

# Zhou Xiaochuan: Changing pro-cyclicality for financial and economic stability

Essay by Mr Zhou Xiaochuan, Governor of the People's Bank of China, on "Changing Pro-cyclicality for Financial and Economic Stability", Beijing, 26 March 2009.

*The major points were presented at the G20 Meeting of Financial Ministers and Central Bank Governors in São Paulo, Brazil, on 15 November 2008.*

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Much has been discussed on the root causes for the current financial crisis, including but not limited to lessons on monetary policy, financial sector regulations, accounting rules. This note aims to stimulate debate and discussions on some of the pro-cyclical features in the system, possible remedial measures, and how monetary and fiscal authorities can play their professional roles at times of severe market distress. It also touches upon China's financial sector reform and macroeconomic policy to counter slowdown in economic growth. The major points here were presented at the G20 Meeting of Finance Ministers and Central Bank Governors in São Paulo, Brazil on November 15, 2008.

## 1. The built-in pro-cyclical features in financial architecture

When we discuss system stability, we can borrow some concepts from electronic engineering or control theory. In a complicated system, there are usually many feedback loops, some of them are positive, some of them are negative. A positive (plus) feedback loop enlarges amplification (like multiplier), tends to create oscillation (like boom and bust pro-cyclicality) and zero-point shifting (like a reference of bubble). While a negative (minus) feedback loop can reduce amplification, help for system stability and self-correction of zero-point. In economic and financial systems of recent years, we have too many positive feedback loops on macro and micro levels, and a small number of negative feedback loops. Thus the system shows a strong pro-cyclicality. What we need to do is not to totally rebuild the system, but to add a few negative feedback loops, which are able to sufficiently change the characteristics of our system.

Financial crises normally originate in the accumulation of bubbles and their subsequent bursts. Usually, economists pay a lot of attentions to pro-cyclicality on the macro level. However, on the micro level, there are quite a number of notable pro-cyclical features embedded in the market structure today, which should be addressed as we deal with the current crisis and reform the financial system. In the current market structure, more counter-cyclical mechanisms or negative feedback loops on micro-level should be put in place to sustain a more stable financial system.

### 1) *Rating problems and herding phenomenon arising from outsourcing*

The global financial system relies heavily on the external credit ratings for investment decisions and risk management, giving rise to a prominent feature of pro-cyclicality. The rating industry is dominated by a few large players, which provide practically all important rating services. Specific ratings from the big three tend to be highly correlated and they are combined to form a strong cyclical force. Economic upswings produce euphoria and downturns generate pessimism. Many market players adopting ratings from the three agencies and using them as the yardstick for operations and internal performance assessments clearly result in a massive "herd behavior" at the institutional level. Moreover, the rating process is filled with conflicts of interest by virtue of the issuer-paying business model (issuers also pay for the rating agencies' advisory services on structuring their products, which leads to more problems). Moreover, the rating models for mortgage-related

structured products are fundamentally flawed. During the current crisis stemming from the subprime mess, the high ratings assigned to many subprime products and the massive downgrades of them within short period were unprecedented, which drove the massive write-downs by financial institutions, and exacerbated downward spirals.

Herding phenomenon can also be explained as too many positive feedback loops to cause an oscillation. In investment area, we always preach on the virtue of diversification. Portfolio diversification means when you bet for upside in some products, you should also place protection elsewhere for downside. Investor diversity and heterogeneity is predicated on the notion that market needs both optimists and pessimists. Thus the system should not encourage all investors and their portfolios to behave in the same way. However, too many financial institutions outsourced the development of their internal control systems and the technical models used by their bankers and traders in internal assessment and risk control, including the program trading models that had been widely adopted at an earlier time. Outsourcing of system technologies at such a prevalent scale contributed to high degree of homogeneity in the financial system, which strongly added to pro-cyclicality. For complex financial products, most institutions use models built by a handful of quantitative analysts that get widely adopted throughout the industry. Such models tend to produce similar directional results at the same time when certain conditions prevail. In other words, outcomes from such models are highly correlated. When they are used by the whole financial industry world-wide, asset price boom is made much stronger and bust much more damaging. And due to high synchronizations of market participants' behaviors as a result of using the similar models, systemic risk arises. Regulators should require systemically important financial institutions to complement external pricing models with internally developed capabilities to exercise judgment. In addition, to give issuers of structured products more incentives to better assess their risks, regulators should ask them to retain a meaningful share of the underlying assets on their balance sheets in order to alleviate the myriad of problems associated with the "originate-to-distribute" business model, including moral hazards and fraudulent loan underwritings.

On the users' side of ratings, there is the long-standing moral hazard issue. Various rules have required investment management decisions and risk management practices to be benchmarked on financial instruments attaining certain ratings from the so-called Nationally Recognized Statistical Rating Organizations (NRSRO). This practice has enabled industry practitioners to piggyback on the external ratings and not to worry about the inherent risks once the instruments have achieved the threshold ratings. Over time, the financial industry has become accustomed to the practice and become complacent of the ratings they rely on so heavily. Some market players seem to have forgotten that the ratings are no more than indicators of default probabilities based on past experiences but were never meant to be guarantees for the future. Along with complacency, there is inertia and sloppiness on the part of investment managers to ask tough questions about the inherent risks of instruments sitting in their portfolios. Once problems take place, as we have seen during the current crisis, fingers are pointed to the rating agencies. The institutional users (e.g., the money managers and financial institutions) of credit ratings should be ultimately accountable to their customers and shareholders and should exercise their own judgment of risk, not just outsource risk assessment duties to the rating agencies. To the extent they have to use external expertise, internal and independent judgment has to be deployed as a complement. As a matter of fact, the problem has become so serious that regulators need to encourage financial institutions to enhance internal rating capability to rely less on external ratings, and that central banks and regulators should impose requirement whereby use of external ratings should not exceed 50 percent of business activities, at least for systemically important financial institutions. Internal capabilities should be developed to exercise independent judgment on credit risks at such organizations.

## **2) Fair value accounting, mark-to-market and mark-to-model**

Both IFRS and GAAP require mixed value measurements of different type of assets and liabilities according to their features and the management's intentions of holding them, i.e. assets on the trading book and available-for-sale assets should be measured on the fair value basis, while hold-to-maturity assets, loans and liabilities without an objective fair value should be recorded at historical costs.

GAAP and IFRS define fair value in a similar way, which is a price at which an asset and liability can be traded with a willing counterparty in an orderly manner. Both accounting frameworks provide measurement approaches at differentiated levels. Level 1: prices can be observed on active market, which are used to measure the value of assets and liabilities, a practice called mark-to-market. Level 2: when there is no active market, prices are assessed by using models with observable parameters as inputs, a process called mark-to-model. Measurement approach used on level 3 is similar to the mark-to-model approach, but it involves unobservable parameters and model assumptions as inputs. Both IFRS and GAAP require disclosure of the adoption of fair value approaches and specific assumptions as well as risk exposures and sensitivities.

The problems of fair value accounting have been exposed by the current crisis. First, compared with the historical cost approach, fair value accounting intensifies market fluctuations. While the fair value approach is more dynamic and can better reflect the real time value of assets and liabilities, it also magnifies the changes in their values and increases the volatility of returns through the profit and loss account as a consequence. As a result of the massive collateralized securities they held, financial institutions registered mounting unrealized losses which actually involved no cash flow under the fair value rule. Though these losses were only meaningful in accounting, such astronomical book losses distorted investors' expectations and formed a vicious cycle of prices tumbling – asset write-down “panic selling” further prices slumps. Second, the poorly guided adoption of fair value in non-active markets exacerbated market volatility. As defined, the using of fair value approaches must be based on the prerequisite of orderly trading. At times of crisis, as a large number of institutions were forced to liquidate their assets, prices developed under this situation did not meet the prerequisite for fair value measurement. However, due to the lack of specific guidelines on dealing with such circumstances, reporting entities had to conduct fair value measurement on the basis of unreasonable market prices, which magnified book losses and exacerbated the vicious cycle.

We could say, in a normal situation or in a low frequency band, mark-to-market is a negative feedback loop. However, in an extreme situation or high frequency band, mark-to-market mechanism can not catch the changing phase. When phase lag is larger than  $90^\circ$ , a negative feedback loop can become a positive feedback loop in characteristics. In this situation, what we need to do is to cut off this loop, thus we need a circuit breaker. We can resume the system when it returns to normal condition. In economic system, we need to put into place a sort of circuit-breaker mechanism to stem the pro-cyclicality caused by mark-to-market and fair value accounting in specific situations.

## **3) Internal rating based (IRB) approach under Basel II**

The New Basel Capital Accord (Basel II) released in 2004 improved the capital adequacy ratio framework, shifting from singular requirement on capital adequacy to highlighting the importance of risk-based banking supervision, and including minimum capital as one of the three pillars of banking supervision (regulatory capital requirement, regulatory responses, disclosure and market discipline). Under Basel II, the minimum capital requirement of 8 percent was unchanged, but the notion of risk weighted asset was improved to reflect not only credit risks, but also market risks and operational risks. Following the release of the Basel II, major economies have outlined steps and the timetable for its implementations, and

major European countries have basically implemented the new Accord. China is also making preparations for implementing it.

The Basel II framework allows financial institutions to apply internal rating-based approach in pricing and assessing risk of complex products. Risk weights for purpose of capital adequacy calculation are derived from internal modeling. Such weights are generally low and lead to high capital adequacy ratio (CAR) during economic upswing, and are high and lead to low CAR during cyclical downturn, everything else equal. As a result, financial institutions tend to have high leverage ratios during good times and have to deleverage during bad times. This amplifies bubble buildup during upswings and leads to credit squeeze and asset dumping during downturns, thus increase cyclical volatilities. This reflects a strong pro-cyclicality. We took notice that FSF has formed working groups to cooperate with BCBS in studying ways to strengthen Basel II framework, and to address its weaknesses revealed during the crisis including its pro-cyclicality.

## **2. Give full play to the professional role of authorities of overall financial stability and establish a counter-cyclical mechanism for capital requirement**

Among the supervisory requirements on financial institutions, banking institutions in particular, capital adequacy ratio is one of the most important prudential requirements. The current financial crisis suggests that a sound capital buffer is critical for banks' resilience to risks and financial stability in a broader sense. Effectively addressing the pro-cyclicality elements in the existing capital requirement framework is essential for avoiding a repetition of serious financial crisis. The ongoing crisis has exposed much vulnerability in capital adequacy framework of banks in the following areas: inadequate capture of risks by the Basel II framework for complex credit products; the minimum capital requirement and the quality of capital did not provide adequate buffer during the crisis; the pro-cyclicality of capital adequacy amplified economic oscillations; the differences in capital requirements among different types of financial institutions. Efforts are being made in some countries to widen the coverage of capital requirements, including setting requirements on asset-backed securities, off-balance sheet risk exposures and trading account activities, improving the quality of tier 1 capital, and enhancing the global consistency of minimum capital requirements. In addition, as a complement to capital adequacy ratio requirement, a notion is under discussion that a properly constructed leverage ratio indicator will play a role in the macro prudential regulation framework as the new indicator can both measure potential excessive risk-taking and dampen the amplification of cyclical fluctuations.

In addressing the vulnerability of the existing capital adequacy ratio framework, particularly the pro-cyclicality of capital buffer, national authorities responsible for overall financial stability can actively play their professional role. If economic cycle comes into an unusual phase, or economic system needs an unusual counter-cyclical adjustment or special stabilization measure, it can be considered to let authorities of overall financial stability issue quarterly indicators of prosperity and stability, which can then be used by financial institutions and regulatory supervisors by multiplying into risk weights for capital adequacy ratio calculation. Thus the risk weighted capital adequacy requirement and other control criteria (like internal rating-based approach), can reflect counter-cyclicality preference of the stability authorities.

Traditionally, finance ministries have counter-cyclical fiscal policies and monetary authorities have counter-cyclical monetary policy tools at their disposal, but these tools are macro in nature. As a remedy to pro-cyclicality at micro level, counter-cyclical multipliers can be developed and used to dampen the pro-cyclical factors such as the risk weights that come out of the internal rating-based exercises. To begin with, as mentioned above, it may become necessary for financial stability authorities to develop a set of prosperity indices from which counter-cyclical multipliers can be derived. There already exist a multitude of private sector indices linked to business cycles, investor and consumer sentiments. Prosperity indices can

be built on the basis of these indices. During market boom, everything points to the up-tick, market exuberance prevails, and prosperity indices are high. As a contrast, during economic downturn, the opposite holds. Once prosperity indices are available, the derived counter-cyclical multipliers can be applied to the pro-cyclical factors such as risk-weights mentioned above, default probabilities for credit rating purposes and discount (i.e., haircuts) percentages for various collaterals used in financial transactions. In suitable forms, they can be applied to other pro-cyclical factors too. One example of using them is to apply a multiplier greater than 1 (say, 1.5. Please note this is only an example and the actual multiplier is determined by specific calculations. The same applies below) during economic upswing and another multiplier less than 1 (e.g., 0.7) during downturn to the IRB-based risk weights to alleviate the pro-cyclical problems. The magnitude of the multiplier can be refined by taking into consideration other factors such as product type, industry and country of risk exposures. Through the applications of the counter-cyclical multipliers, we can not only mitigate the pro-cyclicality elements in capital requirements but also improve quality of capital by improving management of collaterals and by using multipliers-adjusted default probabilities and better managing the risk in complex credit products.

To stabilize markets under severe stress, finance ministries and central banks need to act fast and apply extraordinary measures. Untimely or delayed response falls behind the curve and would make the outcome less than desired even if the response is correct and strong. In modern Western societies, a prolonged political process for mandates to finance ministries or central banks often miss the best timing for action. We have observed such cases during the current crisis. Going forward, national governments and legislatures may consider giving pre-authorized mandates to ministries of finance and central banks to use extraordinary means to contain systemic risk under well-defined stress scenarios, in order to allow them to act boldly and expeditiously without having to go through a lengthy or even painful approval process. Such systematic pre-authorized mandates would put the specialized expertise of finance ministries and central banks to the best use when markets need it the most.

### **3. China's financial sector reform and ongoing macroeconomic stimulus measures**

In 2003, fully aware of the systemic vulnerabilities of China's banking industry, the Chinese government made a courageous and strategic decision to restructure the four state-owned commercial banks. It was commonly recognized at that time that Chinese banks, especially the big four, could hardly withstand a big economic downturn if not seriously reformed. The banking system was then vulnerable to shocks, especially external shocks, which would trigger confidence crisis or even systemic meltdown. The Chinese government decided to first inject capitals into Bank of China and China Construction Bank by tapping into the official foreign reserve. The banking reform got a quick start and captured a good time window. Before the reform, Industrial and Commercial Bank of China (ICBC), CCB and BOC were plagued by high NPL ratios, low or negative capital base and a culture not accountable to shareholder value. Through capital injections and subsequent public listings, these major banks now enjoy strong capital base even after fast growth during the last five years. Through NPL carve-out and strengthening of risk management practices, all of these banks have maintained NPL ratios of low single digits. In terms of corporate governance, boards are comprised of independent non-executive directors and full-time and dedicated directors who can provide strategic guidance for future development and effective checks and balances. Strategic investors from overseas were brought in to help them improve in areas of weakness such as risk management, business processes, product innovations, cash management, and credit cards and so on. More importantly, through the restructuring processes and public listings and the transparency that followed, accountability culture started to sink in and shareholder value became respected, not ignored as before.

In the securities industry, the shaky firms were closed down and some important ones received government capital injection and were restructured. Their customers' cash accounts

were put into independent custodian arrangements with the major banks, thus removing the possibility of customer asset commingling and misappropriations. The banking reform and the securities industry cleanup have proved to be successful and have laid a solid foundation for the financial sector to withstand economic downturn, in particular the ongoing global financial crisis. For example, despite the steep drop of the stock market since late 2007, no securities firms have gotten into big trouble so far. And the major banks are in a strong position to weather economic slowdown. ICBC, CCB and BOC top the global list of banks' market capitalizations. A more robust financial industry after the reform places China in a better position to withstand the financial crisis. Meanwhile, it should be noted that China's financial system has been helped by the progressive opening-up strategy and its limited exposure to overseas markets. We should bear in mind that despite the notable achievements in banking reform, the major banks have not gone through a full business cycle and still have much to improve. An economic slowdown will be the ultimate stress test for the robustness of the banks' strengths.

Irrespective of China's sound financial sector, the Chinese economy, especially the export sector, has felt the impact brought by the slowdown of the global economy. Since the fourth quarter of 2008, as international economic crisis worsened and exerted greater impacts on China's economy, the Chinese government made rapid responses by decisively adopting a proactive fiscal policy and an adaptively easing monetary policy, and launching a bundle of timely, targeted and temporary policies and measures.

First, ten measures were launched to stimulate domestic demand and promote stable and relatively rapid economic growth. The central government planned to invest an extra 4 trillion RMB over two years, which would mainly go to the agricultural sector, welfare and affordable housing, transportation infrastructure, and energy conservation and emission reduction. Second, ten measures to revitalize the industrial sectors were initiated, aiming to strengthen policy support for enterprises. At present, the revitalization plans cover 10 industries including the light industry, automobiles, steel, textile, equipment manufacturing, shipping, petrochemicals, non-ferrous metals, IT and logistics, with the aim to curb and reverse the trend of declining growth in these industries. Third, bolster financial support for economic developments. Since September 2008, People's Bank of China has lowered the benchmark interest rates five times and reduced the reserve requirement ratios on four occasions, for the purpose of maintaining adequate liquidity for the banking sector and promoting stable growth of monetary and credit supply. In addition, 9 measures to strengthen financial support for economic growth were launched. Fourth, earnest efforts have been made to promote employment, improve people's livelihood, better support and benefits for farmers, and stimulate household consumption demand. Fifth, policy measures were adopted to advance the reform of important areas including VAT tax transformation, reform of taxes and fees imposed on oil products, and medical and healthcare system reforms. Having taken the above-mentioned measures, China expect to maintain stable economic growth by boosting domestic demand and reducing dependence on external demand, thus serving as a stabilizing force in global economy.

In overall, the macroeconomic measures have produced preliminary result and some leading indicators are pointing to recovery of economic growth, indicating that rapid decline in growth has been curbed. Facts speak volume and demonstrate that compared with other major economies, the Chinese government has taken prompt, decisive and effective policy measures, demonstrating its superior system advantage when it comes to making vital policy decisions.