

Financial Stability and Central Banking*

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1. INTRODUCTION

Not long time ago, monetary policy had an unusual appeal. Central bankers and economists felt that monetary policy, by returning the economy to a path of low inflation would have a stabilizing effect. What professor Mervin Goodfriend of Carnegie Mellon University calls the «the new consensus monetary policy», Clarida, Galí and Gertler (1999), «the new keynesian synthesis» or Michael Woodford (2003)«the wick-sellian approach» is a collection of ideas framed by the experience of early 1980s, when after a painful process inflation was abated, but adapted to change conditions since then. In a twist from the influential monetarist doctrine, according to which the control of inflation was to be effected by the control of the money growth, the anti inflation stance of the new consensus comes from the «credibility» of determined, independent and courageous central banks, which will anchor inflationary expectations through the management of the *inflation targeting* principle¹.

The inflation targeting principle is the most accomplished development of the work initiated by Kydland and Prescott (1974), and extended by Rogoff (1996),

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¹ A useful critique of the present macroeconomic framework can be found in the new book by Akerlof and Shiller (2008).

Walsh (1995) and Svensson (1997). Although monetarist in his spirit, money demand and the stock of money due to the declining correlations between conventional money measures and the instability of empirical money demand specifications have disappeared from monetary policy analysis. Following an early prescription from Poole (1970), central bank behavior is described by a policy rule that sets the interest rate as a function of a few variables.

In most cases the inflation targeting principle materializes in some form of a Taylor (1993) rule, according to which interest rate changes according with the difference between present inflation and target inflation or the existence of a positive or negative output gap. Some central bankers add the exchange rate as an additional variable of interest for the monetary policy. According to this principle, «monetary policy that targets inflation makes the best contribution to the stabilization of output ... inflation targeting thus makes actual output conform to potential output, giving the best cyclical behavior of employment and output that monetary policy alone can deliver. Thus, and here is the revolutionary point delivered by the modern theoretical consensus, even those that care mainly about the stabilization of real economy can support a low-inflation objective for monetary policy» (Goodfriend, 2007).

At the same time that inflation targeting was filling the central place of the stage, some economists advocated that the stabilizing effect on output would be reproduced on asset markets. According to chairman of the Federal Reserve, Ben Bernanke, «Technology advances have dramatically transformed the provision of financial services in our economy. Notably, increasing sophisticated information technologies enable lenders to collect and process data necessary to evaluate and price risk much more efficiently than in the past (may 23, 2006).

But the broader evidence we have today does not support that low inflations (measured around consumer prices) will prevent booms and busts developing in asset markets ... Some economists have even gone as far as to suggest that low inflation, when is accompanied by an excessive creation of money and credit, may encourage the build-up in asset prices. Here the two-pillar policy of the European Central Bank, seems more realistic than the pure inflation targeting alone. But its practical implementation has not been very successful. Moreover as I will explain later, maybe a policy founded only in the increase in the interest rate, given its blunt nature, it is not the best tool to fight a process of asset inflation. If necessary must be accompanied with a better regulatory framework. Mechanisms designed to improve the international financial system requires to focus explicitly on financial regulation.

Indeed if low inflation, as we today acknowledge, does not provide an insurance against the creation of asset and credit bubbles, there is a problem that must

be addressed by central banks when they suspect that a potentially unsustainable asset price bubble is forming. This should be a radical change into central banking practices.

2. ASSET BUBBLES AND MONETARY POLICY

Some fairly compelling arguments usually rules out speculative bubbles in the class of infinite-horizon models (Obstfeld and Rogoff (1996), p. 121). Thus, it is not strange that the possible existence of asset bubbles have not been usually incorporated into the class of the «new keynesian synthesis»². That does not means that «asset bubbles» have been absent from economic discussions in the past years. Rather the contrary. But despite the potential macroeconomic problems embodied with the existence of asset bubbles, the appropriate monetary policy response has remained unclear.

Bernanke and Gertler (1999), Greenspan (2002) or Bernanke (2002) have argued against using an interest rate policy reacting directly to asset prices based upon the argument that it is virtually impossible to put it in practice. A contrary view is expressed by Batini and Nelson (2000), Cecchetti et al (2000), or Filardo (2004). But, instead to describe accurately the arguments of these various authors, I will concentrate on the opinions elaborated by Bernanke and Trichet representing the practices of the two most important central banks all over the world.

The posture adopted by Bernanke follows closely the path established by his predecessor Greenspan after the collapse of the dot com bubble. The argument as it boils down in Bernanke (2002) runs this way: Although the price of a stock is readily observable, the corresponding fundamental value is not generally observable. For a central bank to declare that a bubble exists, the central bank must not only estimate the unobservable fundamental value, it must have confidence that it can do so better than the financial professionals whose collective information is reflected in asset market prices set in competitive financial markets, generally highly sophisticated and efficient³.

² One exception is Bean (2003). In his model the New Keynesian IS schedule is augmented by a suitable intertemporal arbitrage condition determining the asset prices.

³ The idea that US financial markets were highly sophisticated and efficient was used too by Bernanke to explain the existence of persistent and important current account deficits in the US economy.

The second argument against the use of the monetary policy to lean against bubbles even in the case it is evident that asset prices have become unsustainable, is that then monetary policy it is not recommended. The example offered by Bernanke is that in this case the monetary policy action must be more or less proportional to the size of the bubble. Thus when a bubble is in progress and investors expect outsized returns of 10, 15, 20% or more annually an increase of $\frac{1}{4}$ or $\frac{1}{2}$ percentage points is inconvenient as it will tend to weaken the economy while the asset bubble may well proceed unchecked. This is a typical cost-benefit analysis where the costs of monetary intervention outweigh its benefits.

The only case to use monetary policy to fight against asset bubbles is when the asset bubble causes sharply higher spending in consumer goods and new capital giving way to incipient inflationary pressures. Policy tightening might be called for then to contain the incipient inflation. Except in this case, the control of asset bubbles lies in the regulatory, supervisory and lender of last resort power of the central banks. For Bernanke, these tools must be used to ensure that financial institutions and markets are well prepared for the contingency of a large shock to asset prices. And emergency liquidity assistance provided by the central bank in case of a severe bust with expected systemic effects is part of the solution to a bubble that has not been attacked before by the central bank. Let the bubble bust and then let the central bank provide markets with liquidity was the course of action followed by Greenspan in relation to the dot com bubble in 2001.

Before to expose the arguments of the opposing view, that of authors that suggest that interest rate policy should react directly to asset prices so as to pre-empt extreme fluctuations, it is interesting to know the opinion of Jean Claude Trichet, the president of the European Central Bank. His point of view about monetary policy and asset bubbles are exposed in his speech given in Singapore in 2005.

Contrary to Bernanke, Trichet argues that, yes, bubbles do exist, due to herding behaviour triggered by some investors, rather short reporting horizons, market micro-structure developments or regulatory changes as Basel II or IAS39, and assigns to the central bank the role to identify a combination of events in the financial and real sectors, which expose the financial system to a significantly increased level of risk. Among the factors that can identify a bubble, a signal is given when both the credit-to-income ratio and real aggregate asset prices simultaneously deviate from their trends by 4 percentage points and 40 percent respectively.

After discarding conduct the monetary policy based upon targeting asset prices or pricking directly asset price bubbles through a liquidationist approach he explores the merits of the leaning against the wind principle, which finds advisable under some circumstances such as that the probability that the bubble will burst in the near future

is small⁴, the future growth of asset prices is sufficiently interest rate sensitive and the efficiency losses rise strongly with the size of the bubble. In this case leaning against the wind makes a trade off between short-term deviations from the central bank macroeconomic goals for better overall macroeconomic performance later on. As Bordo and Jeanne (2002) or Weber (2005) have indicated leaning against the wind can be compared to buying insurance against a potentially harmful asset boom-bust cycle where the insurance premium to be paid is some additional tightening leading to a lower level of inflation than would be required by the monetary policy strategy.

But, although Trichet concedes that the monetary anchor associated with inflation targeting may fail to deliver financial stability, explicitly he does not advocate for a monetary reaction function for the ECB that incorporate financial imbalances. Instead he praises the two-pillar policy defined by the ECB statutes, but scarcely seen in the practice of setting interest rates, although he gives the impression of bearing always in mind the longer run consequences of asset price bubbles and financial imbalances, when associated with the bubble burst its subsequent unwinding may lead to a credit crunch or similar financial distress.

To be fair with Trichet approach one must acknowledge that he is the president of a central bank that covers sixteen countries. Unless the bubble is spread all over the euro area it is difficult to implement a monetary policy leaning against the wind. At the same time must be acknowledged the global nature of financial markets. For countries which are small open economies, the movements on asset prices can be clearly influenced by movements abroad. But always central banks must bear in mind that the full thrust of monetary policy isn't completely summarized by movements in the short-term interest rate. Monetary policy actions impact on prices simultaneously across a wide set of markets, financial and non financial, capable of generating important wealth effects, that can be very dangerous when this increase in wealth is spurious due to the existence of a bubble (Meltzer, 1995).

Kent and Lowe (1997), among others, have stressed that the effect of asset price changes on output and inflation is asymmetric, with declines in asset prices having stronger effects on output and inflation than do increases in asset prices. This asymmetry arises from the adverse effects that a collapse in asset prices can have on the process of financial intermediation. In this context, of particular importance are the prices of assets used as collateral for loans as it is the case of housing, land, or real estate. When

⁴ If the bubble is near to burst, then is better to make an accomodative monetary policy in order to offset some of the problems associated with the fallout.

a bubble is formed, the price increase in the asset generates the backing for additional loan and a propensity to leverage for the lenders. The price increases and the additional leverage generates in turn a boom in credit growth that is very dangerous in the sense that the credit expansion is based upon a collateral which price is artificially pushed up by a bubble that inexorably must collapse before the credit is cancelled out. Here we find a case where monetary policy helps to correct a potentially overheating economy fuelled by a big housing or property bubble where the benefits of the central bank intervention may outweigh its costs.

From my point of view, the need for central banks to focus attention on speculative bubbles in asset markets is further enhanced when there is a proliferation of new financial instruments or an extension in financial disintermediation as it has happened in recent years. In this setting, expansion of the set of financial (credit) instruments allows consumers and firms to more carefully tailor their loans to their circumstances, but at the same time expanded choices may be confusing for some borrowers who may not understand the implications of the wide variety of financial instruments, or the agency problems associated with the originate to distribute model, as it can be said for the capital market entities that end buying loans through securitization processes. As a bubble goes up, people and institutions become more confident until the point that they tend to be over-confident or over-exuberant, giving way to bad investments that will appear to the surface when the bubble bursts. Central banks should know that both borrowers and lenders from the capital markets are often unaware how these new financial products and over-exuberance will expose some borrowers to payment shocks when their payments sharply increase when the terms of the loans change abruptly. Without a proper knowledge of the risks associated with new financial products (many times credit derivatives of the third generation) the end of the process is a bubble that carries with itself an excessive appetite for risk and a mispricing of it that ends when an abrupt increase in delinquencies and non performing loans gives way to big losses, write-downs of numerous assets, and a credit crunch that menaces the rate of growth of output for numerous economies given the globalization of financial markets.

At the same time, it is interesting not to decouple the evolution of financial markets from the real economy, specially when a real asset as is housing or the real state are escalating its prices. In this context the primary motivation for new financial products, in this case mortgages, is the rapidly increasing cost of housing which makes it more difficult for prospective homeowners, specially first-time homebuyers, to make down payment as well as monthly mortgage payments. In these circumstances rapidly escalating real estate prices encourages households to leverage their purchasing capacity by choosing more flexible loans with lower monthly payments according to their in-

comes⁵. In the recent past, these new loan products helped to maintain what was a flagging demand for new mortgages in an environment of rising interest rates, sustaining loan volume and the housing bubble over time, encouraging still lenders to originate mortgages to more marginal borrowers, because the risk were supposedly balanced against an asset that was rising in value.

Not acting against a bubble is a very dangerous game. Given the self-reinforcing role of the bubbles, specially of housing or real estate nature, lenders need to accept more risk to drive originations. The danger embodied in this process may be masked by the behaviour of asset volatility. In a period of asset inflation volatility can be low or moderate, although tends to be high in a period of asset deflation. This asymmetric behaviour was first noticed by Black (1976) who proposed a «leverage effect» to understand it, masking the risks associated with asset price inflation. These were accurately described by John C. Dugan, Comptroller of the Currency, who on October 27, 2005 expressed clearly: «We're at the top of the credit cycle and banks naturally gravitate towards more risk. Accurate assessments of credit risk of financial institutions is vital, because credit risk has been the leading cause for bank failures and remains the largest risk for most financial institutions»

It is now clear that financial markets didn't take into account this advice and continued to mismanage risks. In the US, home sales peaked in July 2005, and soon housing starts began to decline. According to Cyrill Moule Bertaux, «the boom, made housing unaffordable for many American families, specially first-time buyers. During 1990s and early 2000s, it took 19% of monthly average to servicing a conforming mortgage on the average home purchased. By 2005 and 2006, it was absorbing 25% of monthly income. For first time buyers, it went from 29% of income to 37%. That just proved to be too much. Prices got so high that people who intended to actually live in the houses they purchased (as opposed to speculators) stopped buying. This caused the bubble to burst» (The Wall Street Journal, May 6, 2008). The situation was worse in the labelled sub-prime market, a residual mortgage market at the beginning of 1980s, but with a share slightly higher than 20% in 2005 and 2006. In this market, usually the monthly

⁵ Sheiner (1995) explored the possibility that home price increases would increase the saving of renters who face higher downpayments in order to buy a house, with statistical results being inconclusive. Engelhardt (1994), reached a contrary view. Increased housing prices substantially reduced the probability that renter households or young couples living with their parents saved enough for an initial downpayment. With asset price inflation, lenders let homebuyers to leverage up in order not to put an end to credit expansion and the increase in profits associated with it.

payment of the mortgage absorbs more than 40% of the monthly income attaining an astonishing 67% for households pertaining to the lowest income decile. Surprisingly, ¾ of the mortgages originated in the subprime markets ended securitized into CDOs, most of its tranches were considered by rating agencies and investors as high quality assets, and bought for very low credit spreads. Now we know that the 2006 and first half of 2007 CDOs vintages related to the subprime market were extremely vulnerables to the burst of the bubble, and some of its issues are valued at 19 cents for the dollar⁶.

Also, it is important to notice that the market distress that occurred after August 9, 2007 occurred after an extended period of ample market liquidity and low spreads. According with the *Senior Supervisors Group*, an international team of experts (March 6, 2008): «The banking organization and securities firms entered the turmoil in relative sound condition and generally with capital well above regulatory requirement. However, as a result of these events, many firms absorbed significant losses, and the prolonged disruption in market liquidity stressed most firms' liquidity and capital. The widespread reaction of interest among investors in purchasing various kinds of assets caused major financial services firms to experience substantial write-downs and unexpected losses in their portfolios; some firms have subsequently had to raise new capital. Financial businesses such as those involved in the syndication to external investors of leveraged loans to corporate borrowers faced dwindling demand for their products and consequently losses as positions had to be marked down.»

Although the speedy intervention of the ECB and the Federal Reserve injecting liquidity to the banking system from August 9, lead to some participants in the financial markets to think that the turmoil would be of short duration, the facts have denied this believing. Evidence of global contagion surfaced when the credit markets highlighted many of the risky structures set up by the investment banks, and how these were spread around the globe, optimism turned to panic, when markets discovered that securitization that had enabled banks to finance assets through the capital markets, had not eliminated associated risks for banks. Thus some banks have been forced to retain warehouse portfolios for longer periods of time than expected or to sell them with a big discount. Additionally, many firms were required to fund contractual commitments backstopping a range of off-balance-sheet financing vehicles, such as asset backed commercial paper (ABCP) conduits or structured investment vehicles (SIVs). This was due to the fact that in most cases, banks and asset

⁶ According to Richardson and Roubini (2009), the subprime markets had an outstanding volume about \$ 1,2 american trillion, with an estimated rate of default around 50%.

sellers had retained the majority of the risk of assets transferred off-balance-sheet. This process works profitably when the economy is strong and expanding and credit losses are small as easy and low-cost credit can bail out troubled loans, when asset backed securitization allows originators to monetize illiquid assets and remove them from their balance sheets to devote the proceeds of new capital to finance growth. The macroeconomic benefit of securitization is that enables the extension of credit to far more individuals and businesses. The question is that at the same time there is a macroeconomic cost when the securitization is vastly expanded to extend the credit to consumers and firms that are unable to repay unless the price of some assets continue growing. Then there exists the danger of a systemic risk of default though a debt bubble.

3. MONETARY POLICY, REGULATION AND SUPERVISION

From the beginning of the present crisis has been a clamour against the monetary policy followed by the Federal Reserve (and to a lesser extent with the ECB) during the period 2000-2007. As it has been said by Robert J. Shiller (2008): «The recent bubble grew so large partly because the very people responsible for the financial system oversight came to share the general public's rosy expectations.» Former Federal Reserve Chairman, Alan Greenspan was fond of rationalizing: «Bad loans are made in good times». But beyond this bright sentence one cannot find in the conduct of the monetary policy of the recent past any relevant anticipation of the costs of the financial turmoil that since August 2007, broke over the housing sector, the banking sector and the world economy. The structural weakness that is embodied in any credit bubble do not forced politicians to act. «I will tell audiences that we were facing not a bubble but a froth —lots of small, local bubbles that never grew to a scale that could threaten the health of the overall economy» (Greenspan, 2008). That used to be Dr. Greenspan view of the housing bubble. He was wrong. As was wrong Dr. Bernanke, when in a speech he gave in 2005 asked to himself: «Why is the United States, with the world's largest economy, borrowing heavily on international capital markets —rather than lending as would seem more natural?» His answer was not build up upon the low saving rate of the US economy, but in the reaction of the emerging economies to the financial crisis of the late 1990s. As a result of these crises these countries abruptly switched from being destinations for capital to sources of capital. The result, along the big surpluses of the China's current account, was a global saving glut, most of them ending in the United States given the depth and sophistication of the country financial markets and a strong dollar. This same saving glut is now used by Alan

Greenspan to clear his name by blaming it for purportedly creating stimulus beyond the control of the Federal Reserve by driving down global bond rates.

But the argument is not convincing. As it has been said above maybe it is difficult to identify a bubble in its early stages, and even if an emerging bubble can be identified could be really difficult for a central bank act against it, because if interest rates are increased to address an asset price inflation in one sector, such as house prices or stocks, then the whole economy is affected. Moreover, this action from the central bank can be misunderstood. If the bubble has not made a visible damage to the economy, then a central bank acting against it could be accused of risking a recession in order to avoid a bubble that worries only to him, but not to the population. Obviously, a central bank must be conscious that interest rates can be a blunt instrument in some occasions, but at the same time must acknowledge the dangers associated with bubbles. So could be useful for central banks, among other indicators, to focus his attention to the evolution of the ratio of the debt level incurred by the private sector in relation with its disposable income. In the same manner that The Stability and Growth Pact that preceded the creation of the European Central Bank defines some simple numerical fiscal rules about the management of public finances of the state members of the euro zone (public sector deficits not bigger than 3% of GDP, a ratio of outstanding debt around 60%) the European Central Bank and other central banks around the world ought act to avoid that the ratio of household and firm debt to personal income surpass some agreed threshold. The argument from a balance sheet perspective, that contemporaneously to the increase of the household and firm debt there is a corresponding increase in their assets is not more compelling when these assets can loss a significant share of its value when the asset bubble burst.

Being more specific what we try to point out us that central banks must acknowledge that unregulated or bad regulated financial markets can be intrinsically unstable. From the experience we have accumulated in the present crisis, we think that the main sin of many central banks or other regulatory bodies has been his lack of adequate supervision of the financial system. Maybe rising interest rates since 2004 has something to do with the present financial turmoil, and maybe that the aggressive policy of the Federal Reserve and other central banks cutting interest rates to historically low levels may alleviate it, although some economies seems to be affected by a liquidity trap. But the main culprit seems to be a bad risk management from the part of private bankers and other financial and insurance institutions and a failure to regulate adequately sub-prime loans, the permissive attitude towards securitization, the off-balance vehicles, the repeal of norms such as the Glass-Steagall Act, and so on. One case in point can be found in may 2004, when the big five investment banks

in the United States went to the Securities and Exchange Commission (SEC) asking to free up compulsory reserves they were required to hold, in order to increase their investments with the help of new 'quant' techniques. Next year their leverage had increased up from 13 to a level around 30, weakening the soundness of these institution against an increase in delinquencies or generally against a decrease in value of a wide set of assets. Maybe this is the most difficult thing to explain: Why banks all over the world decided not only to feed the housing bubble, but also to bet so heavily on it as to put the entire financial system at risk? Surely, we will never get the right answer to this question.

After the crisis has unwind, central bankers, and specially the Federal Reserve, have made extraordinary efforts to save the markets, including the Bear Sterns and AIG bailouts as well as the two agencies, Freddie Mac and Fannie Mae. And these efforts continue as the economy deteriorates. Plans to buy toxic assets, insurance against losses with the portfolios of some banks, or governments entering directly into the banks capital gives evidence of the numerous measures taken in order to sustain the financial system alive. But one question that springs to mind upon observing massive injecting reserves is where is channelled the new liquidity got by the banks, as we observe a deep credit crunch that has paralyzed the real economy. The answer is that the losses are enormous. Nouriel Roubini have estimated them at \$1,8 trillion for the US. This value represent around 22% of all the assets hold by the financial system. For the rest of the world the amount of losses is similar.

One can fear, with former St. Louis Federal Reserve President William Poole that retired in March 2008, «that investors perceive that the Federal Reserve has introduced a backstop for the entire financial system». As to the liquidity problem it has been added a solvency problem this backstop has been introduced also by governments. The Swedish model to create a good/bank model will be essayed at the end. If so, there is a moral hazard problem with the present policies. One rescue begets further rescue demands, which then lead to rescue expectations, which then leads to undue risk-taking and capital misallocation. In these circumstances the efforts of the supervisory authorities to incentive each financial institution to balance between risk appetite and risk controls, enhance the role of senior managers and their teams in order to discuss all significant risk exposures across the firm, to ensure that organizational structures does not delay, divert or distort the flow of information upward or across the firms, that this information is efficiently managed in order to reduce or hedge the risk of riskiest assets when still is cheap to do it, or any other of the many measures advocated by the Senior Supervisory Group (2008) are in danger to be avoided as the moral hazard discourages good banking.

Thus the present situation requires more than simple disclosure⁷, prudential controls or better risk management. It requires a more direct regulation of the entire financial system, including what is now labelled the shadow banking system. This includes interventions about the processes as the proposed new mortgage standards designed by the Federal Reserve to give extra protection to any mortgage with an interest rate three percentage points above Treasury rates. This new standards are set in order to restrain some lenders from extending loans that borrowers might not be able to repay. Or, if it is intended to regulate a potential bubble, central banks can impose as does Hong Kong central bank since early 1990s decreasing loan-to-valuation ratios for mortgages as housing prices deviate from its trend. At first blush, the new standards could seem like an unnecessary government intrusion on individual liberty. Borrowers would be able to determine for themselves what loans they can afford. However, the current situation demonstrates that borrowers cannot be counted on to make wise choices and that the consequences of poor choices can be far ranging when foreclosures are the ultimate result. Substantive regulation on the lending processes should be viewed in the same light as mandatory safety standards for products or the obligation to vaccinate children.

On the other hand, the general trend of financial disintermediation and the evolution of capital markets has weakened market discipline to the point where it created social disruption and political fallout. The weakening in market discipline is obvious from the unwillingness of firms lending money to set aside enough reserves against losses. According to Richard Kline, «unreserved lending is to a financial system what the absence of an immune system is for an organism», and we know that loan retailers and mortgage brokers set aside very little for losses because they weren't going to hold the debt. This is what differences securitization through CDOs from securitization through covered bonds, where of the risk remains attached to the issuer. Thus, if the securitization process must remain into the market as a financial innovation, securitization issuer must guarantee the good performance of the assets securitized. This is possible to do even in the case of CDOs always that the overcollateralization against losses represent significant reserves against loss risk.

⁷ Better disclosure is useless if the numbers given to markets aren't meaningful. This, relates directly with accounting procedures, specially with mark-to-market accounting or fair value methods. This method has been criticized regarding how to value assets when markets are illiquid. But to revert to historical cost methods would be a step backwards in relation to efforts to find fair valuations for assets. Let to revert to historical cost for assets that a bank wants to hold to maturity is correct but can be easily manipulated in order to hide losses.

Additionally, one should not forget the role played by the credit rating agencies. Financial institutions, in the recent past, have given an excessive weight to the ratings issued by them. Credit rating agencies, got a regulatory license to the extent that some institutions can only invest in securities subject to an upper rating. As the issuer of an asset is the payer to the credit rating agency, there is a conflict of interest that must be addressed. Certainly, credit rating agencies, do a job that has a public good character. Unfortunately, governments cannot take for themselves this job or provide public funding for it. New regulations can force credit rating agencies to include more information about their judgements, and modify their rating scale according to the type of asset referred. For assets that have few liquid markets, more than a single estimation could be preferred a rating range according with some circumstances. And, in order to, eliminate the conflict of interest problem a return to the subscription model should be desirable.

But along this regulatory proposals that intervene directly upon the processes that take place inside financial firms, that could be extended to questions related to bonuses and compensation schemes for executives, there are some general principles that call for complementary frameworks. Above we suggested to manage monetary policy according the ratio of private sector debt/disposable income in order to avoid an extremely dangerous growth of the balance sheets of the financial system. This could be appended to a Taylor rule style equation and become an ingredient additional to monetary policy. To the extent that such a low ratio will be related to a low leverage ratio or small maturity mismatches, then the Spanish system of dynamic provisioning along with strict regulation in order to take off the balance sheet some assets, could be an adequate tool to minimize the dangers of the economic cycles and the possibility of systemic failures when all risks are on the downside. These dynamic provisions could be easily incorporated into the Pillar II of the new Basel II model, which also need some changes in view of the present state of numerous banks and the tendency with regulatory arbitrage associated with Basel I. The role of these dynamic provisions is minimize the dangers of the pro-cyclicality associated with the financial system. Thus, in bad times, banks have a buffer to absorb the increase in delinquencies and defaults absorbing part of the losses associated with them.

The Spanish system works in a similar way to the proposals made by Borio, Furfine and Love (2001), Charles Goodhart (2004) or Charles Goodhart and Avinash Persaud (*Financial Times*, January, 30, 2008) who advocate for this kind of counter-cyclical capital charges that rises as the market price of risk falls as measured by financial market prices, and with an adequate design and control of the off-sheet balance operations could be along other measures proposed in this lecture one of the basis for a regulatory framework suitable to avoid new credit bubbles and credit crisis.

Finally, to the extent that the bail out of the financial system requires the intervention of the fiscal system, buying some distressed assets or recapitalizing the institutions, penalties taxes for the banks with worst assets could be devised in order to compensate citizens. Central banks have enormous responsibility regarding the stability of the entire financial system, but if the new consensus in monetary policy must survive. Central banks need new regulatory powers to avoid the creation of bad banks in good times.

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