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■ Trends in Monetary Policy

MONETARY POLICY STRATEGY BEFORE AND AFTER THE CRISIS

■ Frederic Mishkin is a well-known name in the field of monetary economics. In particular, he has written extensively on monetary policy strategies. In a paper presented in the end of last year, he argued that “events in the recent global financial crisis have changed central banking forever”. It is hard to disagree with him.

But what is it exactly that requires change, or adaptation? What proved to be flawed in the conduction of monetary policy prior to the recent crisis? What important facts, well known before the recent events, were disregarded by the monetary authorities? To what extent were central banks responsible for the phenomenon known as the great recession? What part of the previous strategy, or of the previous consensus, needs to be preserved, and very likely will? An answer to these questions is indispensable if we want to anticipate how monetary policy will be conducted in the future, when the crisis is over. And this is what we intend to do in this article.

First, we analyze how monetary policy evolved in the years prior to the crisis. In other words, we examine the path it followed until the inflation targeting framework became dominant, at least in spirit. Second, we sum up the main conclusions of the prevailing doctrine shared by both academics and central bankers in the final phase of that period. Third, we briefly describe the recent adverse events and the main lines of the monetary policy responses. Forth, we indicate that a great deal of what many people call “lessons from the crisis” was already known and ended up being ignored for reasons not completely understood. Finally, we discuss what part of the previous consensus will probably be preserved, as well as the most likely directions of the necessary changes. We must stress from the beginning that we leave aside aspects related to monetary policy strategies in times of crisis, although we deal with what to do to minimize the occurrence of such a phenomenon. This means that we shall not

deal here with specific proposals advanced with the purpose of accelerating the recovery process.

The Origins of Inflation Targeting

For more than two decades, Milton Friedman led a series of researches aimed at convincing politicians, economists and the public in general that inflation was an important problem and that, contrary to the prevailing theoretical framework, widely known as Keynesianism, monetarism could explain that phenomenon. And it had a solution to offer.

However, as Harry Johnson put it, agreement on the second proposition depended on the acceptance of the first. (Johnson, 1971, p. 7). This only happened in the end of the 1960s and beginning of 1970s, when, in the United States, the rate of price growth reached a significant level. In reality, at that time, inflation became a problem not only for the US but for the world economy in general. At that point, a new theoretical framework had already been built. And two basic monetarists' propositions became widely accepted, namely: a) inflation is a monetary phenomenon; and b) there is a temporary trade-off between inflation and unemployment, but no permanent trade-off. The acceptance of these ideas had two main implications. First, the fight against inflation should be a task for central banks, which, at least in principle, could control monetary expansion. Second, given the inability of central banks to permanently affect the behavior of real variables, monetary authorities should dedicate themselves to the control of inflation. In some countries, the willingness to do so was present. But they faced a huge problem: the exchange-rate regime in place at that time. In the early 1970s, the world was still under the so-called Bretton Woods system, which implied fixed but adjustable exchange rates. According to this system, individual countries give priority to the foreign price of their currencies. In such cases, attempts to maintain fixed the exchange rates mean absence of control over the domestic money supply.

Germany and Switzerland were the two most relevant examples of countries which entrusted the task of fighting inflation to their central banks, and where priority was

given to that task. In those two economies the problem of not having control over the supply of money was particularly severe, since, in the exchange-rate markets, there was a great deal of speculation in favor of their currencies. In other words, the German mark and the Swiss franc were two of the best candidates to appreciate in any realignment of rates or in case the Bretton Woods system broke down. At the same time, the US economy was weakened and experienced substantial deficits in the balance of payments. In a sense, the US was exporting inflation to other countries. To defend their currencies, the Germans and the Swiss were forced to acquire enormous amounts of dollars in the international markets. Capital flows were too huge to be fully sterilized, which implied high rates of monetary expansions. As a consequence, inflation rates were also high. In the early 1970s, in Germany, the rate of price growth varied between 5.0% and 7.0% per year. In Switzerland it was even higher.

With the collapse of the Bretton Woods system in the first months of 1973, the Germans and the Swiss became free to pursue independent monetary policies. The dominant influence of money on prices is something they had already recognized. With the elimination of the constraint imposed by the old exchange-rate regime, they now sensed that their inflation rates could be lower than elsewhere. At the same time, they were convinced of the importance of committing themselves to some sort of a rule in the conduction of monetary policy. And these became the main goals of their central banks.

The strategies adopted in Germany and Switzerland were quite similar. Both countries formally introduced monetary targeting, as they established numerical objectives for the expansion of the money supply. Those parameters were set based on informal targets for the inflation rates and were determined by means of the so-called quantitative equation, considered a valid framework for the medium and long run. The procedure involved hypotheses for the potential rate of economic growth and the trend in the change in velocity. The approach was not a rigid one. In several occasions, the authorities chose to postpone meeting their targets to avoid hurting the pace of economic activity. In fact, very often, monetary targets were not met. In spite of this, the authorities managed to preserve their credibility. In Germany, in

particular, the strategy was frequently referred to as “pragmatic monetarism”, an expression later to be used in the US, during the Volcker administration.

It is important to stress that very early in the process the authorities of both countries were stimulated to make explicit the hypotheses they were working with as they set up their strategies and numerical targets. In other words, they understood the importance of transparency and good communication. The final results are considered to be quite good. In both economies the average inflation rate converged to less than 2.0% per annum, and stayed at that level for many years.

Several other countries attempted to adopt similar strategies. But they failed. The UK is a case in point. The reasons for such failure and a more detailed analysis of the experience of Germany and Switzerland with monetary targeting can be found elsewhere (Senna, 2010, chapter 12). Here, it suffices to recall some important lessons from the two successful experiences: a) the clear definition of targets for inflation and monetary expansion had a great role to play in coordinating inflationary expectations; b) it imposed discipline on the central banks; c) the strategy helped to contain political pressures on the monetary authorities; d) it gave a basis for evaluating the performance of the central bankers.

In the final years of the 1980s, monetary economics had gone through an important revolution, thanks to the contribution of the so-called new classical economists. Apart from the controversies generated by the new theoretical framework, the fact is that, by that time, economic theory and central bankers in general had already incorporated (apparently in a definitive way) the idea that the effects of monetary policy on the economy depended on expectations regarding the future behavior of the monetary authorities. Besides this, the new way of thinking helped to further clarify the risks involved in monetary activism. In other words, central bankers would operate on safer grounds if they worried basically with the rate of price change, a conclusion already arrived at by the monetarists.

At the same time, on the practical domain, inflation had already been “conquered” in the US. After reaching 14.0% in the late 1970s, it had been brought down to less than 4.0% per annum. A similar phenomenon had also been observed in Europe. In this case, some of the countries which experienced disinflation benefitted substantially

from a system known as the exchange-rate mechanism, which implied fixed (but adjustable) exchange rates, centered on the Deutsche mark. The costs of that mechanism proved to be high when, in the early 1990s, the German reunification led the Bundesbank to substantially raise the rate of interest, a policy which was not in the interest of most (if not all) of those which had adhered to that system.

Theoretical support, concrete evidence of success in the fight against inflation and a sense of improved well-being, associated with more modest rates of price growth in several parts of the world, called attention to what in fact works in the field of monetary policy. In particular, a high degree of consensus was formed around the idea that the price system of a given economy works better in the presence of some sort of an anchor.

At the end of 1980s, there had been experiences with two types of anchor: the money supply and the exchange rate. A third one was about to appear, with the introduction of inflation targeting (IT). By making explicit a numerical target for inflation, in this case one goes directly to the final objective. Different countries adopted IT for distinct reasons. The UK and Sweden, for example, had gone through the collapse of the exchange-rate anchor; Canada had experienced frustration with monetary targeting; and New Zealand wished to consolidate gains already obtained in fighting inflation.

Under the new regime, the central bank is given the task to stabilizing the rate of inflation (over the medium term) around the numerical target, which becomes the anchor of the system. The experiences of those which had success with monetary targeting made clear the importance of being flexible. And flexibility became an important characteristic of IT, to the extent that, in conducting their policies, monetary authorities take into consideration the short-term behavior of the real economy. In the presence of shocks, they can postpone the convergence of inflation to the specified target. Inflation can be brought back to the target rather quickly, but that result can be achieved only at the cost of creating excessive output volatility. The new policy regime exhibits what Bernanke and others have called “constrained discretion”. (Bernanke et. al., 1999, p. 293).

Another important lesson drawn from the successful monetary targeting experiences was that central banking should not be dealt with (as it used to be) in a mysterious way. In other words, between the then dominant mystique and the transparency of the Germans and the Swiss, IT practitioners opted for the latter. It became clear that considerable benefits can be collected from establishing an objective easily understood by the public and from disclosing the strategies to achieve that objective as well as plans to correct them in case they prove to be mistaken. In democratic societies, transparency and good communication seem to be indispensable mechanisms for monetary authorities to obtain credibility, support from the public and independence to act.

As the IT adopters incorporated the above-mentioned characteristic, they were making monetary policy more predictable, an old proposition made by the monetarists. Milton Friedman, for example, following a tradition initiated by Henry Simons, liked to stress that monetary policy could (and should) be conducted in such a way as to “prevent money from being a major source of economic disturbance”. (Friedman, 1968, p. 12).

The Consensus Before the Crisis

In the middle of the years 2000, around 30 countries had become IT practitioners. Both in the academic profession as well as in the world of central banking there was widespread support for flexible inflation targeting. This became the conventional framework, according to which monetary policy should aim at minimizing the variability of inflation around the target and the variability of output (or employment) around the trajectory consistent with low and stable inflation.

The combination of short-term policy flexibility with the discipline imposed by targeting low rates of inflation produced very good results, even in countries where IT had not been formally adopted (the US, for example). Considerable decline in the volatility of output and employment, on the one hand, and of inflation, on the other hand, became a fact of life. Recessions turned into much milder and less frequent phenomena and inflation rates stabilized at quite low levels. We were living through

the so-called ‘great moderation’, a phase generally understood to have lasted from the mid-1980s until the breakdown of the recent crisis.

For those who were conducting monetary policy along the new framework, the basic concerns had to do with meeting the medium-term inflation target, preserving the flexibility to offset cyclical deviations in economic activity and employment, and communicating the chosen plans and strategies. This means that events in the financial markets, however important, were not taken into due consideration.

Thus, during (and prior to) the great moderation, monetary and financial stability policies were not integrated. The first one focused only on stabilizing inflation and output, while the second was treated separately. In some circles, at least implicitly, it was admitted that price and output stability would ensure financial stability.

In addition to this sort of dichotomy, one must stress that prudential regulators and supervisors looked at financial stability problems from the micro point of view. In other words, the focus was on the safety and soundness of individual entities. They failed to notice that, financial institutions, households and firms can behave in a certain way that, in the aggregate, could lead to unsustainable levels of spending, debt and asset prices.

Discussions on whether or not a central bank should be concerned with the behavior of asset prices, and whether or not it should respond to them, are quite old. It may be exact to say that these issues were brought up by analyses of the circumstances which led to the Great Depression. In fact, writing in the heat of those events, Keynes attributed the primary cause of the problems of that time to the interest-rate policy followed by the Fed, and other central banks as well, wrongly guided by the stock-market boom. In his own words, “the high market-rate of interest which, prior to the collapse, the Federal Reserve System, in their effort to control the enthusiasm of the speculative crowd, caused to be enforced in the United States – and, as a result of sympathetic self-protective action, in the rest of the world – played an essential part in bringing about the rapid collapse. [...]. Thus, I attribute the slump of 1930 primarily to the deterrent effects on investment of the long period of dear money which preceded the stock-market collapse.” (Keynes, [1930] 1950, p. 196).

In their book *A Monetary History of the United States*, Friedman and Schwartz were also critical of the Fed's attempt to influence the behavior of the stock market in the period which preceded the crash. They put it this way: "there is no doubt that the desire to curb the stock market boom was the major if not dominating factor in Reserve actions during 1928 and 1929. [...]. In the event, it followed a policy which was too easy to break the speculative boom, yet too tight to promote healthy economic growth". The concluding words were: "the Board should not have made itself an arbiter of security speculation or values and should have paid no direct attention to the stock market boom, any more than it did to the earlier Florida land boom". (Friedman and Schwartz, 1963, pp. 290-292). This view would later be endorsed by several other academic researchers. (See, for example, Hamilton, 1987, pp. 147-154).

In 2002, the year Bernanke became a member of the Fed's Board of Governors, he gave a speech in New York under the title "Asset-Price 'Bubbles' and Monetary Policy". At that occasion, he called attention to the fact that the Fed has two broad sets of responsibilities. One is to promote maximum sustainable employment, stable prices and moderate long-term interest rates. The other is to ensure the stability of the financial system. In his opinion, "the Fed should use monetary policy to target the economy, not the asset markets". And to help ensure financial stability, the Fed should use "its regulatory, supervisory and lender-of-last resort powers." (Bernanke, 2002, p. 2).

Monetary policy should not lean against bubbles for two reasons. First, the central bank "cannot reliably identify bubbles in asset prices. Second, even if it could identify bubbles, monetary policy is far too blunt a tool for effective use against them". (Bernanke, 2002, p. 3). The idea is that attempts to influence the prices of a certain class of assets, by means of monetary policy actions, unavoidably affect the broader economy. Modest interest-rate hikes with the purpose of pricking what seems to be an asset bubble tend to be insufficient to contain the enthusiasm of those who are in the game for very high expected returns. Aggressive hikes, in turn, can provoke severe damage to the economy. Bernanke concludes that "a far better approach [...] is to use

micro-level policies to reduce the incidence of bubbles and to protect the financial system against their effects.” (Bernanke, 2002, p. 9).

A very similar view was expressed by Alan Greenspan in a book published one year after he left the Fed. To begin with, the former all-powerful Fed’s chairman emphasized how difficult it is to draw the line between the effects on the stock market of a healthy economic boom and a speculative bubble. Besides, he doubted that even if the central bank decided that there was a bubble and wished to let the air out of it that task could be accomplished. He exemplified. “By abruptly raising the rate of interest by, say, 10 percentage points, we could explode any bubble overnight”. But that would be devastating. “We’d be like killing the patient to cure the disease”. On the other hand, moderate tightening would be counterproductive, “more likely to raise stock prices than to lower them”. (Greenspan, 2007, pp. 200-202).

Greenspan concluded that the best thing for the Fed to do would be “to stay with our central goal of stabilizing product and services prices”, while seeking to “gain the power and flexibility needed to limit economic damage if there was a crash”. In the case of a major market decline, the policy would be “to move aggressively, lowering rates and flooding the system with liquidity to mitigate the economic fallout. But the idea of addressing the stock-market boom directly and preemptively seemed out of our reach”. (Greenspan, 2007, p. 202).

Although the above-mentioned argument was made in regard to the stock market, the reasoning was applicable to real-estate bubbles as well. In summary, the idea that asset-price bubbles should not be directly addressed by monetary policy makers became part of the consensus. And Greenspan’s position certainly had a great deal of influence on the formation of this consensus.

To complete the picture, there was also consensus on the type of macro models to be used to guide monetary policy. In this case, the conventional wisdom involved the so-called general equilibrium models, the DSGEs. Largely used by central banks in general, those models did not incorporate the possibility of gradual increase in debt, leverage and vulnerability which often lead to financial crisis and excessive output fluctuations. As Mervyn King pointed out, in those (New Keynesian) models, “the treatment of expectations is simplified, and neglects the possibility that expectations

themselves may be a source of fluctuations, rather simply reflecting change elsewhere in the economy.” (King, 2012, p. 5). In particular, the lack of explicit consideration of credit and banking made the models inadequate for the purpose of better understanding the trade-offs between economic and financial stability.

The Crisis and the Policy Responses

Asset bubbles may not necessarily lead to financial disruptions and large output and employment fluctuations. To a great extent, it all depends on whether the bubble is fed by excessive credit, or not. The episode which involved technology stocks in the beginning of the present century was not supported by excessive leverage and debt. In the wake of the burst of the bubble, the stock market (both the Nasdaq as well more general indexes, like the S&P-500) fell for more than two years, but there was no significant deterioration in the balance sheets of banks. There was a recession, but it was mild and short-lived, lasting less than a year. The period 2001-02 was one of slow growth, but in 2003 the economy was already expanding at its potential rate (2.5% per annum). The Fed reacted to the burst of the bubble by lowering the basic rate, a policy which (due to concerns with deflation) persisted through the middle of 2003, when the federal funds rate reached 1.0%.

But the story may get a lot worse than that if too much credit is involved, as in the recent housing bubble. In such cases, houses and apartments are acquired with the support of credit. The lending institutions receive those items as collaterals for their support. As demand expands, the prices of real estate go up, stimulating further supply of credit. One day, for some reason, the process is interrupted. Prices stabilize and then start to fall. Such decline means lower values of collaterals. At this point financial intermediaries step on the brakes and curtail credit expansion. The economic activity is adversely affected, which leads to further decline in the prices of assets and additional tightening of the credit supply. A recession ensues, generally a lengthy one. Banks, household and firms get stuck with excessive debt, a situation which requires a great deal of time to be corrected. In the present case, the costs incurred in cleaning up after the bursting of the bubble proved to be abnormally high.

To a large number of analysts, the recent credit and housing bubbles was the sole fault of the central banks, particularly the Fed. According to this hypothesis, excessively easy monetary policy (in the US and other regions) would have stimulated leverage and debt in an undesirable way.

In a book called *Getting Off Track*, John Taylor argued that “monetary excesses were the main cause” of the boom and resulting bust of the housing sector in the US. (Taylor, 2009, p. 1). His argument is based on the fact that, between 2002 and early 2006, worried about the possibility of deflation, the Fed had set the policy rate at levels substantially below the ones which would have prevailed if the monetary authorities had not abandoned the historically observed pattern, supposedly given by the so-called Taylor rule.

Low interest rates were certainly a fundamental cause of the crisis. In fact, they stimulated the demand for credit and financial intermediaries and asset managers to take more risk, in their search for higher yields.

But monetary policy may have contributed to the crisis in another way, apart from the question of the level of the policy rate. What we have in mind is the issue of instrument volatility. It is a well-known fact that crises tend to occur in the wake of periods dominated by excessive optimism. As noted above, the great moderation meant that recession became a milder and less frequent phenomenon. But to what extent this result was obtained at the cost of activism in excess, particularly in the US, the central bank being too ready to lower the policy rate in response to the first signs of a weakening economic activity? In this case, the Fed would have contributed to the rise of a false sense of security, leading many to believe that economic cycles had been tamed. Difficulties in defining “activism in excess” should not weaken the validity of this argument.

In any case, it would be too simplistic to attribute the crisis to the apparent mismanagement of monetary policy. A major event like the recent one cannot have a single cause. In fact, several other factors seem to have worked in the same direction, at the same time, contributing in their own way to the rapid expansion of credit and the formation of bubbles, in the US and in some other countries.

In this group of factors, one is directly linked to the housing market. As argued by Raghuram Rajan, in the American case, prior to the crisis, it had become a governmental policy to increase the access of the population to housing, especially of low-income people. Easy credit was the instrument for that, a mechanism that, in the words of the author, “has been used as palliative throughout history by governments that are unable to address the deeper anxieties of the middle class directly”. (Rajan, 2010, p. 9). The idea that consumption matters more than income might be part of the explanation for such policy.

During the Clinton and Bush administrations, Fannie Mae and Freddie Mac – the two giant-government-sponsored agencies - were stimulated (by means of administrative measures) to support housing finance. Those agencies were in the market buying mortgages that conformed to certain standards, thus allowing the lending institutions they acquired the mortgages from to make more lending. After insuring the mortgages against default, they packed pools of individual loans together and issued mortgage-backed securities (MBS), which could be sold to market participants. The two agencies (later nationalized) also invested in MBSs underwritten by other banking institutions. Expanding their activities was certainly not a difficult task, since the implicit government guarantee allowed them access to funding at lower costs, in comparison to their competitors. (Rajan, 2010, p. 34).

Going back to the idea that crises tend to occur in the wake of periods of excessive enthusiasm, we can recall several other factors which contributed significantly to the wave of extraordinary optimism experienced by the world economy since the middle of the 1980s. Among those factors, and in addition to the already-mentioned belief that the economic cycle had been tamed, we could name the end of the “great inflation”, the persistent decline in the long-term rates of interest observed since that time, and the rapid increase in the degree of financial and trade integration of the world economy, made possible by rapid rates of technological progress. Furthermore, from 1993-94 onward, there was a considerable strengthening of the international banking system, especially in the United States. Banks became better capitalized, delinquency rates fell and loans expanded rapidly. In such a scenario, the rise in asset prices was both cause and reflex of the optimistic wave of that period. Such a

combination of a large number of favorable factors seems to be a rare phenomenon. (Senna, 2010, pp. 381-387).

As normally happens in periods of excessive confidence in the future, economic agents became more complacent, acting less rigorously in their analysis of risk-return. Old and risky strategies involving, for example, the mismatching of assets and liabilities, like holding long-term and illiquid assets supported by short-term funding instruments, acquired a huge scale, particularly in the US investment banking industry. The mentioned complacency was certainly reinforced by the prevailing sense that in case of financial difficulties government authorities would be there to help, not only through macroeconomic mechanisms like supplying liquidity and lowering the interest rates, but also in a more direct way, especially in the cases of sufficiently big financial institutions.

The diminished rigor in the analysis of risk involved credit-rating firms as well as institutions responsible for generating and distributing papers in the capital markets. In many cases, conflicts of interest were also a major source of problem. The result was the growing use of complex and non-transparent credit instruments, sold to investors without an economic compensation proportional to the risks incurred. At the same time, official entities – central banks included – in charge of regulating and supervising the financial institutions and markets failed dramatically. In part, they based their attitudes on an unjustifiable belief on the self-regulating capacity of the financial sector. Due to all this, from a certain point onward, and in several parts of the world, the whole financial sector became extremely fragile and vulnerable.

The creation of the euro represented one more factor contributing to the widespread optimistic wave which preceded the crisis. In fact, in itself, the new currency brought about a great deal of enthusiasm, best illustrated by the extraordinary convergence of interest rates across the region. Governments which used to pay a lot more than the Germans to access the financial markets suddenly found themselves obtaining funds at rates very close to those paid by the most reliable issuer in the zone - four years before the creation of the euro, the 10-year sovereign papers issued by Italy, Spain and Portugal, for example, paid 500 basis points more than similar issuances by Germany. As the rates on securities issued by several member countries declined, so

did interest rates in general. In the so-called periphery, the dominant sentiment was that a passport to prosperity had just been acquired.

In a rather unavoidable way, private debt started to climb. Households, firms and banks simply jumped at the opportunity to borrow under conditions never seen before. The disappearance of the exchange-rate risk within the area stimulated the borrowing spree, while banks in the center of the region felt encouraged to substantially increase international lending within the zone.

On the monetary side, the one-size-fits-all policy gave extra impulse to the new spending cycle. Soon after the introduction of the euro, the German economy was not in a position to support high rates of interest – economic performance was very modest between the 2nd quarter of 2001 and the 1st quarter of 2005. This may be part of the reason why the European Central Bank (ECB) refrained from stepping on the brakes, which would have been an adequate measure for countries in the periphery. In reality, the policy rate was brought down, from 4.75% in April/01 to 2.0% in June/03, remaining at that level until November/05, when it started being gradually raised once again. Besides the situation in Germany, the low levels of interest rates observed in the international markets, particularly in the US, certainly had its influence on the policy stance adopted by the ECB. In any case, the fact of the matter is that, in real terms, the basic rate of interest became negative for a varying number of years in Greece, Portugal, Ireland, Italy, and Spain. The problems in Greece had more to do with mismanagement of the government accounts, but in Portugal, Ireland and Spain the whole scenario produced an extraordinary increase in private leverage and debt. In Ireland and Spain this was accompanied by housing booms.

It seems then that one cannot attribute the crisis exclusively to the most visible factors, like the apparent mismanagement of monetary policy, particularly in the US, and poor regulation and supervision of financial institutions and markets, in general. Several other elements were at play, simultaneously and in the same direction, in a very rare combination of events.

There is no need to elaborate much on what happened as the expanding cycle came to an end. Here, it suffices to say that, at some point, some debtors started having difficulties in honoring their financial obligations. At the same time, asset prices

stabilized and then acquired a declining tendency. As a result, the value of collaterals deteriorated and lenders curtailed the supply of credit. Economic activity was adversely affected, which provoked further decline in asset prices and additional constraints to the expansion of credit. Households and firms realized that they had borrowed in excess while banks and other financial institutions realized that they had exaggerated in their leveraging practices, which is equivalent to say that they had lent too much. In different corners of the world, investors and banks found themselves owners of large amounts of illiquid assets, whose values had deteriorated sharply. Particularly in the US and in Europe, a crisis of confidence ensued within the banking industry. Banks stopped trusting their counterparties. Interbank lending came to a complete halt. The situation was seriously aggravated by the fall of Lehman, in September 2008.

Policy responses varied from country to country. Government and monetary authorities' intervention reached unprecedented levels. In many cases, the Treasury and the central bank acted in conjunction. Generally speaking, the responses included government guarantees for certain financial instruments, capitalization of banks, measures to facilitate the access of banks to liquidity provision by the central banks, supply of liquidity to nonbank financial institutions, etc. Mergers and acquisitions of financial institutions were stimulated by governments, central banks and supervisory agencies. Government expenditures increased in an extraordinary way, resulting in huge fiscal deficits and producing very large increases in the size of government debt. At the same time, the traditional instrument of monetary policy (the interest rate) was brought down to zero, or almost that. In the US, the zero lower bound was reached in December 2008. At that point, the Fed resorted to a policy known as forward guidance, indicating that future movements in the fed funds rate would only happen in a somewhat distant future. Around the same time, the Fed initiated the purchase of a large volume of agency debt and mortgage backed securities “to provide support to the mortgage and housing markets” (later known as QE1) and announced that in the beginning of the following year a program which would facilitate the extension of credit to households and small business would be implemented. It also announced that the benefits of purchases of long-term Treasury securities were being evaluated. A

program along this line was effectively introduced only in November 2010, and became known as QE2. Credit and quantitative easing policies such as those were adopted by other central banks as well, largely affecting the size and the composition of the balance sheet of the monetary authorities. They can be justified when the basic interest rate reaches its lower limit, but seem to be applicable only in crisis time. As to forward guidance mechanisms, they had been used in more normal times, and can be considered part of the regular tool kit of central banks.

The Disregarded Lessons

Prior to the crisis, policy makers in general did not pay due attention to the credit cycle and the rise in the prices of certain assets. No attempt to contain the financial system's creation of private credit and money was made. And no one talked about balance sheet effects. Among economists, some were clever enough to notice what was going on and made their warnings accordingly, but their ideas did not influence the course of events.

In a way, this is surprising. The economic literature is full of contributions of economists who had clearly identified the problems which tend to occur when the prevailing circumstances stimulate the rapid expansion of credit. In the pre-War period, for example, business cycle theorists were pretty much aware of what Hawtrey called "the inherent instability of credit". (Hawtrey, [1932] 1965, p. 166).

Hawtrey's reasoning can be summarized as follows. When banks increase their lending, economic activity improves and consumers' income and outlay expand. "Once an expansion of demand has been definitely started, says the author, it will proceed by its own momentum. No further encouragement from the banks to borrowers is required". (p. 167). When banks reduce their lending, the "vicious circle" works in the opposite direction. In a more general way, "equilibrium having once been disturbed, the departure from equilibrium tends to grow wider and wider, till some contrary disturbance is interposed". (p. 168). This led Hawtrey to conclude that "in the practical business of credit regulation it is vital to take due account of the inherent instability of credit". (p. 168). Sometimes there would be need to modify the

tendency to expansion or contraction, sometimes it would be necessary to reverse it. In short, credit is unstable and needs to be firmly regulated.

As other members of the so-called Austrian School before him, Hayek was a strong believer in the line of reasoning presented above. In reality, he went one step further, and made an attempt to explain the mentioned instability. In his view, the problem had to do with banking systems based on fractional reserves, in which commercial banks work with liabilities redeemable on demand and in the monetary unit whose right of issuance belongs exclusively to another institution (the central bank, in the modern world). Under such structure, commercial banks are suppliers of liquid assets, but they are required to keep liquid in terms of another form of money. This means that they are forced to diminish the pace at which money is created exactly when everybody else is willing to hold more liquid assets. (Hayek [1976] 1990, pp. 91-92). This would be “the chief cause of the instability of the existing credit system, and through it of the wide fluctuations in all economic activity.” (p. 106).

A story told by Marriner Eccles illustrates Hayek’s point. Before becoming chairman of the Fed (1936-48), Eccles was a banker in the Midwest. In his book of memoirs, he explains that, in order to survive the period of the Great Depression, his institution was forced to adopt a tough credit and collection policy. The public wanted cash. By forcing the liquidation of loans and securities to meet the demands of depositors, he realized that he and other bankers were contributing to drive prices down and thereby making increasingly difficult for debtors to pay back what they owned. Such policy, he adds, was equivalent to a “double loop around the throat of an economy that was already gasping for breath”. In short, “seeking individual salvation, we were contributing to collective ruin”. (Eccles, 1951, pp. 70-71).

As already noted, prior to the recent crisis, at least implicitly, many believed that macroeconomic stability would guarantee financial stability. But could it not be the other way around? What if macroeconomic stability leads to an extraordinary optimistic wave, which results in excessive risk taking, skyrocketing asset prices, too much credit, and a fragile and vulnerable financial system?

In this respect, history has already taught us a lot. There are many examples of crisis preceded by periods of economic stability and excess optimism. The Great

Depression may be considered one of these examples. In the *Monetary History*, the period 1921-29 was dubbed by Friedman and Schwartz the “high tide” phase of the Fed. In a later (and more popular) book, co-authored by his wife, Friedman returned to the subject. In his own words, during the mentioned period, the Fed worked as “an effective balance wheel, increasing the rate of monetary growth when the economy showed signs of faltering, and reducing the rate of monetary growth when the economy started expanding more rapidly. It did not prevent fluctuations in the economy but it did contribute to keeping them mild. Moreover, it was sufficiently evenhanded so that it avoided inflation. The result of the stable monetary and economic climate was rapid economic growth. It was widely trumpeted that a new era had arrived, that the business cycle was dead, dispatched by a vigilant Federal Reserve System.” (Friedman and Friedman, 1980, p. 78). One cannot escape the following conclusion: something quite similar to the “great moderation” had been experienced before.

The idea of a stable macro scenario leading to an extraordinary optimistic wave, fueled by credit, and degenerating into a financial crisis is largely associated with the name of Hyman Minsky, according to whom a full-employment situation is not sustainable. When it is achieved, “businessmen and bankers, heartened by success, tend to accept larger doses of debt-financing”. During periods of tranquil expansions, his argument continues, new financial instruments are created. “Full employment is a transitory state because speculation upon and experimentation with liability structures and novel financial assets will lead the economy to an investment boom. An investment boom leads to inflation, and [...] an inflationary boom leads to a financial structure that is conducive to financial crisis.” (Minsky, [1986] 2008, p. 199).

In his well-known book *Manias, Panics and Crashes*, Charles Kindleberger takes Minsky’s “model” as the starting point of his analysis. “According to Minsky - says the author -, events leading up to a crisis start with a ‘displacement’, some exogenous, outside shock to the macroeconomic system. The nature of the displacement varies from one speculative boom to another. [...] But whatever the source of the displacement, if it is sufficiently large and pervasive, it will alter the economic outlook by changing profit opportunities in at least one important sector of the

economy. [...] If the new opportunities dominate [...], investment and production pick up. A boom is under way [...] and is fed by an expansion of credit which enlarges the total money supply". (Kindleberger, 1978, pp. 15-16).

"After a time, the argument continues, increased demand presses against the capacity to produce goods or the supply of existing financial assets. Prices increase, giving rise to new profit opportunities and attracting still further firms and investors. [...] At this stage we may well get what Minsky calls 'euphoria' [...] and Adam Smith and his contemporaries called 'overtrading'. [...] When the number of firms and households indulging in these practices grows large [...] speculation for profits leads away from normal, rational behavior to what have been described as 'manias' or 'bubbles'. The word 'mania' emphasizes the irrationality; 'bubble' foreshadows the bursting". (Kindleberger, 1978, pp. 16-17).

More recently, for almost a decade prior to the crisis, researchers at the Bank for International Settlements (BIS) called attention for the need to avoid excessive credit creation and financial instability. Andrew Crockett was the General Manager of the Bank from 1994 until March 2003. In a speech made in Hong Kong, in February 2001, he observed that the existing conceptual framework for the promotion of financial stability was inadequate, since it did not pay sufficient attention to the genesis of financial instability.

Crockett was particularly concerned with the fact that "the pursuit of price stability can sometimes allow financial imbalances to arise inadvertently, and can sow the seeds of subsequent instability". He was also worried about the approach taken by regulators and supervisors, who looked at financial stability from the micro point of view. According to his thought, "the pursuit of prudential objectives, institution by institution, can take inadequate account of feedback mechanisms that can exacerbate macroeconomic cycles". (Crockett, 2001, p. 3).

In Crockett's view, there would be numerous cases in which the restoration of price stability provided fertile ground for excessive optimism, which would take asset prices to unrealistic levels. "In a stylized financial cycle, he argues, some exogenous development sets off an expansion of credit. It is often improved economic prospects, due to technological innovation, the implementation of reforms, or indeed many other

genuine, real factors. Once under way, credit expansion fuels an acceleration of output and an increase in asset prices. Such developments appear to boost returns and lower risk, leading to further credit expansion and increased leverage in the system. If the mechanisms of prudential oversight [...] work well, excessive leverage will be avoided. [...] But if the extension of balance sheets goes too far, an eventual reversal can be abrupt and severe, with widespread bankruptcies, and substantial damage to financial intermediaries”. (Crockett, 2001, p. 4).

Among those who were investigating the points raised by Crockett within the BIS, one can single out the name of Claudio Borio, who, co-authored by several other researchers, has been writing on those themes ever since the beginning of the years 2000. In a working paper dated July 2002, for example, Borio and Philip Lowe were already defending a system-wide focus on the prevention of crises, together with a greater willingness of monetary authorities to respond to the occasional development of financial imbalances that might pose a threat to the health of the economy. (Borio and Lowe, 2002).

In summary, it became common to hear (or read) people talking about the “lessons from the crisis”. For sure, one can always learn from events as important as the recent ones. But it seems fair to say that the major and more general lessons were already taught by the history of financial crises, examined by a considerable number of economic historians. It makes more sense, then, to talk about “disregarded lessons”.

The Future of Central Banking

The inflation targeting framework which prevailed before the crisis was based on two fundamental ideas, namely: a) inflation is a monetary phenomenon and b) there is no permanent trade-off between inflation and unemployment. This means that a central bank cannot permanently affect the behavior of real variables. All that it can achieve is low and stable inflation. And this is the task a monetary authority should be dedicated to. In pursuing this objective, however, the central bank must preserve the flexibility to offset cyclical deviations in economic activity and employment. In other words, in the conduction of monetary policy, due consideration should be given to the

short-term behavior of the real economy. Other key principles of the IT framework were credibility, predictability and transparency of the decision-making process. Good communication is of fundamental importance.

The above-mentioned characteristics have been part of successful monetary policy experiences for longer than it appears, since they became essential ingredients of the monetary targeting regime adopted in Germany and Switzerland from the mid-1970s onward. As pointed out earlier in this article, the IT practitioners simply incorporated those traits into a new framework, based on a different type of anchor to the price system. It seems, then, that the aforementioned set of ideas and principles is what really works in terms of monetary policy strategy. And the crisis did not destroy their validity.

Putting it in another way, none of the recent events suggests that it is unwise for central banks to adopt a strong and credible commitment to stabilizing the rate of inflation in the medium and long run by making explicit a numerical inflation objective, while at the same time preserving the flexibility to take into account the behavior of the real economy, being ready to postpone the convergence of inflation to the target in the presence of certain types of shock. Experience has shown that inflation rates may fluctuate, but as long as the central bank is sufficiently credible, economic agents expect them to return to target. In an environment of well-anchored inflationary expectations, shocks like those associated with exchange-rate depreciations and oil and commodity price rises tend to have less-permanent effects on the inflation rate. By now, there is ample evidence of the validity of these assertions. And, therefore, there is no objective reason for abandoning the essence of inflation targeting, as indeed no one has done so far.

But in one aspect things are bound to change in the world of central banking, or are already changing. The preservation of financial stability requires a great deal more of attention. In addressing this issue in a conference held in 2011, Bernanke put it this way: “central banks certainly did not ignore issues of financial stability in the decades before the recent crisis, but financial stability policy was often viewed as the junior partner to monetary policy”. He concluded that “one of the most important legacies of

the crisis will be the restoration of financial stability policy to co-equal status with monetary policy”. (Bernanke, 2011, p. 5).

It seems then that the real question is how central banks should deal with the problem of financial stability. To a large extent this problem involves avoiding excessive leverage and risk taking as well as the formation of asset price bubbles. If we concentrate our attention on credit-driven bubbles, the mentioned task presupposes some capacity to identify situations in which excess credit is being created and asset prices are diverting from fundamentals. Experience has taught how difficult this is.

Independently from the difficulties involved, there are two possible approaches to the mentioned problem. And one does not necessarily exclude the other. The first one has to do with monetary policy being geared to lean against movements in credit aggregates or asset prices. In this case, the policy rate would be used with the purpose of guaranteeing financial stability besides its regular objectives of minimizing the variability of output and inflation from the respective targets.

The issue is an old one, as already noted. In essence, it is necessary to bear in mind that during a self-reinforcing cycle of optimism and credit expansion a large number of market participants expect to obtain quite high rates of return in one or more asset market. This means that they become insensitive to any reasonable increase in interest rates. Fifty years ago, Friedman and Schwartz argued that, in such a scenario, any palatable change in monetary policy is bound to be too timid to break the boom and too restrictive to promote a healthy macroeconomic picture. In other words, leaning against a credit or asset bubble might result in a weaker economy and/or inflation below target, with no guarantee of success in terms of pricking the bubble. If something of this sort happens, the central bank might lose its credibility. Opting for this alternative would be like taking a bet, something that central bankers are not supposed to do.

Another argument equally unfavorable to the “leaning against” alternative has to do with the fact that any announcement that the monetary authorities manage the policy rate with a third objective in mind (promoting financial stability) besides the traditional ones of correcting deviations of output and inflation from targets might destroy the beauty of the inflation targeting regime, namely, its clarity and simplicity.

After all, the public would ask: what is it exactly that the central bank pursues? What does the policy rate really aim at? There would be no clear-cut signal.

The trade-off between macroeconomic stability and financial stability contributes to make the “lean against” a non-viable alternative. The difficulties lie in the fact that we have two objectives and just one policy instrument. Perhaps, then, the solution would be to resort to the “separation principle” proposed by Tinbergen, who, decades ago, argued that in order to achieve a given number of policy targets we cannot work with a smaller number of instruments.

This brings us to the second possible approach, around which some sort of a consensus is being formed. In this case, the interest rate takes care of macro stability and macro-prudential measures take care of financial stability.

In principle, those who favor this sort of combination admit (at least implicitly) that identifying a credit-driven bubble is not as difficult as one might think. To accomplish this task, the authorities must check the behavior of variables like the stock of credit, the leverage of financial institutions, risk spreads, asset prices, etc. To the extent allowed by data availability, information on households and firms’ degree of indebtedness might also be quite useful.

In any discussion of this second approach, the first thing to notice is that macro-prudential measures can be of different types. They can seek to contain the actions of borrowers, or they can be conceived to influence the behavior of lenders. Limits on loan-to-value ratios are an example of the first type. Dynamic provisioning for losses by banks and countercyclical capital requirements are examples of the second. Furthermore, measures like these can be built into the rules, which obviously imply previous agreements, or they can be adopted on an ad hoc basis, implemented as the authorities feel appropriate. The list of instruments may also include controls on international capital flows.

If we have in mind the prevention of bubbles, we need to talk about restrictive macro-prudential measures. And here is exactly where the problem lies. As it is widely known, removing the punch bowl before the party is over is usually complicated. The mentioned expression has been used in regard to a tightening of monetary policy (raising the rate of interest when everybody is still enjoying the party), but it is

probably even more applicable to the case of prudential tightening. The reason has to do with the fact that changes in macro-prudential tools have effects which tend to be more concentrated than those produced by changes in the conduction of monetary policy.

Let us assume, for example, that the competent authorities have objective reasons to believe that a given expansion of credit is going too far, with a tendency to provoke serious imbalances, and decide to curb such development. Let us assume that restricting the purchase of housing is what they decide to do. People potentially affected by this action will certainly react. The same reasoning would apply if the authorities considered restraining the expansion of credit. Measures taken with this objective usually have a direct impact on banks' profits and, again, are likely to be met with resistance. Those benefiting from the growth of credit are also likely to complain about the imposition of restrictions. The point here is not that the authorities would necessarily be hampered from doing what they wished, but that they would be reluctant to act. The costs of leaning against an optimistic wave are always present. Besides the fact that most of the (supposedly) necessary measures are bound to be met with resistance, one cannot forget that the diagnosis is never precise and the results of the actions are normally quite uncertain.

One solution to this could be to negotiate with the interested parties beforehand, incorporating the desired changes into new rules for the banking system, for example. But this too is bound to be met with resistance. Once again, the reason has to do with the impact that the conceived measures might have on banks' profits. In addition, one may wish to take measures capable of diminishing the pro-cyclical nature of banking activities or strengthening the balance sheets of banks during good times, so that they are better positioned to face bad times. Dynamic provisioning for losses by banks and countercyclical capital requirements are examples of measures in these directions. The big problem here is how to define "good times".

The so-called Basel III agreement is frequently cited as an indicator of progress in the field of banking regulation. The agreement is the result of efforts by representatives from 27 countries (banking supervisory authorities and monetary policy makers) who took part in a series of meetings sponsored by The Bank for International Settlements

(BIS). Within the group there has been a consensus on the need to strengthen the banking institutions in general. The committee set up to define new rules has already emerged with a large number of recommendations. In essence, such recommendations aim at enlarging the capacity of banking institutions to absorb losses and at diminishing the risks of contagion in times of crisis. There has been an increase in the requirements of capital of better quality, while institutions considered to be important from the point of view of systemic risk are supposed to hold an even greater capital base. Furthermore, two additional types of supplementary capital are contemplated. They are called buffers, one designated by conservation, and the other meant to be of a counter-cyclical nature. The introduction of a leverage index, viewed as a complement to the obligation of minimum capital, is also part of the recommendations, and so is the maintenance of some liquidity requirements. Details on how these last two proposals would work as well as the allocation of additional capital to institutions considered to be systemically important are still the object of negotiations.

The adjustments proposed under the Basel III agreement will be implemented in a gradual way. They will be completed in 2019, when the ordinary minimum capital requirement will reach 7.0%, a figure which already includes the conservation buffer (2.5%). The counter-cyclical buffer will oscillate between zero and 2.5%, at the discretion of the national authorities, which have until 2015 to decide. According the guidelines supplied by the committee deviations from its long run trend of the credit to GDP ratio should be one of the criteria for the building up of reserves. No doubt, the new requirements represent a considerable improvement if compared to the rules embodied into the previous agreement (Basel II), according to which the capital base in conditions of absorbing losses was only 2.0%.

As we can see, there has been a considerable progress in regard to the strengthening of the capital base of the banking institutions. Agreement on this matter was certainly facilitated by the understanding that the previously existing capital base was too low. As regards other aspects of the agreement, progress has not been as good. In fact, there is a substantial number of pending issues, which makes it difficult to predict how effective the mechanisms that will really be approved will be.

In any case, it is important to stress that improvements in the rules under which the banks operate certainly facilitate the actions of the central bankers. Policy makers, however, are likely to want more than that. They normally wish to preserve some leeway to act on a discretionary basis, in response to the needs of the moment. And it seems to be the approach based on Tinbergen's principle that they are heading for. This appears to be the preference of academic economists as well.

To the extent that the idea of having two instruments to reach two distinct objectives really prevails, it is crucial to notice the importance of policy coordination. This is especially so due to the fact that although each of the two instruments tends to have a stronger impact on the target it has been assigned to, it is capable of affecting the other objective as well. In other words, changes in the policy rate have the capacity to influence the behavior of aggregate credit and asset prices, for example, while measures that restrain the growth of credit affect aggregate demand and, in consequence, economic activity and the prices of goods and services.

No doubt, this sort of policy coordination is bound to be an issue for the years to come. A great deal of research will certainly be conducted with the objective of making such coordination effective. At the moment, what we know is that it seems to be wise to deliver the two policies to the same government agency. Fortunately, this appears to be the way things are going.

In 2010, in the United States, the so-called Dodd-Frank act attributed greater responsibilities to the Fed in the area of financial stability. The central bank is now in charge of supervising the operations of non-bank financial institutions considered to be systemically important by the Financial Stability Oversight Council. In addition to this, due to its own initiative, the Fed has already reoriented its supervisory activities in such a way as to incorporate issues related to systemic risks. (Bernanke, 2011, pp. 10-11). In 1997, in the UK, the responsibility for banking supervision was removed from the Bank of England and given to a new regulator, the Financial Services Authority. A law approved in 2012 reverted this movement, giving the mentioned function back to the Bank. An independent committee was created, with the objective of identifying, monitoring and acting to remove or reduce systemic risks. Within the Bank of England, there are now two committees of equal importance: the Monetary

Policy Committee and the Financial Policy Committee. In the euro zone, the movement is the same. An European Systemic Risk Board was created with the purpose of identifying, prioritizing and calling attention to situations which might pose systemic risks. Under the command of the president of the European Central Bank, the Board makes recommendations (to the national authorities) on macro-prudential measures.

Although the available signs indicate that the future of central banking will no longer involve the problematic dichotomy between monetary and financial stability policies, we are far from knowing whether we are really heading in the right direction. In particular, although macro-prudential measures are likely to gain in importance as a new policy lever to deal with apparent financial imbalances, we still do not know whether they could do the job as adequately as desired. As Blanchard and others have recently put it, we still do not know how they interact with other policies. In short, we are “a long way from knowing how to use them reliably”. (Blanchard et al., 2013, p. 17).

As Bernanke said in the conclusion of his 2011 paper, it “must be viewed as provisional” the consensus that is being formed around the approach based on Tinbergen’s principle, according to which central banks can dedicate separate toolkits to achieving their financial stability and macroeconomic objectives. (Bernanke, 2011, p. 14).

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■ Issues and Episodes in Monetary Policy

REPURCHASE AGREEMENTS IN THE BRAZILIAN MONEY MARKET

■ In recent times, the Brazilian money market has seen a huge increase in the total amount of repurchase agreements (repos) involving the Central Bank. In July 2013, the total stock of those transactions reached more than R\$ 700 billion, which is equivalent to around 15.0% of the country's estimated annual GDP. This has called a great deal of attention and has led many analysts to believe that something wrong is going on. The purpose of this note is to discuss these recent events.

The first thing to notice is that repurchase agreement is an old type of transaction which can be viewed as a sort of “defensive” operation, conducted with the objective of equilibrating the volume of bank reserves in the system. The general expression used in Brazil (“operações compromissadas”) is applied in reference to repo as well as reverse repo transactions. They are the instrument the Central Bank resorts to in order to avoid excessive fluctuation in the basic interest rate.

In the money market, when bank reserves are relatively scarce, there is a tendency for the rate of interest to go up. In the opposite situation, that is, when there is abundance of bank reserves, the basic rate tends to zero. It is exactly this sort of oscillation that the monetary authorities seek to avoid. If, for some reason, the Central Bank decided not to intervene through the mentioned transactions, the practical consequence would be that the operational target would become meaningless. In Brazil, the operational target is the so-called Selic rate. In other words, the Committee for Monetary Policy (the Copom) would define a target for the policy rate which would not be met.

In the Brazilian case, the tendency for the rate of interest to oscillate in the money market is particularly significant, the reason being that the day-to-day flows of bank reserves are often large in comparison to the total stock of reserves. One of the factors which contribute to this has to do with the fact that the Treasury is not allowed to have accounts in the commercial banks. In fact, the Treasury's cash movements flow

through its sole account, held at the monetary authorities. This means that when a private economic agent pays tax, there is a corresponding reduction in the volume of bank reserves. In this case, the bank where the agent has an account loses reserve to the Treasury, which has the corresponding amount deposited at the Central Bank. When the Treasury makes a disbursement, the opposite occurs. In the past, a great deal of uncertainty involved those transactions, but nowadays they are quite predictable.

Repo is an agile instrument, particularly useful to deal with unforeseen flows of bank reserves. The same is true as regards reverse repo. Flows especially difficult to predict are those involving international reserves. In fact, under a flexible exchange-rate regime, the Central Bank rarely knows when it is desirable to intervene, buying or selling dollars. The amounts of purchases or sales are also hard to anticipate. When the Central Bank acquires a large volume of dollars, the stock of bank reserves tends to increase substantially. And it may represent a considerable proportion of the total stock of bank reserves. In this case, the basic interest rate will tend to fall. To avoid such movement, the Central Bank sells part of its portfolio of government papers in the money market, with the objective of compensating the original expansionary flow. Acting this way, the Central Bank eliminates the excess reserve situation. And this is generally done by means of repurchase agreements, that is, the sale of the government security is accompanied by commitments to repurchase them, which are used as collaterals, at a negotiated interest rate, usually close to the basic rate. Most of these transactions are carried out on an overnight basis, but recently the Central Bank has opted for three-month transactions, negotiated at prefixed interest rates. Of course, when the stock of bank reserves shrinks, rather than expands, with the potential to affect the rate of interest in the money market, the Central Bank intervenes in the opposite direction, providing liquidity. In this case, it accepts government securities in the hands of market participants as collaterals for the supplied financing.

As regards the Brazilian recent experience, it is widely known that there has been years of high volumes of international reserve accumulation. This was particularly true in the period 2005-2007 and again in the years 2009-2011. In 2007 alone, the

monetary impact of international reserve acquisitions reached almost R\$ 170 billion. In 2009-2011 the average monetary flow per year was R\$ 73 billion.

Another factor which recently contributed to the large volumes of compensating transactions by the Central Bank has to do with the management of the public debt by the Treasury. The existence of fiscal deficits normally implies the issuance of new debt, in net terms. The interesting case occurs when the Treasury decides to redeem debt, in net terms. This may happen, for example, in periods of crisis, when investors show a strong preference for liquidity and opt for selling the securities they hold. Under these circumstances, the Treasury may judge that the rates of interest on its papers are rising too fast, causing substantial losses to investors and possibly leading to the freezing of the market. The solution would then be to buy back part of the securities previously sold. As the Treasury does this, there is an expansion in the volume of bank reserves.

An expansion of this nature may also occur if, for some reason, the Treasury wishes to modify the profile of its debt in a way not fully compatible with the demand from market participants. In other words, investors may wish to absorb the papers the Treasury wants to sell only at interest rates the issuer is unwilling to pay. Or, alternatively, the papers investors are eager to acquire are not those that the Treasury wishes to sell. Under such circumstances, there might be a net redemption of government securities.

Independently from the alternative which prevailed in recent years, the fact is that there has been a net redemption of government securities, by the Treasury, in each and every year since 2008. In the period 2008-2012, the average annual monetary impact of such policy was slightly higher than R\$ 100 billion. In 2013, until July, the cumulative flow reached R\$ 207 billion, greatly intensifying the need for compensatory transactions on the part of the Brazilian Central Bank.

If we observe the net flow of “operações compromissadas” since 2007, we notice that there was only one year in which the Central Bank operated with the objective of expanding liquidity, resorting to reverse repo transactions. That exception was 2010, when the Central Bank practically restored previously existing reserve requirements, which had been reduced during the acute phase of the international crisis. Actions

meant to withdraw part of the liquidity have been particularly intense in the last two years. The net flow of reserves in 2012 reached R\$ 150 billion, while in 2013, until July, the monetary impact of repo transactions was as high as R\$ 175 billion.

Thus, as argued above, independently from the factors behind the fluctuation of bank reserves in the money market, the Central Bank is forced to act. And repo (and reverse repo) is the adequate instrument for that. If, for some reason, the Central Bank refuses to intervene, the rate of interest in the money market will oscillate excessively, the result being that the operational target will not be met.

Under an inflation targeting (IT) regime, the final objective is to stabilize the rate of price growth around the specified target. For most practitioners of this regime, the final objective is expressed in terms of headline inflation. Since no central bank has direct control over short-term shocks which usually affect the behavior of inflation, it is wise to choose an intermediate target. Desirably, this should be sensitive to movements in the operational target (the Selic rate in the case of Brazil) and well correlated with the final objective. Under IT the variable which plays the role of the intermediate target is projected or expected inflation. The operational target is then set with the purpose of making projected inflation coincide with the final target, within the relevant time span. This means that the instrument chosen to equilibrate reserves in the money market is an indispensable tool for the proper work of the inflation targeting regime.

J.J.S

■ Conversation With Laurence Ball

The issues covered in this conversation were discussed personally with Professor Ball during his visit to Brazil in the middle of May 2013. He delivered the keynote address at the XV Annual Seminar on Inflation Targeting, sponsored by the Central Bank of Brazil, and paid a two-day visit to the Instituto Brasileiro de Economia (FGV/IBRE), where he made a presentation on the US monetary Policy. The formal conversation was held through an exchange of emails between J.J.Senna and Laurence Ball in the first days of June 2013. Professor Ball teaches at The Johns Hopkins University. He is also a research associate of the National Bureau of Economic Research and a visiting scholar at the International Monetary Fund.

■ **You have just given the keynote speech of XV Annual Seminar on Inflation Targeting, sponsored by the Central Bank of Brazil. In your address you suggested that monetary policy makers should have an explicit employment objective. It is generally understood, however, that central banks which follow the inflation targeting regime already take into account the estimated output and employment gaps. The example you gave – the ECB – seems to be an exception, derived from the fact that the rules of the game were imposed by the Germans as a precondition for giving up the deutsche mark. Perhaps the Bank of England would be a more typical example of an inflation-targeting practitioner. In this case, if the economy has been hit by adverse shocks, the central bank avoids forcing the immediate convergence of inflation to target. Frederic Mishkin has called this sort of behavior the “dirty little secret” of central banking. My question is: doesn’t this already give a substantial degree of flexibility to the system? Do we really need an explicit employment objective, as proposed by you at that seminar?**

The proposition that it’s OK to target inflation without an explicit employment objective depends on the assumption that unemployment always returns to a fixed natural rate. Under that assumption, the worst that the absence of an employment objective can do is magnify short run fluctuations in unemployment. In my view, insufficient attention to employment can have much more harmful effects: because of

hysteresis, unemployment may rise permanently, or at least for a very long time, unless policymakers have a clear goal of keeping it low.

The ECB may be an extreme case, but other countries with inflation targets have seen the natural rate of unemployment drift up—in Sweden, for example, the financial crisis and recession of the 1990s seems to have had a permanent effect on unemployment. If Swedish policymakers had a clear employment mandate, they might have followed more expansionary policies and prevented some of the long-term rise in unemployment.

Even if a central bank has an implicit employment objective, this objective is likely to receive less weight than an explicit inflation target. Central bankers are judged more harshly for failing to achieve an explicit target than for failing to achieve an implicit target, because the failure is more clear-cut. The laws governing central banks should make it clear that policymakers will be held accountable for what happens to employment as well as inflation, so that policymakers have an incentive for balanced policies rather than policies that over-emphasize inflation.

■ **In your defense of an explicit employment objective you seem to have in mind a regime similar to the one practiced in the US, that is, a dual mandate. This type of strategy has not been widely tried. When you propose the dual mandate, do you think of its adoption on a temporary basis, that is, something to last until all the signs of the current crisis disappear, or what you have in mind is something more permanent? Don't you think that such a model is applicable only to countries where the monetary authorities have already acquired a high degree of credibility? What about economies like Brazil, with a long history and memory of inflation?**

Before the 1990s, many central banks said they sought full employment, or some similar goal, as well as price stability. The idea of a single mandate was introduced by Canada and New Zealand, the IT pioneers, in the early 90s. And, in my reading of the

historical record, this shift has not been an improvement. It has contributed to long-term increases in unemployment in many countries.

I believe that central banks should restore employment mandates and do so permanently. The problems with a single mandate are not specific to the post-2008 crisis. Even before then, many European countries had persistently high unemployment—often near ten percent—as a consequence of their overemphasis on inflation. Unemployment was relatively low in the U.S. before 2008, and I attribute that largely to the dual mandate.

Certainly it is important for Brazil to avoid a return to extremely high inflation rates. But I do not believe that goal requires a single-minded focus on inflation. The fact that inflation is running near the top of the BCB's target range does not suggest to me that inflation will explode as it did in the 1980s. Again, it is possible for policymakers to be balanced—to put substantial weight on unemployment without being over-expansionary and letting inflation get out of control.

■ **In an article dated March 2009 (“Hysteresis in Unemployment: Old and New Evidence”, NBER WP 14818), you gave a specific reason for the suggestion that central banks should not focus too heavily on inflation. The reason is that there is evidence of the existence of hysteresis in unemployment, that is, a given tightening of monetary policy lowers aggregate demand and raises observed unemployment, which, in its turn, through mechanisms still not completely understood, provokes an increase in the natural rate of unemployment. Your analysis of the experience of the 1980s allowed you to conclude that “there is a significant relationship across countries between the size of the inflation decrease and the change in the NAIRU”. And that the change in the NAIRU seemed to be related to the length of time over which disinflation occurred as well. In other words, to reduce high inflation rates costs more than we normally imagine because of lasting impacts on unemployment. Couldn't I then argue in the**

opposite direction, that is, that central banks should focus heavily on inflation, doing all their best to maintain it low and stable?

It is a fair point that hysteresis makes it costly to reduce inflation, which increases the importance of preventing inflation from rising to a level where disinflation is necessary. However, I believe that many central banks have pursued policies that are more contractionary than necessary to keep inflation low and stable. In the U.S., the Federal Reserve has responded to increases in unemployment by cutting interest rates, and that has pushed unemployment down—and that has happened without inflation taking off. Other central banks—such as the ECB and the central banks of European countries before the euro was introduced—have kept policy tight in the face of rising unemployment. Their inflation outcomes have not been much better than those of the U.S., and their unemployment outcomes have been worse. I’m repeating myself, but I think the key idea is that a policy framework that has a balanced emphasis on both inflation and employment can achieve good outcomes for both variables.

■ **The idea of a 4.0% inflation target was also raised in your presentation at the Central Bank seminar. The motivation would be to lower the probability of reaching the interest-rate zero bound. In a just published paper, “The Case for Four Percent” (Central Bank Review, Central Bank of the Republic of Turkey), you mentioned that one of the objections to this proposal has to do with the impact of high inflation rates on economic growth. You then added that existing empirical works suggest that in order for inflation to hurt growth, it has to be above a given threshold. And that the estimates of this threshold vary considerably, going from 8.0% to 40.0%. Wouldn’t the disparities observed in these estimates be a sign that we still do not know much about this issue? This being the case, shouldn’t we then be more conservative in choosing the target for inflation?**

I would say that a range of estimates from 8% to 40% suggests that 4% is safe—it is only half of the lower bound of the range. In any case, the estimates that you mention, based on cross-country comparisons of inflation and growth, are only one piece of evidence on the costs of inflation. There are also studies that try to measure the

specific costs of inflation described in textbooks, such as Stan Fischer’s work in the 1980s on relative price variability, and work that seeks to measure the effects of inflation uncertainty on investment. As Paul Krugman has written, the measured costs of inflation from such research are “embarrassingly small.”

My intuition about inflation is influenced strongly by the U.S. experience of the 1970s and 80s. The double-digit inflation of the 70s was considered unacceptable by both policymakers and the public, and they applauded Fed Chairman Paul Volcker when he “conquered” inflation in the early 80s. People forget that this conquest meant that inflation was reduced to about 4% in the second half of the 80s. At the time, few people worried that inflation was still too high, and looking back I can’t see any significant ways that 4% inflation undermined the efficiency of the economy. The idea that only 2% inflation is acceptable—like the idea of a single mandate—started to become popular only in the 1990s, and I do not think it is supported by history.

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