

Jean-Claude Trichet: Risk and monetary policy

Lunch remarks by Mr Jean-Claude Trichet, President of the European Central Bank, at the Stanford Institute for Economic Policy Research (SIEPR) Economic Summit, Stanford University, Stanford, 12 March 2010.

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Ladies and gentlemen,

It is a pleasure to be in California today. I am delighted to have been invited by the Stanford Institute for Economic Policy Research to address the Economic Summit. Stanford University and the area that surrounds this spectacular bay are renowned across the world for a highly productive blend of scientific innovation and entrepreneurial business.

Financial innovation is part of scientific progress. It is an engine of growth and prosperity. Yet, the key question, which I would like to highlight in my remarks today, is to what extent financial innovation serves the real economy and to what extent it only serves itself. At some point in our recent past, finance lost contact with its *raison d'être*. It ceased to be a source of services for the real economy and developed a life of its own. Finance became self-referential. I will briefly review the driving forces that led to this situation and the profound crisis that followed.

Financial crises have been a recurrent feature of human history. Let me take you back over two millennia in Europe to see how the great historian Tacitus described the financial crisis that hit the Roman Empire in the year 33 AD. In the *Annales*, he wrote:

“The destruction of private wealth precipitated the fall of rank and reputation. At last, the emperor interposed his aid by distributing throughout the banks a hundred million sesterces, and allowing freedom to borrow without interest for three years, provided the borrower gave security to the State in land to double the amount. Credit was thus restored, and gradually private lenders were found.”¹

Replace “emperor” with “governments and central banks”, “sesterces” with “dollars” or “euro”, “security” with “collateral”: this two thousand year old quotation could sound surprisingly familiar.

Yet, even though two thousand years have passed, with many financial debacles in between, I think it is fair to say that we entered the current crisis less than ideally prepared.

First, we had to improvise with an economic interpretation of the causes that led to those unprecedented market disruptions. The dramatic fall in confidence revealed a source of risk that macroeconomists had not modelled carefully and that had not even been considered relevant by most theorists of finance. Now, the concept of “systemic risk” is almost common knowledge.

Second, we had thought that the financial system would act as a shock absorber. Portfolio theory had demonstrated that the dispersion of individual risks would attenuate aggregate risk. But the mispricing of risk multiplied exposures, and the assumption of similar risks by market participants increased the potential for contagion. In the event, we learned that dispersion does not necessarily mean effective diversification.

Third, as central bankers we had to design intervention strategies that had not been studied in recent times. The extraordinary liquidity measures that central banks took at the height of the crisis on both sides of the Atlantic had been expelled from the economics textbooks.

¹ The Works of Tacitus translated by Alfred John Church and William Jackson Brodribb (1864–1877). <http://www.sacred-texts.com/cla/tac/a06010.htm>.

Modern monetary economics had suggested that unlimited arbitrage in financial markets would make such measures irrelevant and unnecessary.² In the event, amid conditions of extreme uncertainty, private arbitrage was unavailable. As in ancient Rome, public credit became vital because private finance had – at least temporarily – disappeared.

What are some of the long-term lessons we can draw from the current crisis?

Just as we have had to re-evaluate our understanding of the nature of risk of market disruptions and the potential responses in terms of implementation of monetary policy, so we must re-evaluate our understanding of the role of financial markets in our economies and our societies. The lack of a framework for monitoring and addressing systemic risk in the run-up to the crisis is part of the motivation for financial reform and improved market regulation. But we must also consider fundamental questions about the relative importance and limits of the pure financial “game” in markets, the potential abuse of market power, and, more generally, the role of the financial sector in the economy.

Financial reform needs to go beyond the banking sector on which so much attention has been focused. We also have to look very closely at non-bank financial institutions and at the set-up and functioning of financial markets. Leverage cycles, for example, have been a constant source of instability for centuries. If left to their own devices, their ultimate outcome has regularly been financial disruption, wealth destruction and economic hardship for our people.

Let me start by elaborating first on risk before and after the crisis and then turn to monetary policy. I want to share with you the European Central Bank’s approach to dealing with the balancing act, in which we have sought a combination of bold action as regards non-standard measures, while entirely preserving our clear focus on medium and long term price stability.

Risk before and after the crisis

Risk is inherent in economic activities because economic pay-offs are uncertain. Even the prototype model of finance – the competitive economy studied by Gérard Debreu and Ken Arrow – is subject to stochastic shocks. Therefore, economic returns are risky, because they are not known with precision *ex ante*.

But the type of risk that we faced in the crisis was of a different nature. It was *not* triggered by stochastic variation in the real economy – by shocks to “endowments, technologies and tastes” as theory would predict. At source, it was financial risk. The financial structures that we thought were in place to assess, absorb and neutralise risk were either dysfunctional, or worked – perversely – to magnify volatility. This is how financial risk was created, transmitted to the real economy and eventually became systemic.

Key factors in creating this risk were opaque financial structures, particularly vulnerability to contagion and domino effects, and pro-cyclicalities in financial markets.

The lack of transparency in many financial instruments meant that market participants did not know who was exposed to what kind of risk. In this state of incomplete knowledge, some market players could exploit – for their own, private benefit – information that was not generally available.

² Neil Wallace (1981) has an early theorem on the ineffectiveness of open market operations. Gauti Eggertson and Mike Woodford (2003) prove the irrelevance of liquidity measures at times of zero interest rates. See Wallace (1981), “A Modigliani-Miller Theorem for Open Market Operations”, *The American Economic Review*, Vol. 71 No 3, pp. 267–274, and Eggertson, G. and M. Woodford (2003), “The Zero Bound on Interest Rates and Optimal Monetary Policy”, *Brookings Papers on Economic Activity*, 1, pp. 212–219.

Pro-cyclicality acts as a formidable accelerator of financial trends. Demand for finance increases and declines in tandem with the cycle. But the supply of finance does not simply accommodate demand: it often amplifies the cycle.

Where does pro-cyclicality stem from? To my mind, distorted incentives and herd behaviour are key explanatory factors.

The role of distortions in economic incentives is probably better known as it had traditionally been widely appreciated even within neo-classical modelling.³ By comparison, herd behaviour as a driver of pro-cyclical patterns in financial markets still needs a thorough explanation.

It is difficult to rationalise herd behaviour. There are two possible explanations. One is that a market player's own evaluation, pay or external reputation depends on its performance relative to the rest of the market. This is reminiscent of Keynes' famous beauty contest analogy. To be successful in this contest you don't need to make your own assessment of the candidates; all you need to do is figure out who the other participants think is most beautiful. Applied to financial markets this means that individual participants do not form their own opinion, but follow the general mood prevailing among financial market participants. One could call this a dereliction of responsibility. Everybody seeks to ride on the wave created by generalised sentiment, hoping to step out before the general sentiment turns.

The second explanation is that global markets are in fact less atomistic than we think. Indeed, despite globalisation, increasing market concentration was already a long-term trend before the crisis. Derivatives activity in the U.S. banking system, for example, is dominated by a small group of large financial institutions. Five large commercial banks represent 97% of total notional amounts and 88% of net exposure.⁴ And, of course, the market for credit ratings is famously dominated by three signatures, which act as standard-setters for an enormous volume of financial transactions.

Imitative strategies and market concentration make financial trends overly dependent on idiosyncratic decisions and market sentiment. What is clear is that while the end result – herd behaviour – seems to be individually rational, it is socially wasteful.

Herd behaviour favoured the build-up of leverage. Leverage cycles have been a constant of many of the financial crises of the past. But the financial players that contributed to the boom before the crisis were able to use previously unavailable ammunition. In the run-up to the crisis, we saw the emergence and fast development of a new set of complex financial instruments such as ABSs, RMBSs and CDOs as well as hedging instruments like CDS. These were invented as instruments to repackage, disseminate and hedge risks. As they became available, they were viewed as filling a gap in an incomplete market structure. In fact, credit derivatives turned into potent vehicles for pure financial market participants to leverage their views.

The distinction between arbitrage and directional positioning is critical here. Arbitrage is an essential market force. By eliminating differences in risk-adjusted returns, arbitrage promotes price discovery and fosters market dynamics. Directional positioning or "pure speculation" does not necessarily eliminate existing discrepancies between risk-adjusted financial prices: it might amplify or even create price gaps. It does so by acting on expectations of future price changes.

³ For example, research carried out at Stanford University greatly enhanced our understanding of the interactions between economic motives, incomplete regulation and market outcomes. And Douglass North, of course, had documented how the development and design of institutions – again, good or bad regulation – has shaped the fortune of countries throughout history.

⁴ OCC's Quarterly Report on Bank Derivatives Activities, Third Quarter 2009, US Treasury, Comptroller of the Currency.

Unlike in the case of arbitrage, these price gaps are notional – indeed, speculative – and might be large only because they are not suitably discounted for risk.

The state of “meta-stability” of financial markets is one in which large-scale positioning has become a leading force of market dynamics.

Indeed, system-wide conditions of overexposure and illiquidity placed the markets in a state of meta-stability, i.e. potentially unstable, ultimately triggering systemic risk. An economy in a state of meta-stability is prone to shocks that are seemingly innocuous but can reveal facts that were either unknown or little appreciated before. This new knowledge can trigger the crisis.⁵

Monetary policy in times of crisis

And then the crisis came. Immediate action was needed to fend off systemic risk. Governments and central banks around the world were united in purpose. With their actions, central banks broke new ground which monetary theorists will be studying for years to come.

The modern theory of central banking had a narrow focus on interest rates. Even in a crisis situation – in conditions of collapsing confidence and very low interest rates – monetary theory assumes that a central bank will always be in a position to influence inflation and demand by steering expectations of the future path of its interest-rate instrument in the future. These theoretical prescriptions are based on the assumption of perfect market arbitrage.

Intertemporal arbitrage is indeed what makes monetary policy effective in normal times. It ensures that the return on a long-term security is equalised with the return on a strategy of holding a very short-term security – paying the policy rate – and rolling it over until the end of the policy commitment.

In this crisis, however, market arbitrage was simply unavailable. The disappearance of market arbitrage was a challenge for monetary policy. But by no means did it imply policy ineffectiveness. It called for central banks to engage in non-standard measures and play an intermediation role that the market was unwilling or unable to perform. The ECB fulfilled its role of market-maker in particular by providing liquidity to banks without limit, for “as long as was needed”, to restore normal market functioning.

Note here a difference between the ECB and the Federal Reserve. Even in normal times the ECB conducts monetary policy through loans, rather than via direct purchases and sales of securities. Unlike Fed discount-window lending, however, our loans are untargeted. They are an instrument for the routine provision of monetary policy liquidity, rather than part of selective assistance to distressed banks. It is a system centred on overnight and term credit to banks.

So our system was tailor-made to be used as an instrument to resist a banking crisis. In the event, it was flexible enough to be activated – with only limited adjustments – in emergency conditions. The need to tackle the collapse of private arbitrage motivated two features of our enhanced credit support: first, the full, unlimited accommodation of banks’ demands for central bank credit at our policy interest rate contributed to repair the collapse of interbank lending; second, the extension of central bank credit provision to longer maturities, up to one year, was a substitute for market intertemporal trading.

⁵ For example, in late 2006 a new synthetic index became available for the first time which could be used to price sub-prime related tranches of credit derivatives. This new market price probably aggregated information about the quality of the underlying contracts, which was too dispersed or inaccessible before. This might have brought awareness of the precarious bases of the financial structures that were being traded.

Our actions would not have been effective if they had not been enshrined in our medium-term monetary policy framework. Our definition of price stability steered expectations in a sufficiently firm manner. So the ECB can dispense with making promises about the future path of the monetary policy stance. The ECB's approach to steering market expectations is based on comparing inflation outcomes and projections with our quantitative definition of price stability. This can be done without making statements about the policy instrument in the future. Each month we provide the market with a comprehensive assessment of the risks to price stability over the medium term. This allows market participants to form expectations about the future course of monetary policy, conditional on our real-time assessment of the state of the economy. In this sense, the ECB is predictable, and this minimises the volatility of expectations in normal times.

Our quantitative definition of price stability and our medium-term orientation significantly reduce the likelihood of either deflation scares or inflation scares. The firm anchoring of inflation expectations – throughout a time of crisis – meant that we could maintain the rate on our refinancing operations at positive levels without having any materialisation of a deflationary risk or inflationary expectations.

The phasing-out process

I mentioned that we chose to expand our credit to banks. When executing lending policy, a central bank functions much like a private financial intermediary. Private credit extension is accompanied by restrictions on the borrower to limit its ability to take risks and to protect the value of the loan. If a central bank provides credit support, the analogy suggests that it must follow up with a continuous re-evaluation of the credit conditions to safeguard its funds and make sure its commitment is not abused. It also has to make sure that it does not subsidise certain economic activities nor permanently suppress the private interbank market.

Overall conditions in the markets for capital have improved greatly from the autumn 2008 paralysis. The functioning of money markets is now comparable with the conditions that prevailed in the third quarter of 2007. Money market spreads are close to levels that are reasonable to view as normal after the equilibrium re-pricing of risk that was needed and is likely to have taken place since then. Term lending has resumed on a satisfactory scale. The funding ability of banks is not a restraining factor for lending, as it was the case for some time after October 2008. Since the second half of last year, it appears to support bank profitability. Corporate and bond spreads have also declined steadily across the quality spectrum.

Currently, these considerations are what motivate and guide a gradual phasing-out process.

We started to phase out our enhanced credit-support measures in December 2009, in an environment of improving financial market conditions and emerging signs of recovery. On 4 March we came to the conclusion that the current pace of phasing-out is appropriate.

With the resumption of longer-term loans in the private market, we have started to adapt the conditions of our longer-term credit to banks. The first step was to announce a discontinuation of one-year and six-month longer-term refinancing operations. One-year refinancing now pays an interest rate indexed to the average rate that will be applied in our weekly main refinancing operations over its 12-month life. The pricing will be the same in our upcoming and last 6-month refinancing operation.

This underscores the fact that our long-term refinancing operations are designed to assist banks in their control and management of liquidity risk. They are not an instrument of commitment to a future policy path.

We will return to a competitive tender procedure for three-month operations in the second quarter of 2010. At the same time, we have made it clear that we will continue to conduct our weekly main refinancing operations and one-month operations as fixed-rate tenders with full allotment for as long as needed and, in any case, until 12 October 2010.

While we monitor the conditions for a gradual phasing-out very attentively, we are convinced that a delayed exit from extraordinary liquidity support would distort market behaviour and misallocate credit.

We do not wish to breed dependency. Banks might become dependent on today's very favourable access to central bank refinancing to such an extent that their incentives to repair their balance sheets remain weak. Moreover, permanent extraordinary liquidity measures provide undifferentiated support to all banks, whether in liquidity deficit or in liquidity surplus. This opens the door to opportunistic bidding behaviour and to a sort of arbitrage across assets that is unproductive.

What is our end point? We view the pre-crisis operational framework as a very natural reference point for the phasing-out process. Of course, we are reviewing carefully the potential lessons of the financial crisis for the design of our operational framework. It seems to me, however, that in this respect the ECB has relatively little reason to change fundamentally what has served our monetary policy well, both in normal and crisis times.

The speed and path of the phasing-out of non-standard measures will depend on developments in financial markets and the economy. The current situation of ample liquidity in euro area money markets guarantees a continued positive impact on financing conditions. As regards the monetary policy stance itself, it will be designed as always to deliver price stability, in the medium and long term, in line with our definition.

Crisis prevention

Governments and central banks have been focused on financial reform since October 2008. The new financial architecture will build on the assumption that a re-pricing of risk around its fundamental value is needed. Price discovery within the market in pursuit of a fundamental equilibrium in risk pricing – one that can be sustained by long-term trends – is likely to take time and experience some further oscillations.

A question that remains is: Where will this process end?

As aggregate – undiversifiable – risk diminishes, this will be reflected in lower premia that financial markets pay for risk-taking. We know that the commitment by central banks to keep inflation low and stable, communicate clearly about their price stability objectives, and then act on those objectives, has all contributed to a long-term reduction in macroeconomic risk. The fraction of the reduction in risk compensation related to having a stable macroeconomic framework is a steady acquisition of modern societies.

Instead, the complement to that fraction – that which is due to excessive financial sophistication, abnormal risk tolerance and shortcomings in risk management – should be gone for ever.

That is why my conjecture is that risk premia in a number of markets will continue to be reduced – but they are unlikely to reach the compressed levels that we saw prior to the crisis. Normalcy will probably be reached at a permanently higher level of risk compensation in a number of markets.

In order to build an effective system of crisis prevention, we will all need to take on board this simple fact: compensation for risk will need to be appropriate. We shall prevent “pure” speculative activities from becoming the dominant force on the markets. And we shall build financial infrastructures with sufficient buffers to make them bulwarks against instability and resist shocks.

Let me mention some striking facts about the power of such buffers. There is a widespread perception that banking crises in times when money was convertible into gold had apocalyptic consequences for bank depositors. This is not true. The estimated average loss on assets born by depositors in banks that were closed down as a consequence of financial

crises was minuscule. Taking a yearly average between 1865 and 1920, it was six cents for every one hundred dollars of deposits. This time-frame covers five of the most severe episodes of financial panic in recorded history, most notably the 1907 crisis.⁶

Do you know why the losses were so small? Because banks were well capitalised and bank equity cushioned depositors – and the economy more broadly – against losses in the event of a bank failure. According to a study, the average capital-asset ratio fell from a high of 60% in 1880 to a low of 20% at the turn of the century. Then, after the crash of 1929, it rose to about 30% in the 1930s and 1940s.⁷ It is now much lower, as you know.

Making sure that banks are well-capitalised is the foremost life jacket of our system. Life-support in the form of liquidity assistance cannot act as a surrogate for appropriate management practices inside the banking system.

The European Systemic Risk Board (ESRB), which will be hosted by the ECB, will assume a novel role in crisis prevention at the level of the 27 economies of the European Union as a whole. The ESRB will have the aim of identifying emerging systemic risk, and, if necessary, publishing early warnings as well as making recommendations to the competent authorities.

The ECB is also fully involved in G20 reform efforts. International cooperation is absolutely vital given the interconnectivity between financial markets. A return to pre-crisis business practices would be fatal. Financial market participants need to restore trust. But this alone will not be sufficient. We absolutely require intelligent regulation that will prevent self-destruction.

It seems to me that we are all – industrial countries as well as emerging economies – very much united in purpose: correct distorted incentives, improve very significantly the resilience of the financial system, and counteract pro-cyclical mechanisms and behaviours. We are also convinced on both sides of the Atlantic – and here in Stanford, I would say also on both sides of the Pacific Ocean – that the success of the enlarged governance of global finance and the global economy through the G20, the Financial Stability Board and the cooperative activities of the Central Banks, is key for the stability and the prosperity of the present unified global economy.

Concluding remarks

At the height of the crisis – when irrational exuberance had turned into excessive pessimism – I repeatedly stated that regaining confidence was of the essence. Since then, confidence in the short term has been restored, not least because of bold and courageous policy actions around the globe. Going forward, we need to strengthen longer-term confidence, and this requires policy frameworks that will help to prevent a future crisis.

I started with Tacitus' example of bold policy action. I would like to end with Cicero's *fides*. There was a famous controversy between Julius Caesar and Cicero 80 years before the crisis described by Tacitus. Rome, at that time, was struggling with a debt overhang. Caesar proposed partly to remit the debt. Cicero strongly opposed such action. He argued that debt forgiveness would shake the foundations of the Roman Republic and destroy one of its most important values: *fides*. *Fides* is trust, confidence, good faith.⁸

In modern terms, Cicero was hinting at the moral hazard that can – but need not – be created by intervention in a crisis. The “lender of last resort” responsibility of central banks –

⁶ Data taken from the Annual Report of the Federal Deposit Insurance Corporation (1940).

⁷ See Wesley Lindow, “Bank Capital and Risk Assets”, *The National Banking Review*, Comptroller of the Currency, US Treasury Department, September 1963, pp. 29–46.

⁸ Cicero, *De Officiis* II, 73 ff.

that Walter Bagehot advocated 1800 years after Cicero and Tacitus – should always be a *dual* responsibility. It should be crisis management and future crisis prevention at the same time. When these go hand in hand, the result is confidence in the medium and long term (*fides*) which, ultimately, helps getting out of the short term crisis as well as contributes significantly to long-term growth and prosperity.

Thank you very much for your attention.