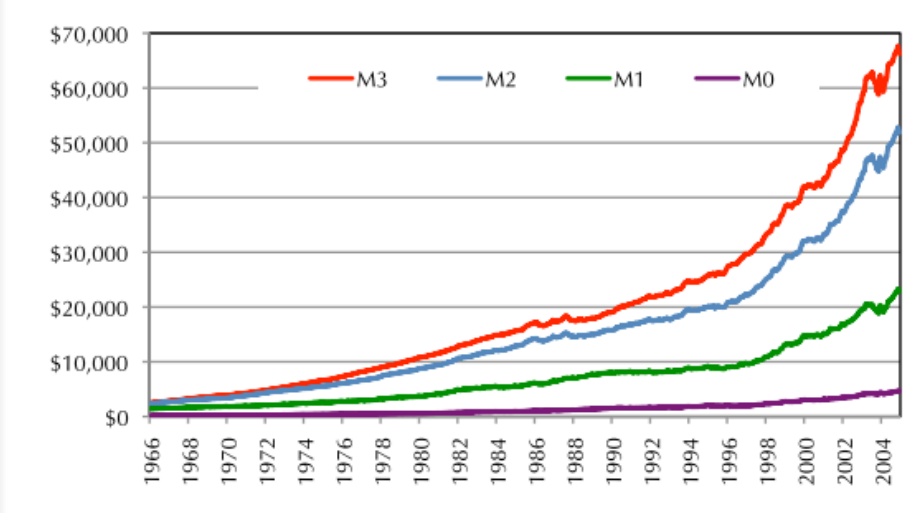
The current crisis has showed that monetary policies have unexpected results and that no central banker can thoroughly predict the outcome of a monetary policy measure they implement. The expansionary monetary policy of central banks in 2001 participated in fueling an unsustainable credit boom, especially in the real estate sector. The inflationary policy was a response to the crisis in the IT sector in the late '90s and to concerns about a possible recession after the terrorist attacks of 11 September 2001. The change in Fed's monetary policy stance by making credit more expensive and raising the federal funds rate was a factor which revealed the 2007 crisis, the consequence of this measure being the default of sub-prime mortgages.

The limited success of monetary policies has been visible even before 2007. It was observed that the Federal Reserve System (Fed) had been periodically creating recessions, through "go-stop" policies, in order to stop inflation, after trying (unsuccessfully in the last decades) to increase employment (Goodfriend, 2007: p 4.). This meant that the Fed allowed inflation and inflation expectations to move higher with the purpose of reducing unemployment, but as inflation rose, the main target would move to restraining inflation by tightening the monetary policy, thus switching to the "stop" phase of the policy cycle. Market anticipations of this kind of monetary policy lead Fed, eventually, to losing its room to maneuver between "go" and "stop" policy (Goodfriend, 2007: p 4.).

The effectiveness of monetary policy and its impact on the real economy is also influenced by the current banking system. The central banks have control only over the monetary base – M0

and M1-, while the commercial banks are the ones that multiply money through the fractional reserve system, by expanding credit and fueling crisis. Figure one show the great power of private banking in increasing the money supply, the difference between M0 and M1 on one side, and M2 and M3 on the other side being tremendous. Consequently, even if the monetary authorities do not intend to considerably enlarge the money supply, an increase in the monetary base (by printing money or by reducing the reference rate, and so, expanding lending) may lead to much more cheap money than predicted and to unwanted outcomes such as the 2008 financial crisis (by reacting to the 2001 recession fears - the broad money supply M2 expanded rapidly in the years of the dot-com boom and even more rapidly in response to the dot-com bust). This happens also because the commercial banks make different choices as regard to their reserves and loan-loss provisions (within the banking regulations framework) and central bankers do not hold complete information.

Figure 1 Global Money Supply, 1971-2009 (in billions)



Source: Gustavson (2010), p. 9.

Another issue that raised debates has been the use of discretionary policy (the central bank intervenes whenever it considers necessary, in order to achieve its inflation targeting goal or to try eliminate excessive unemployment) versus policy rule (the conduct of policy as a systematic response to incoming information about economic conditions, as opposed to a period-by-period optimization problem). One can give as example of the latter choice of policy, the Taylor rule, which was based on the U.S. experience in the late 1980s and early 1990s. It implied that "the federal funds rate (r) should normatively (with qualifications) be set, and could positively be explained, by a simple equation: $r = p + 1/2y + 1/2(p-2) + 2$, where y represents the percent deviation of real GDP from trend and p represents the rate of inflation over the previous four quarters. With inflation on its assumed target of 2 percent and real GDP growing on its trend path of roughly 2 percent per year (so that y=0), the real ex post interest rate (r-p) would also equal 2" (Asso et al., 2010: p.1). As we can see, the approach is a mechanical one, by setting the

federal funds rate without knowing if it is the natural rate or not. Thus, it is not surprising that the outcomes may contribute to fostering a financial crisis.

Although the Taylor-type rules have been used in describing past policies or future policy sets, the culture of discretion (equivalent to unpredictable and sometimes politically biased monetary policies) has not been abandoned. Still, they have served as benchmarks for policymakers in assessing the current stance of monetary policy and in determining a future policy path. But monetary policy models are not exempted by the errors and obstacles described in the previous section of this paper. As we have seen, the monetary system and the economy are treated as a machine to which one can apply a reference rate either by following an equation or by using one's instinct or beliefs. The impact of the decision does not concern and does not influence only the policy maker, but the entire participants in the economy. Many times the results of these policies are surprising, leading to recessions or even crisis. In addition, "one obvious problem with financial crises, looking at it from a policy perspective, is that financial imbalances and distress are not built into the economic models that policymakers make use of." (Gustavson, 2011: p.20). Still, one may say that an imperfect model is better than no model at all.

Two opposing views, — the Fed view and the one of a group of economists at the Bank for International Settlements (BIS) — are summarized in Table 1, containing associated policy prescriptions for how central banks should respond to asset booms and busts. The model that has prevailed in mainstream macroeconomics has been the Fed view, but the debate is not over yet, since Fed failed in "fixing" the economy, as expected. The BIS view suggests a more non-active policy and prudential approach.

Table 1 Fed vs. BIS Views in the Years Preceding the Financial Crisis

Fed view	**BIS view**
Asset bubbles can't be identified before they burst.	There are several indicators of financial imbalances, among others rapid credit growth and household and corporate debt as well as asset prices diverging strongly from historical trends.
The central bank should "clean up" the mess after a bubble bursts.	The central bank should "lean" against asset bubbles by tightening money.
The costs of raising interest rates, in the form of lost output in the short run, are too high.	The costs of letting financial bubbles getting out of hand are too high in the long run.
Price stability should be the central bank's main goal.	Price stability is not enough.
Pre-emptive easing should be used to help distressed financial markets.	Pre-emptive tightening should be used to make sure financial imbalances don't get out of hand.

Source: Gustavson (2010), p.22.

Finally, the policy responses to the current crisis meant injecting a huge amount of liquidity in the banking system (following Fed's view of cleaning up the mess after the bubble burst). All this, in spite of the fact that from a historical point of view, the cost of the crises has been higher as the liquidity support to insolvent banks led to irresponsible behavior, and practically fueled moral hazard (Bordo et al., 2000: pp. 23-24). But today's crisis hasn't been solved by the Keynesian measures of stimulating the economy (setting a lax monetary policy with a federal funds rate near zero, bailing out some financial institutions) and the jobs supposed to be created by them have been actually destroyed, as a result (Conley, Dupor, 2011).

4. Conclusions

The main conclusion is that macroeconomic models and monetary policy frameworks in particular, have clearly design errors and cannot closely reproduce the reality. This happens as a consequence of the lack of complete information, and the unrealistic assumptions made, but also as a lack of control over the policy effects, especially in the banking sector. As a result, errors appear in forecasting policy outcomes or financial crises. The models give some kind of image overall, but must not be taken as absolute truth. The practice shows otherwise, and the modern central banks are believed to possess a broad macroeconomic outlook that entitles them to monetary planning and intervention. The challenge remains in creating better, more complex and comprehensive models although the present researcher's opinion is that the mathematical approach will never succeed in reproducing the reality in a satisfactory manner such as to effectively use the public policy tools as instruments for running the economy. The economy, as a result of human action and interaction, is hardly foreseeable.

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