Jean-Claude Trichet: Undervalued risk and uncertainty – some thoughts on the market turmoil

Speech by Mr Jean-Claude Trichet, President of the European Central Bank, at the Fifth ECB Central Banking Conference “The Euro at Ten: Lessons and Challenges”, Frankfurt am Main, 13 November 2008.

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I. Introduction

Ladies and gentlemen,

I am very pleased to welcome you to what we consider to be the ECB’s flagship conference and to this dinner in these beautiful surroundings. The focus of this conference is on the lessons and challenges facing the euro, as it reaches its tenth anniversary. In recent months there has been no shortage of challenges, far from it. As for the lessons, I shall come to those towards the end of my address.

This evening, I would like to share with you some thoughts about the main factors bringing about the financial market turmoil that has shaken the global economy for more than a year now, and raise some of the possible long-term solutions.

II. The calm and the storm

Until early 2007 we were living in a period often described as the “Great Moderation”. The world economy was growing vigorously, macroeconomic indicators were significantly less volatile and, most importantly, inflation was low. Financial markets were performing strongly. Many asset prices were rising, while volatilities and risk premia were exceptionally low. Profitability in the financial sector was high, and banks seemed liquid and well capitalised.

However, there were warning signs, even back in 2006, that global markets were “priced for perfection” and that even a small change in conditions could severely disrupt financial markets.[1] Several policy makers had indicated to market participants that they needed to prepare for a significant correction. As chairman of the Global Economy Meetings of central bank governors, I myself reported my colleagues’ sentiments on this matter. At the same time, several financial stability reports – including from the ECB, the Bank for International Settlements (BIS), the Financial Stability Forum (FSF) and other organisations – analysed vulnerabilities and warned of emerging weaknesses.[2]

We knew that a storm was brewing but, admittedly, we did not know exactly where. Neither did we know what would trigger it, or when it would come.

As we all know today, the turmoil erupted in August 2007 when investors around the world suddenly faced a dramatic change in liquidity conditions, and it became increasingly difficult

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1 See, among others, IMF, Global Financial Stability Report (GFSR), 2006 and J. Gieve, “Pricing for perfection,” speech delivered at the Bank of England, December 2006.

2 The ECB noted signs of risks in several subsequent issues of the Financial Stability Review (FSR) in 2006 and 2007; see also the speech by J. C. Trichet, “Some reflections on the development of credit derivatives,” delivered at the International Swaps and Derivatives Association in April 2007. Research by ECB staff also suggested increases in systemic risks among large and complex banking groups (LCBGs), particularly in the US and less so in Europe (see P. Hartmann, S. Straetmans and C. G. de Vries, “Banking system stability: a cross-Atlantic perspective,” ECB WP No. 527 and NBER WP No 11698, 2005).

for banks to refinance themselves in the wholesale money market.[3] For many months, we have been facing a financial turmoil that was triggered by a liquidity shortage, countered by rapid and resolute action from central banks. The storm intensified very significantly in mid-September 2008, when some large failures of financial institutions led to a general loss of confidence and to a very severe reaction in financial markets. This transformed the turmoil into crisis, and the liquidity shortage became a massive threat to solvency for many financial institutions in a large set of countries.

How can we conceptualise the sudden emergence of this turn of events in the terminology of risk assessment? A useful analogy is to think about the series of events during the development of the crisis as so-called "black swan" events. As many of you probably know, the analogy draws from the observation that for centuries people, including scientist, thought all swans to be white. Nobody considered that this assessment could ever change. In the discovery of the Australian continent, however, swans with black feathers were found there. A single observation invalided a general belief based on centuries of observations. Therefore, a "black swan" has been used to characterise an entirely unexpected event – an outlier – that has a major impact, and whose occurrence only becomes predictable with hindsight. It may reflect some of the limitations of human nature that we tend to concentrate on things that we already know and sometimes fail to consider the things that we do not know.[4]

III. Undervalued risks, *a priori* assumptions and opacity

Coming back to the current financial situation, the root cause of the crisis was the overall and massive undervaluation of risk across markets, financial institutions and countries. This derived from two main factors. First, the probability of certain events was misjudged. This means that these events were considered highly improbable, if not "impossible". Second, the impact of an increase in fundamental uncertainty *at the systemic level* on the distribution of returns across asset classes was largely neglected. Such a fundamental increase of uncertainty is what we observed with the massive shock to global confidence in mid-September.

With this in mind, a useful − albeit not the only − way to characterise recent events is to employ the concept of non-measurable risk, or "Knightian" uncertainty.[5,6] The economist Frank Knight originally developed the distinction between risks, to which probabilities can be assigned; and uncertainty, for which even these probabilities are unknown. In the last two decades this distinction has been used again in formalising economic choices under so-called "uncertainty" aversion.[7]

Many episodes of financial instability over the last decades were characterised by a sharp increase in general "uncertainty". The reaction of investors is to suddenly assign very high

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3 For a detailed analysis of the sequence of events which led to the financial turmoil, see N. Cassola, M. Drehmann, P. Hartmann, M. Lo Duca and M. Scheicher, "A research perspective on the propagation of the credit market," ECB Research Bulletin, June 2008 and ECB FSR, December 2008.

4 See N. N. Taleb, *The Black Swan: The Impact of the Highly Improbable*, 2007. See also J. B. Taylor and J. C. Williams, "A black swan in the money market", Federal Reserve Bank of San Francisco, Working Paper series, April 2008.

5 F. H. Knight, *Risk, uncertainty and profit*, 1921.

6 For other characterisations of system risk, see O. De Bandt and P. Hartmann, "Systemic risk: A survey," published in: *Financial Crisis, Contagion and the Lender of Last Resort: A Book of Readings*, ed. by C.A.E. Goodhart and G. Illing, Oxford University Press, January 2002.

7 See I. Gilboa and D. Schmeidler, "Maxmin expected utility theory with non-unique prior," Journal of Mathematical Economics, 18, 1989.

probabilities to events they deemed very unlikely before. They concentrate on "bad" outcomes and worst-case scenarios and show a strong preference for safety and liquidity. This may be an important explanation for the very pronounced "flight to quality", which we often observe during episodes of financial turbulences.[8]

Both the underpricing of the *unit of risk* and the underestimation of the *quantity of risk* contributed to the emergence of the crisis. Inadequate assumptions were made about the distribution of returns to highly complex, new financial securities. This implied that the unit of risk was generally underpriced. Moreover, some large financial institutions showed a massive concentration of risk, suggesting that risk management systems failed to identify the quantity of risk that financial institutions were accumulating. These same systems also failed to assess the systemic consequences arising from a global loss of confidence.

Underpricing of a unit of risk

The structure of global markets is changing fast, and we need to model future default and risk profiles of new products with a short history. Statistical models using the recent past to estimate the parameters of the probability distributions turned out to be little helpful. Market participants used evaluation models that did not account properly for an additional dimension to risk. The distribution of returns depends on which "state of nature" prevails, for example if we are in normal market times or in crisis times. Very small changes in beliefs can translate into large changes in behaviour, which in turns have large effects on markets.[9]

One of the most important elements contributing to the underpricing of risk was the sheer complexity of structured financial products, which even sophisticated investors were not able to assess properly. Hence prices reflected only in part fundamentals, while the credibility of the issuer and the "willingness to purchase" of the buyer played an equally important role in the pricing of these products.

The general compression of spreads and risk premia in global financial markets also suggests that investors' preferences were characterised by comparatively low levels of risk aversion. This, in turn, further inflated flawed valuations based on very favourable expectations of future returns.

There are two additional elements that played a role in the underpricing of risk: first, the large *ex ante* excess of savings over investment, which was one of the consequences of the bursting of the internet bubble and of the Asian crisis. The phenomenon became even more important due to the oil and commodity price shocks, which triggered an additional *ex ante* excess of forced savings in the global economy. A second factor, closely correlated to the innovation in financial markets, has been the very powerful process of leveraging that has characterised global financial institutions in all different constituencies. This has included regulated and listed commercial and investment banks, private equity firms, hedge funds and all types of highly leveraged entities.

Under appreciation of the quantity of risk

In addition to the underpricing of the unit of risk, also the sheer quantitative accumulation of risk was underestimated, at the level of institutions as well as at the level of the system.

It is still debated to which degree the "Great Moderation" that had started in the mid-1980s and was observed until the middle of last year, and that consisted of a remarkable reduction of volatilities in the real economy, has influenced the overall assessment of the quantity of

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8 See in particular R. J. Caballero and A. Krishnamurthy, "Collective risk management in a flight to quality episode", *Journal of Finance*, October 2008.

9 See M. O'Hara, "Liquidity and financial market stability", *National Bank of Belgium WP* No 55, May 2004.

risk in a large array of asset markets during this period. The correlation between the reduction of volatilities and the magnitude of risk taking is there, but the direction and even the existence of a possible causality, remains an open question.[10]

Amongst other factors there was also a considerable lack of transparency about the allocation of risks across financial intermediaries, in particular in new and often highly leveraged, players. The nature of the business of certain financial intermediaries relied almost exclusively on the roll-over of short-term debt to finance longer-term assets. The ability of these players to stand the consequences of a significant market correction turned out to be greatly overstated. To make things worse, these consequences were intensified by the high leverage and the parcelling of risk. When the crisis occurred, the general loss of confidence and the large number of linkages among financial institutions resulted in a quick and powerful transmission of "fears".[11]

IV. Main factors to be addressed

Let me now look ahead to long-term solutions, which in my view need to start by addressing three important factors.

First, there has been considerable **short-termism,** i.e. an excessive focus on near-term returns. Modern financial systems have favoured instruments and intermediaries that promise large returns in the short-term. Such short-termism can naturally lead to a misjudgement of the underlying risk, as investors are less attentive to low probability outcomes. Short-termism can also result in a higher accumulation of risks since high risk-taking typically boosts short-term returns on relatively thin levels of capital. Finally, it can exacerbate the impact of conflicts of interest and perverse incentives that exist both at the top and at lower management levels.[12]

This environment creates the conditions for the widely observed herding behaviour, in which risk controls easily become a secondary issue. Banks that are achieving high returns put considerable pressure on their peers to do the same: "As long as the music is playing, you have got to get up and dance", has become a famous quote in the crisis.[13] But when the music stops, it's impossible for everybody to carry on dancing.

It is interesting to note that some of these problems had already surfaced in the aftermath of the corporate scandals of 2003. In particular, the presence of conflicts of interest and perverse incentives related to flawed compensation practices and to the provision of services with conflicting aims (especially by rating agencies).[14] Thus, the existence of these problems was well-known, and policy responses were put in place to address them. Hence, one question that remains open is: did we underestimate the consequences of not acting more forcefully and more quickly?

The second main factor concerns **transparency.** It is striking that despite all the regulatory advances and progress in information technology, the financial system that has emerged over the last decade has been characterised by a lack of transparency in certain securities

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[10] See J.-C. Trichet, "Risks and the Macro-Economy", Keynote address at the conference *The ECB and Its Watchers*, Frankfurt am Main, 5 September 2008.

[11] See C. Borio, "The financial turmoil of 2007-?: a preliminary assessment and some policy considerations," BIS WP No 251, March 2008.

[12] See A. K. Kashiap, R. G. Rajan and J. C. Stein, "Rethinking capital regulation," September 2008, paper prepared for the Federal Reserve Bank of Kansas City symposium.

[13] Financial Times, 10 July 2007, quote by C. Prince, former CEO of Citigroup.

[14] See A. Maddaloni and D. Pain, "Corporate 'excesses' and financial market dynamics", ECB Occasional Paper No 17, July 2004.

markets and intermediaries. Regulated markets, characterised by standardised products, and a broad base of investors, with access to information and legal protection, generally offer better-quality information. However, the markets for structured products work largely over the counter, and a large part of the financial sector is unregulated. This implies that a fair evaluation of the instruments and of the counterparty risk is extremely difficult, not only for supervisors and institutions concerned with financial stability but also for the market participants themselves.

More standardised securities exchanged on regulated markets would make it easier to price these instruments, as investors could rely on public information and on the observations of traded prices. At the same time, it would help policy makers and regulators to understand where the risks are located and thus monitor the accumulation of imbalances.

Finally, the third factor I want to mention is the **excessive pro-cyclicality** of the financial system. We need to introduce a framework to dampen this phenomenon. There seems to be an inherent tendency for financial systems to cause periods of booms, by building up imbalances, and then to go through busts – the rapid and disorderly unwinding of these same imbalances. The challenge is to preserve an efficient financial system as an engine for economic growth and at the same time to ensure its stability.[15] Despite centuries of experience and observations of financial crises, it seems to be very difficult to strike the right balance and address this pro-cyclicality.

In this context, it seems to me that central banks have a “franchise” in assuming this role. They do not have vested interests and can provide for “stability” in the long term.

V. Conclusion

Let me bring this address to a close with some suggested elements for actions to improve significantly the resilience of financial systems to adverse shocks. Resilience is a key word and concept to guide us in the future.

First, we need to counter mechanisms leading to herding behaviour and establish the right incentives for achieving a balance between short-term and long-term investors and intermediaries. Second, we need to address the lack of transparency. Financial regulators need to tighten up requirements in certain segments of the markets and strengthen reporting requirements for formerly unregulated institutions. Third, in order to address the “excessive” procyclicality of the financial systems, we need to address the mechanisms that intensify fluctuations. For example, capital regulations and provisioning rules as developed by the Basel Committee of Banking Supervision need to restrain excessive risk-taking in upturns and discourage excessive conservatism when credit to firms and households is most needed.

What is the role of various authorities in this context? As we have seen, central banks were the very first among the authorities to react when in August 2007 the threat to liquidity in the financial system emerged. The resolute action of central banks constituted a “first line of defence” against the systemic liquidity threat. Almost the entire set of advanced economies and their financial systems were affected from the very beginning of the turmoil. In this context, there is one message that is particularly important for me in my reflections on the past 15 months. This is my wholehearted appreciation of the very intimate cooperation that we have been able to set up among central banks worldwide. We have been working virtually as a “global system of central banks”, corresponding to the virtually global nature of today’s financial system. Not only have we maintained the continuous flow of information and

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[15] See P. Hartmann, F. Heider, E. Papaioannou and M. Lo Duca, “The role of financial markets and innovation in productivity and growth in Europe”, ECB Occasional Paper No 72, September 2007 and the special feature “Financial development: concepts and measures” in the report *Financial Integration in Europe*, April 2008.

exchange of assessments of developments, but we have also established a set of common actions that would have been unthinkable even one year ago. As one example amongst many, I would like to mention the fact that the ECB has been providing with euro-denominated collateral US dollar liquidity to the European counterparties through swap arrangements with the Federal Reserve that have no precedent. This action reflects, as much as all the other common actions, the intimate level of trust and cooperation within the community of central banks and, in particular with the Federal Reserve, whose value has been priceless.

I have mentioned the exceptional liquidity support by central banks as the "first line of defence". A necessary "second line of defence" against the systemic solvency threat had to be set up by governments on both sides of the Atlantic. It would have been unthinkable a year ago that in a number of advanced countries, governments would earmark double-digit percentages of their annual GDP to guarantee exposures and recapitalise their banking sectors. Here, too, we have seen indispensable and resolute action.

After having set up the previous two lines of defence, a third step is now needed in order to improve very significantly medium and long-term confidence. In this context, the credibility of the reforms to improve resilience of the global financial system as well as the stability of the global economy is of the essence. We will see the benefits of the reforms not only in a long-term perspective, but already today, because confidence today, and therefore the success of the decisions already taken by central banks and governments, depends on the quality and credibility of the ambitious reform exercise that has started a few months ago and that is presently deepening with the recent and future meetings of the G20.

In my remarks I have concentrated on the financial aspects of the turmoil, which are very much in the domain of the Financial Stability Forum. The Financial Stability Forum, whose task is to elaborate international supervisory and regulatory policies and standards, has drawn the first set of lessons from the turmoil along the lines I have described above. Deepening its work and implementing it is now of the essence to establish an appropriate and effective reform of the global financial system. The IMF participates in this work and provides relevant inputs as a member of the FSF.

There is also a very important role for the IMF itself in its assessment of macro-financial risks and systemic vulnerabilities, and in its surveillance of macroeconomic policies. Credible stability in the long run requires macroeconomic policies that have a medium-term orientation and are stability-oriented. Pro-cyclicality can stem not only from unsatisfactory regulatory policies in the financial sphere, but also from macroeconomic policies, where it is equally undesirable. In a global context, there is hence a need to significantly strengthen IMF surveillance over economies that are systemically relevant. The IMF's multilateral consultation with key partners is a process that can be built upon in this context. In a long-term perspective, greater discipline in the global economy is needed to foster stability and help balance short-term and long-term prosperity more appropriately.

Thank you for your attention.