Jean-Claude Trichet: Remarks on the recent turbulences in global financial markets

Keynote address by Mr Jean-Claude Trichet, President of the European Central Bank, at the Policy Discussion "Global Economic Policy Forum 2008", New York University, New York, 14 April 2008.

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Ladies and Gentlemen,

It is a great pleasure and honour for me to speak at the invitation of the prestigious New York University and to address the issue of the recent financial market correction and its episodes of turbulences and volatility.

At the risk of pointing out the obvious, let me start by noting that we are still some way away from having the full benefit of hindsight on the issues that I will touch upon today regarding the ongoing turmoil in global financial markets. As we gather here today, no effort is being spared either by the financial industry or the official sector – including central banks – across the globe in tackling the adverse consequences on the money markets of the ongoing process of financial deleveraging,[1] while at the same time considering a set of possible measures for preventing the present situation from repeating itself in the future.

This notwithstanding, it is with pleasure that I share with this distinguished audience of government, economic and academic leaders my thoughts on the nature of the current market turmoil, and in doing so clarifying the rationale behind the response of the central banking community – and the European Central Bank in particular – since its outset early in the summer of 2007. I trust that in the process of characterising the nature of the turmoil it will also become clear how the consensus is being built on the key policy lessons and initiatives, so that we have a clearer picture of which efforts market players, central bankers and government agencies need to take.

Factors underlying the recent financial market turmoil

As the turmoil has progressively spread across the global financial system, it has become increasingly accepted that there were several vulnerabilities present beforehand and that no single factor or culprit can be pointed to as the cause of it. It is generally agreed that the ***trigger for the turmoil*** was a myriad of problems associated with the US housing market correction. However, the sharpness and speed of the ***contagion*** to unrelated market segments has made it clear that there were significant vulnerabilities present in the system, the nature and complexity of which was not always well understood. The challenges facing the sub-prime market were part of a much broader problem. Now we are in a situation of high uncertainty – where risks are very difficult to quantify – and, as a result, confidence in the functioning of the financial system itself among market participants has been severely undermined. Underlying the deterioration of confidence has been a constellation of – in my view – ***three broad factors*** which, although already individually known to market participants and policy makers alike well in advance of the turmoil, have reinforced one another in a way

[1] The dynamics of liquidity and financial cycles have been conceptually analysed, for instance, by Tobias Adrian and Hyun Song Shin in "Liquidity, Monetary Policy, and Financial Cycles", Federal Reserve Bank of New York Current Issues in Economics and Finance, volume 14 number 1, February 2008; and in "Liquidity and Leverage", paper presented at the BIS Annual conference, June 2007. In related work, Hyun Song Shin together with David Greenlaw, Jan Hatzius and Anil Kashyap "Leveraged Losses: Lessons from the Mortgage Market Meltdown", paper for the 2008 US Monetary Policy Forum, February 2008, have assessed the current episode in some detail.

that almost nobody could have foreseen. These factors included an abundance of liquidity that underpinned a build up of leverage in the financial system, an increasingly interwoven and complex financial system the growth of which was fed by financial innovation and some financial agents' incentives that were aligned against prudent practices. With the benefit of hindsight, it is worth recalling that public authorities – and the ECB in particular through its semi-annual Financial Stability Review – issued clear warnings on the under-pricing of risks in some segments of the market already in early 2007. Equivalent warnings were largely communicated by other central banks, and I had myself, as Chairperson of the global economy meeting of Central Bank Governors, regularly expressed the view, on behalf of my fellow Governors that our judgement was that there was a significant under-pricing of risks in general in global finance.

We should not lose sight of the fact that the first factor – and the ***driving force behind the substantial rise in financial leverage*** – was a significant ex-ante excess of savings over investment in the global economy.[2] In time, this abundance of capital chasing investment drove an increasingly aggressive "hunt for yield" which was reflected in a surge of demand for and supply of, among other assets, highly complex financial products.[3]

Financial leveraging processes of the type we have just witnessed are not new. As has been argued by many in the international community, the period preceding the current financial turmoil shares many of the characteristics of previous historical episodes – a so-called "Minsky moment" whereby there is a sudden recognition and recoil from underlying credits whose quality was in fact worsening for years.[4] According to this view, the financial system may have inherently pro-cyclical characteristics including proneness for asset price misalignment. If we accept this view, the possibility is real that just as the real and financial sectors interacted on the way up, they might well do so on the way back down, and this would have implications for what the optimal response from the public authorities should be. We are clearly concerned about the real impacts of the financial market turmoil, as it impacts also on the policy options of central banks, including monetary policy.

Clearly, however, there has been much more to the current episode than simply a surge of asset prices in an environment of steadily rising financial market liquidity. A second element in the constellation of vulnerabilities was ***the greater complexity of interlinkages both within and across financial systems***.[5] Testimony of this evolution, even when compared to

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[2] Even though both the traditional liquidity mechanism of low interest rates and the less known (L. Chen, D. A. Lesmond and J. Zhanshun Wei "CorporateYield Spreads and Bond Liquidity", preprint, April 2005) between securities' liquidity and spreads were well understood, it remained surprisingly difficult prior to the crisis to make the (indirect) linkage between low interest rates and low yields across securities. Also the converse – the impact of the absence of liquidity on asset prices – received substantial attention of academics (highlighted by the liquidity-adjusted asset pricing model of Acharya and Pedersen, "Asset Pricing with Liquidity Risk", *Journal of Financial Economics*, vol. 77, pp. 375-410, 2005) but less so by market practitioners.

[3] There is empirical evidence that shows that the cost of liquidity influences the credit risk-taking of banks (G. Jiménez, S. Ongena, J.-L. Peydró and J. Saurina, "Hazardous Times for Monetary Policy: What Do Twenty-Three Million Bank Loans Say About the Effects of Monetary Policy on Credit Risk?" CEPR DP No 6514). In particular, when the cost of liquidity is low (and the level of liquidity is high), banks take on higher credit risk. This high credit risk could materialize in defaults once the cost of the liquidity stars climbing back to its normal levels.

[4] Hyman Minsky's model of the credit system, which he dubbed the "Financial Instability Hypothesis" has recently become very topical. In short, unusually long periods of economic stability lull investors into taking on more risk. This leads them to borrow excessively and to overpay for assets. A Minsky moment is the point in the cycle when investors have cash flow problems due to spiraling debt they have incurred in order to finance speculative investments.

[5] Raghuram Rajan in "Has Financial Development Made the World Riskier?", NBER working paper, 11728, November 2005; presents one of the first accounts of how the growing complexity of the financial system determines its fragility.

just a decade ago, are the speed and degree of complexity of today's capital flows; the relative variety, obscurity and interrelationship of many classes of financial instruments – often with large levels of embedded leverage; and the intertwined relationship of a growing variety of financial institutions. This clearly placed a heavy burden on the risk management procedures of large financial intermediaries.

The evolution of the financial system not only facilitated an expansion of the array of financial assets available to investors but it also seeded the fragility that later materialised in the unprecedented speed and reach of contagion during the unwinding of leverage. So as to avoid the risk of any misinterpretation of my views on financial development, let me be crystal clear on this: I share the view that modern financial intermediation has proven that it has the potential to effectively spread risk and it has undoubtedly promoted economic efficiency and provided cheaper capital to productive sectors that would have otherwise not had access to any. The challenge for all of us today lies in preventing the system from feeding on itself through a spiralling process of leveraging.[6] Financial complexity – preferably complemented with the necessary checks and balances – is but an inevitable consequence of the increasingly complex global economic and financial system, and we must find ways of taming it and turning it to our favour.

Abundant liquidity and financial complexity embody in my view the driving force and the scene underlying the process of financial leveraging and its unwinding, but the full picture of the weaknesses that have been unearthed in the "originate-to-distribute" financial intermediation model is not complete without saying something about ***financial players' incentive structures***.[7] Strictly speaking the purpose of the financial system is to write, manage and trade claims on future cash flows for the rest of the economy, a purpose that increasingly fell victim to a game for fees, very short-term apparent profits, and arbitraging regulation. The "shadow banking system" that rapidly emerged as an excrescence of the formal banking sector – unlike its more understood and regulated sibling – rested on a poorly understood system of credence (provided by rating agencies) and the (false) perception that the only way for asset prices was upward. Indeed, most remarkably ex-post, it did not have to lay capital against things going wrong, as eventually they did when euphoria turned into sobriety. Time and again we need to be reminded of NASA's safety Director Jerome Lederer's contention, equally valid for aeronautics as for finance, that *"of the major incentives to improve safety, by far the most compelling is that of economics. The moral incentive, which is most evident following an accident, is more intense but is relatively short lived*." Supervisors and regulators clearly need to take a careful assessment of the incentive structure underlying financial intermediation, in particular in light of the ever-changing landscape that characterises it.[8]

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[6] It has been recognised in the academic literature that such episodes, could emerge, bringing to the fore the inherent trade-off between financial stability and the efficiency of the financial system. See for instance A. Perez, P. Gai, S. Kapadia and S. Millard "Financial Innovation, Macroeconomic Stability and Systemic Crises", preprint, February 2006.

[7] This problem with incentives in securitization was also well known in the academic literature, at least as early as C. Calomiris and J. Mason "Credit Card Securitization and Regulatory Arbitrage", Federal Reserve Bank of Philadelphia, working paper no. 03-7, April 2003.

[8] There is empirical evidence that securitization lead to softer lending standards and higher defaults. For instance, B. Keys, T. Mukherjee, A. Seru and V. Vig ("Did Securitization Lead to Lax Screening? Evidence From Subprime Loans 2001-2006, GSB Chicago, 2008) show that conditional on being securitized, the portfolio that is more likely to be securitized defaults by around 20% more than a similar risk profile group with a lower probability of securitization. A. Mian and A. Sufi ("The Consequences of Mortgage Credit Expansion: Evidence from the 2007 Mortgage Default Crisis", GSB Chicago, 2008) show that a rapid expansion in the supply of mortgages driven by disintermediation explains a large fraction of recent U.S. house price appreciation and subsequent mortgage defaults.

Prior to the July 2007 rude awakening of financial markets participants, observers and regulators at large, these three broad factors contrived a convergence of mechanisms that resulted in the upward spiralling of asset prices, further leveraging, increasing complexity and shrinking transparency. In closer immediacy, they together also shaped the particular mechanisms that unleashed the turmoil: it took one substantial shock to a single market segment (US sub-prime related credit) to trigger a broad-based drive to re-price credit risk across all classes of financial instruments and involving a wide range of financial institutions. Even though this in itself may not be a new phenomenon – similar episodes were observed with some regularity over the last few years – the much higher degree of contagion that followed also stemmed from and was reinforced by the factors above. First, the process of adjusting risk positions in the financial sector was hindered by a – in some cases complete – breakdown in the price discovery process across instruments owing to the lack of understanding of the distribution and magnitude of risks underlying the various financial instruments. Second, the unprecedented system-wide dry-up of liquidity that resulted from reductions in position-taking by major financial intermediaries fed back into the overall uncertainty, thus escalating measured risk and frustrating the very same efforts towards risk reduction.[9]

I will come back to my thoughts on what key lessons we have learned later, but I would first like to turn to the response of the central banking community to the turmoil that was possible once the severity of the shock we were facing became clear to us.

The response of the central banking community to the turmoil

The central bank community responded to interbank markets strains in various ways. At an early stage, the Eurosystem made very clearly the point that we were strictly making the distinction between setting the monetary policy stance to maintain price stability, and liquidity decisions taken in the course of implementing this stance. This distinction serves to isolate signals of the monetary policy stance from the impact on very short-term interest rates of the noise introduced by liquidity movements. At times of market stress, underlining this distinction is even more important than in “normal times”. In circumstances of market stress, liquidity management may need to be more active in order to contribute to the functioning of the money market and steer very short-term money market rates close to the minimum bid rate of the Eurosystem’s main refinancing operations.

I will now focus on the liquidity operations the Eurosystem conducted during the turmoil and also the joint actions that took place by several central banks.

After the start of the financial market turmoil, it appeared that credit institutions had developed a preference for fulfilling their reserve requirements relatively early in the maintenance period. Liquidity on different days of a reserve maintenance period were no longer perfect substitutes, and therefore short-term interest rates did no longer follow the celebrated “martingale hypothesis”.[10] Using the baseline model of Poole 1968,[11] they tended rather to behave as if each individual bank perceived their distribution of liquidity shocks to

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[9] One can understand the current situation with a model of adverse selection in the interbank market (M. Flannery, “Financial Crises, Payment System Problems, and Discount Window Lending”, Journal of Money, Credit, and Banking, 28, 1996). Following a large shock in the financial system, banks may become uncertain about the borrowing banks’ credit quality. As they feel less able to distinguish between “good” and “bad” banks, lenders may either raise interest rates or not to supply liquidity to the higher adverse selection costs.

[10] See J. D. Hamilton “The Daily Market for Federal Funds”, *Journal of Political Economy*, vol 104 (1996), pp. 26-56.

[11] See W. Poole ‘Commercial Bank Reserve Management in a Stochastic Model: Implications for Monetary Policy’, *Journal of Finance*, vol. 23 (1968), pp. 769-791.

be strongly biased to the tight side, even if this was of course not the case at an aggregate level.

As a result, the ECB adjusted the distribution of liquidity supply over the course of a maintenance period, by increasing the supply at the beginning of the period and reducing it later in the period (the so-called frontloading), so that the average supply of liquidity remained unchanged over the whole reserve maintenance period. This policy is in line with the Eurosystem's aim to provide to the banking system over each maintenance period the exact amount of liquidity they need to fulfil their liquidity deficit. The average size of the Eurosystem's refinancing operations for the maintenance periods since August 2007 remained at around €450 billion, as in the first semester 2007.

When overnight interbank rates in the United States and Europe came under upward pressure, the first liquidity response during the turmoil was to try to keep short-term money market rates near policy rates with a more active liquidity management. This became clear on the morning of 9 August when the overnight rate increased very sharply and significantly signalling a degree of disruption of the money market. The ECB therefore conducted a fine-tuning operation with an overnight maturity, in which it injected liquidity into the market via a fixed rate tender with full allotment of all bids. During the following week, the ECB carried out three more liquidity providing fine-tuning operations, each with an overnight maturity and progressively smaller amounts. In addition to these fine-tuning operations, two supplementary longer-term refinancing operations with a three-month maturity, the first on 24 August 2007 and the second on 13 September were conducted to address the sharp drop of activity in the longer-term money market. In this way counterparties were able to reduce their net need for liquidity over a longer horizon.

A special tender with full allotment of all bids occurred again on 18 December 2007, when, due to year-end liquidity tensions, it was deemed efficient to leave to the market to determine the exact allotment amount. This overall allotment amounted to EUR 349 billion (USD 503 billion at the exchange rate prevailing at the date).

In general, the ECB made more frequent use of fine-tuning operations than in "normal times", both in order to inject further liquidity in addition to the one provided in the main refinancing operations but also to absorb excess liquidity, in order to steer the EONIA close to the minimum bid rate.

These measures, both fine-tuning and LTRO operations have allowed the ECB to maintain control over short-term money market rates and to ensure orderly conditions in the euro money market, without requiring a structural change of the Eurosystem's operational framework for monetary policy implementation. All these measures have been supported by prompt communications, which helped reassuring the market on the readiness of the ECB to take adequate measures.

Some central banks conducted also other actions, which mainly included expanding the range of eligible collateral and of counterparties. The Bank of Japan and the ECB, which already accepted relatively broad ranges of collateral, were amongst the central banks that did not need to adjust their collateral framework. Indeed, owing to its acceptance of a broad range of collateral as well as the large number of eligible counterparties, the Eurosystem's collateral framework has been well equipped to support the implementation of monetary policy during the ongoing market turbulence. The share of deposited collateral not used to cover credit from monetary policy operations continued to be high. This suggests that availability of collateral has not been a constraint on the Euroystem's counterparties in the wake of the turmoil.

It is important to recall that, as the turmoil went on, central banks strengthened their co-operation, first through communications and collective monitoring of market developments and later on by coordinated steps to provide liquidity.

As an example of joint actions between central banks during the turmoil, the ECB agreed with the US Federal Reserve to grant loans in dollars to euro area banks in connection with the FED new Term Auction Facility (TAF) in US dollar. This was a response to euro area banks that were reported to be particularly concerned about the availability of their funding denominated in US dollars. The Eurosystem loans were financed through a currency arrangement (swap line) between the FED and the ECB. The Eurosystem provided the US dollar funding received via this swap line to its counterparties against collateral eligible for Eurosystem credit operations in two operations settling on 20 and 27 December 2007, which were renewed on 17 and 31 January 2008. Similar operations were also carried out by the Swiss National Bank. The same day, other central banks as Bank of England and Bank of Canada announced specific measures to provide directly term funding to a larger number of financial institutions and against a broader set of eligible collateral. Bank of Japan and the Riksbank joined in the announcement, indicating their support.

In the Eurosystem's operations, US dollar funding of USD 10 billion each was provided to counterparties with access to the marginal lending facility, for a maturity of one month. The four operations were conducted at a fixed rate equal to the marginal rate of the simultaneous Federal Reserve tenders, which was 4.65%, 4.67%, 3.95% and 3.12% respectively. These operations did not have a direct effect on euro liquidity conditions, but aimed at improving global funding conditions.

Since these coordinated actions taken in December and January, the G-10 central banks have continued to work closely together and to consult regularly on liquidity pressures in funding markets. As continued pressure was observed in the money market, the ECB announced on 11 March 2008 that it would resume carrying out US dollar liquidity providing operations in connection with the Term Auction Facility and would increase their amounts to USD 15 billion every second week for as long as needed. The same day, other central banks announced specific measures to cope with these continued tensions.

It is important to stress that the action in connection with the TAF marked the first multilateral central bank co-operation in the money market field, a market which is central to the implementation of a central bank's monetary policy.

Key lessons and policy initiatives

The present very significant market correction with its episodes of turbulences, high level of volatility and overshooting on a number of markets has revealed substantial weaknesses in the functioning of financial institutions and markets. In many respects we are witnessing the first "real magnitude" stress of today's global finance incorporating recent financial innovations, including new complex structured finance instruments, a very rapid increase of highly-leveraged institutions, and an incredibly recent increase of derivatives of all kinds – including credit derivatives. It appears now that the shock with which the global financial system had to cope with after the burst of the internet bubble was, all things considered, quite modest and that the resilience of the system at that time had probably been wrongly attributed to the, already largely spread, use of derivatives. Now, as I said, we have the real test and it is extremely important that we do not miss any of the lessons that should be drawn from the present financial turmoil.

It is important that these lessons are drawn at both national and regional levels. Worth noting, in this respect, the streams of work co-ordinated at the EU level by the Council of Ministers of Finance (Ecofin) towards strengthening the supervisory and financial stability arrangements, including the introduction of a European mandate to national supervisors, the clarification and strengthening of the functioning of the committees of supervisors at the level of the 27 nations, the wider use of colleges of supervisors to re-inforce the supervision of cross-border banking groups and the approval of a Memorandum of Understanding on cross border cooperation in financial crisis situations between all relevant authorities in the EU, namely: supervisory authorities, central banks and finance ministries. Similar initiatives have

been launched in the US, for example let me mention the recent proposals issued by U.S. Treasury Secretary Paulson to strengthen the financial regulatory structure, and are being considered in other nations.

However even more important was to agree at the international level on the appropriate methodology to identify the common lessons that would be drawn on a co-ordinated basis on both sides of the Atlantic as well as on both sides of the Pacific. The present turbulences are a global phenomenon. Only a global response can be effective. After the Asian crisis, at the initiative of G7 Finance Ministers and Central Bank Governors the Financial Stability Forum was created as the informal grouping where a synthetic diagnosis of the state of global finance could be carried out with a view to identifying the potential weaknesses affecting the international financial system and areas for improvement.

In this respect I am happy to say that the "Report on Enhancing Market and Institutional Resilience" – that has just been presented by the Financial Stability Forum to the international community and in particular to the G7 and to the International Monetary and Financial Committee of the International Monetary Fund – corresponds well to what the international community asked for. I am happy that we have a consensus on implementing the G7's precise recommendations with determination and in line with the recommended timeline. The community of central banks will be particularly alert for these recommendations to enter into force.

Having participated in the G7 discussions three days ago I will stress the recommendations that we consider among the immediate priorities for implementation within the next 100 days:

- Financial institutions should fully and promptly disclose their risk exposures, write-downs and fair value estimates for complex and illiquid instruments in their upcoming mid-year reporting. They should do so consistently with leading disclosure practices as set out in the FSF report.
- The International Accounting Standards Board (IASB) and other relevant standard setters should take urgent action to improve the accounting and disclosure standards for off-balance sheet entities and to enhance guidance on fair value accounting, particularly on valuing financial instruments in periods of stress.
- Financial institutions should strengthen their risk management practices, including rigorous stress testing, under the support of supervisors' oversight. Financial institutions should also strengthen their capital positions as needed.

By mid-2008, the Basel Committee should issue revised liquidity risk management guidelines and IOSCO should revise its code of conduct for credit rating agencies.

I will also underline the main areas where important recommendations have to be implemented either by end-2008 or at the latest by 2009, namely revising capital requirements under Pillar I of Basel II (e.g. certain aspects of the securitisation framework), strengthening supervision and management of liquidity risk for banks, ensuring effective supervisory review under Pillar II, enhancing transparency and valuation, improving the quality of credit ratings for structured products, strengthening authorities' responsiveness to risk and enhancing robust arrangements for dealing with stress in the financial system.

Concluding remarks

Now, expeditious and effective implementation is of the essence. This should be considerably facilitated by the fact that the recommendations are made, at the global level, by those authorities and entities that have precisely to apply them. I recommend that this implementation exercise, that starts immediately, would respect as much as possible the following principles, which, by the way, are the underlying principles that have inspired the G7 recommendations of the Financial Stability Forum.

Firstly, augment transparency. The present turbulences have, once more, demonstrated that opacity as regards markets, financial instruments and real situations of financial institutions is a recipe for catastrophe. As soon as financial markets are entering an episode of uncertainty and turbulence, absence of transparency triggers contagion and negative herd behaviour. This spread of contagion due to opacity was at the heart of the Asian crisis. It is very much also at the heart of the present episode. This is true both for the financial instruments – sophisticated structured products, asset-backed securities, etc. – and for the financial institutions themselves. The absence of pertinent, credible and reliable information drives market participants to assume the worst possible hypothesis on those financial instruments or institutions at stake and to act accordingly.

More transparency is not only necessary to make the markets more efficient and to optimise the allocation of capital, but *it is also the best insurance policy against irrational herd behaviour and unjustified contagion in times of stress.*

Secondly, reduce pro-cyclicality. In normal times the elements of pro-cyclicality built in global finance are less obvious. But in acute episodes of booms and busts, these factors are particularly visible. Human nature is probably at the heart of the spontaneous pro-cyclical attitude of market participants triggering successive bipolar phases of exuberance and despair. But the paradox is that a number of rules, regulations, procedures and the behaviour of authorities very often contribute to augmenting the amplitude of the fluctuations. We find such elements of pro-cyclicality in the set of prudential rules for banks as well as for insurance companies. We find pro-cyclicality in the accounting rules. We find elements of pro-cyclicality in the attitude of the authorities that can, paradoxically, apply more rigorously their rules and regulations in times of difficulty while they were nonchalant during the previous boom episodes.

This is also linked to two important features of global finance which I trust are particularly adverse from a financial stability stand point: the trend towards short-termism and the profound asymmetry in the response which is given to booms and busts.

Amongst the G7 measures that are recommended by the Financial Stability Forum, many will contribute to diminish the degree of pro-cyclicality which is embedded in the system, I will encourage all those who have a stake in implementing those recommendations to ask themselves whether their own decisions pass the test of contributing effectively to reducing pro-cyclicality.

I thank you for your attention.