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**Financial stability issues arising from current risk  
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# Financial stability issues arising from current risk premia configurations and dynamics

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*One of the major financial stability issues, we currently need to focus upon, relates to risk premia dynamics. Recent market turbulences have indeed, once more, shown that such dynamics can change quickly. True, the well known long term interest rates conundrum, highlighted by M. Greenspan, might appear less crucial an issue in 2006 than in 2004/2005. But several other market configurations appear puzzling.*

***First**, long term interest rates remain relatively low at this stage of the cycle. However, the jury is still out regarding the question, whether low term premia will be permanent. **Second**, credit markets remain buoyant, with very aggressive pricing. Low credit spreads often only match average historical rates of default without providing additional risk premium. A benign scenario can obviously account for such a configuration, but this is only one scenario among many other more risky ones. **Third**, the contrast with high equity risk premia is puzzling. In the past, at the specific time when excesses from previous bubbles had to be wiped out without too much damage to economic growth, the decrease in credit spreads in the face of high equity risk premia might have served financial stability. But, currently and for the longer term, these advantages seem less clear. Higher credit risk premia might indeed bode better for future financial stability. **Fourth**, recent market tensions have highlighted some vulnerabilities. This should lead us i) to remain cautious in our assessment of potential future short term market dynamics and ii) put on top of our agenda an enhancement of the resilience in face of longer term vulnerabilities.*

*Risk premia move constantly because of changes in fundamental factors as well as in risk appetite. This often smoothly contributes to financial stability. However some characteristics of the present environment could make such adjustments challenging in the future.*

***First**, less accommodative global liquidity makes financial market dynamics more complex to predict. **Second**, bank lending standards might be looser than in a steady state. If credit standards are finally tightened more strongly, this would benefit financial stability in the medium term. But the transition includes challenges for borrowers which have relied on cheap credit in recent years. **Third**, cyclical lows on financial market volatility might be behind us. **Fourth**, financial institutions risk management often relies on fragile diversification related assumptions. This makes sense in a stable environment, when correlations do not change quickly. However, diversification might not protect as expected in time of stress. And a quick unwinding of positions is not always possible. **Fifth**, model risk remains a field where improvements are needed in order to strengthen financial stability over a full financial cycle.*

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<sup>NB</sup> All data are as of 17/07/06

*The main market related risks, in a context of less ample global liquidity, include changes in risk aversion and risk premia, with the potential for a breakdown in traditional correlations. If significant portfolio reallocation flows take place, market liquidity issues have the potential to transform vulnerabilities into financial instability. These risks might not be perfectly captured by some risk models currently used by financial institutions (including stress-tests).*

*The main financial system related risks include the scenario in which financial institutions would not decrease sufficiently their search for yield in the future, in an environment where higher expected returns could be subject to increased risks.*

*We can certainly envisage an ideal exit scenario in term of financial stability. However, risk premia are not controlled by any single institution and are subject to complex and uncertain dynamics. In fact, financial market dynamics might be more challenging in the future than in recent years.*

*Financial institutions should therefore continuously enhance their resiliency in face of the variety of potential scenarii. The various conditions which can prevail during a full economic and financial cycle need to be seriously taken into account. This means that financial institutions should continue to ensure to avail of sharp risk management practices, emphasising the cases when risks (unfortunately) materialise over the short term, even for those risks which are often relegated to long term scenarii. They should also increase their sensitivity to the potential difficulty of a quick unwinding of some positions in difficult market conditions.*

*The risks, that we highlighted, certainly warrant i), at the micro level, a monitoring of financial institutions risk management and ii), at the macro level, of the dynamics behind potential crowded trades. It is the role of central banks and all public authorities, individually and in co-operation, to foster a risk cycle management oriented attitude, which allows combining the advantages of real and financial innovation with financial stability and sustainable growth.*

One of the major financial stability issues, we currently need to focus upon, relates to risk premia dynamics. Recent market turbulences have shown that such dynamics can change quickly. In addition, in the future, financial markets and institutions are likely to face the challenges related to less abundant global liquidity.

The investigation of potential future risk premia dynamics is particularly challenging since both liquidity and risk premia have various dimensions. Hence, this issue paper primarily aims at opening paths for further investigation as well as at fostering a dialogue with those interested in such financial stability issues.

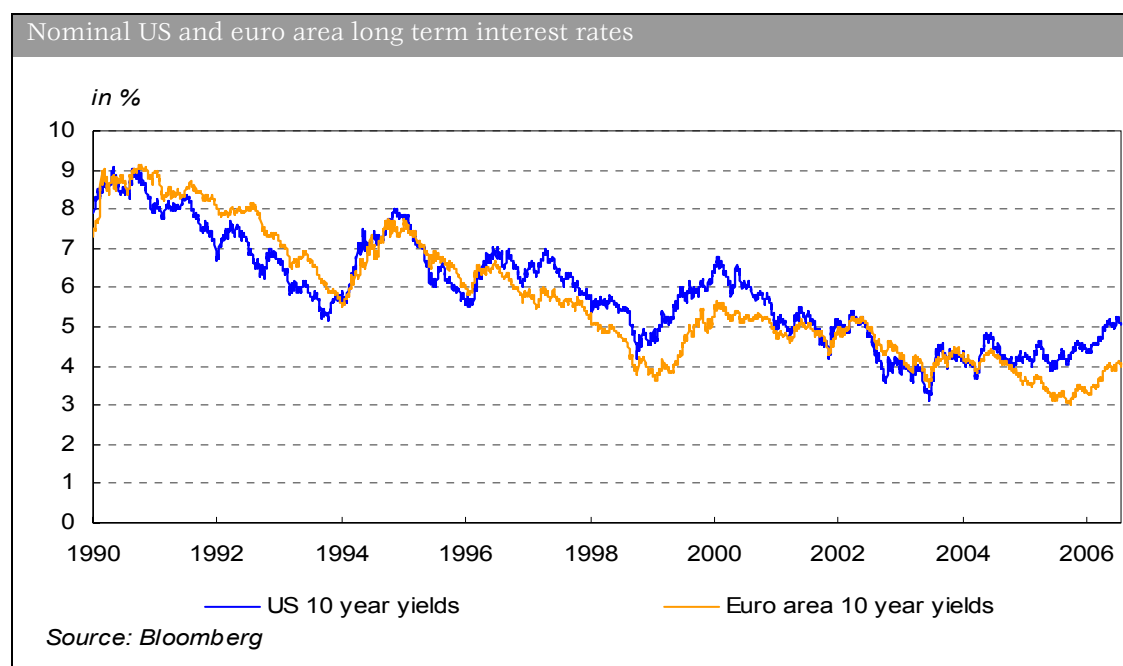
## 1| The current financial risk premia configuration in a context of intense financial activity

After the upward trend in long term yields in recent months, the well known long term interest rates conundrum, highlighted by M. Greenspan<sup>1</sup> might appear less crucial an issue in 2006 than in 2004/2005. But several other market configurations appear puzzling.

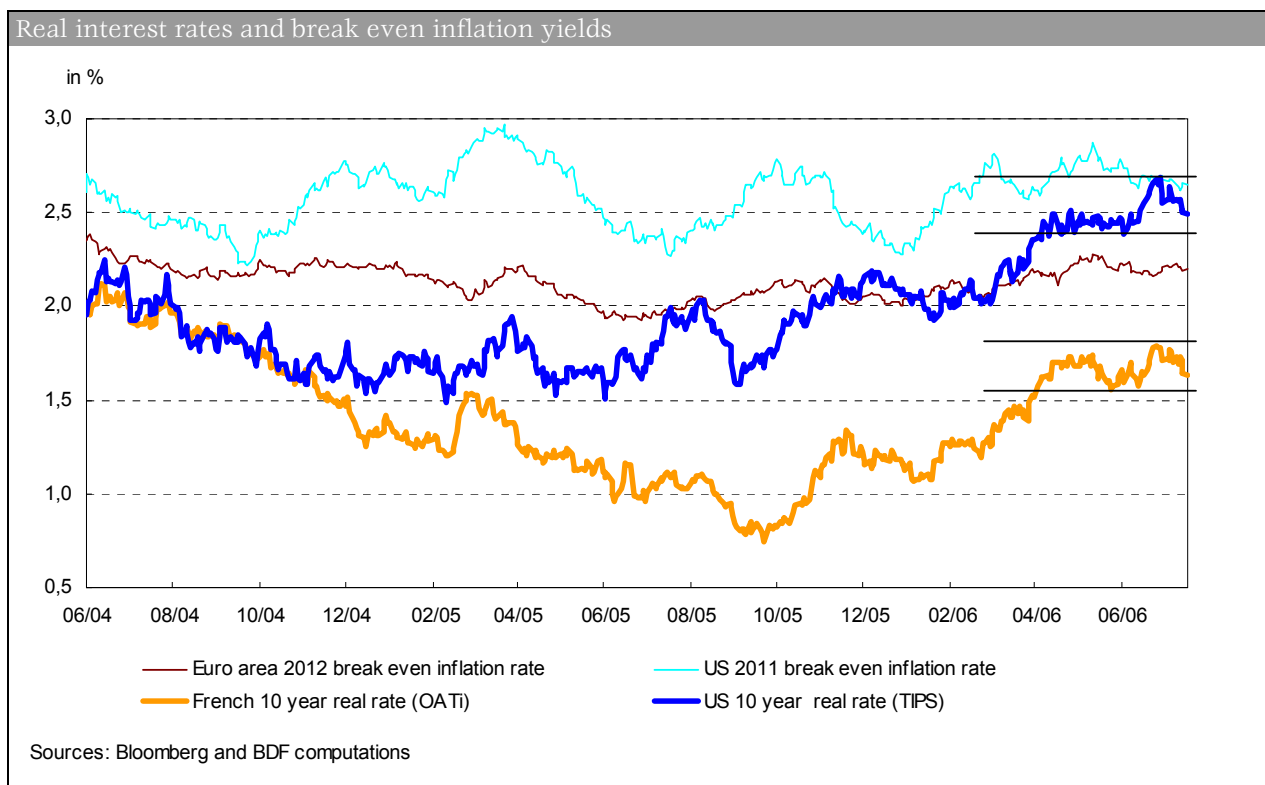
### 1|1 Long term interest rates appear still relatively low at this stage of the cycle

Bond yields, whether in nominal or real terms, have increased since mid 2005. But they remain low compared to what we have seen in the past. In addition, in most recent times, they have been moving within tight ranges. Several explanations can be brought forward to explain such a situation, ranging from central bank anti-inflation credibility to ALM driven duration demand. But it is not clear whether these explanations allow understanding the full picture.

Striking is also that expectations regarding future interest rates remain particularly well contained. According to the Consensus Economics Inc survey of April 2006, market economists expect government 10 year yields to hover in the long run, i.e. the period between 2012 and 2015, around 5.5% in the US and 4,2% in the euro area. This is not far from today levels, i.e. current bond dynamics are hardly expected to vary, even over an extended period of time.



<sup>1</sup> I.e. the low level of US bond yields at a time of monetary tightening and robust economic growth.



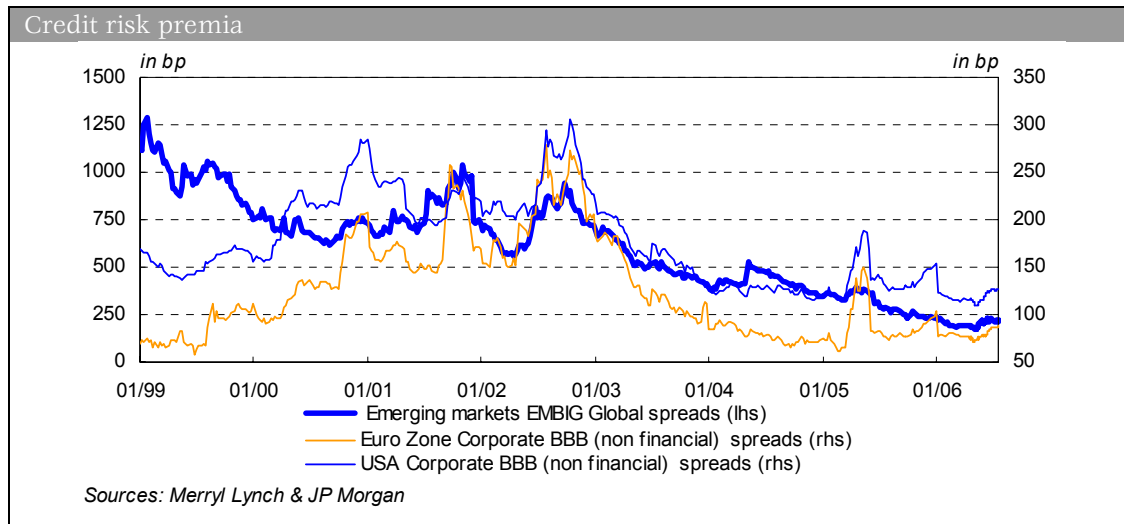
In some recent Fed research and speeches<sup>2</sup>, the decrease in term premia has been highlighted as one of the major global driver of the decline in expected real rates so far. It seems also that markets, implicitly, have moved to expect such low term premia to become a permanent feature of bond markets. However, whether this will be sustainable, remains an open question, which cannot, at this stage, have a clear-cut answer. The intrinsic uncertainty attached to risk premia dynamics, given their numerous determinants, is in fact likely to be higher than often perceived.

## 1|2 Credit markets remain even more upbeat

Among the many financial markets which remain surprisingly buoyant, credit markets remain one of the hot spots, with very aggressive pricing.

In recent weeks, the broad stability of most credit spreads (which remain close to historical lows in many markets) has certainly contributed to instantaneous financial stability at a time when other markets (e.g. many equity markets and some currencies, in particular in emerging countries) had been subject to tense conditions. However, part of this resilience remains puzzling.

<sup>2</sup> Drawing on Don H. Kim and Jonathan H. Wright, "An arbitrage-free three-factor term structure model and the recent behavior of long term yields and distant-horizon forward rates", *Finance and economy discussion series of the Board of Governors of the Federal Reserve System*, 2005-33.



Looking specifically at the decrease of emerging market spreads, a significant number of studies<sup>3</sup> have convincingly shown that i) a large part can be linked to a genuine improvement in many emerging countries economic and financial fundamentals but also that ii) another significant part can be linked to ample and cheap global liquidity and the ensuing worldwide search for yield, which has been prevailing up to now.

In addition, looking at current tight corporate credit spreads, they might i) be in line with the current benign default rates, but ii), for some ratings, are low relative to long term historical rates of default<sup>4</sup>. They are therefore vulnerable to the future macroeconomic conditions and/or risk appetite related uncertainty. This is striking for those credit spreads which do not incorporate any significant risk premium compared to past rates of default, in particular compared to long term historical averages.

History has indeed taught us to take into account fluctuations in investors' credit risk appetite. In addition current default rates are not a good predictor of future default rates over a cycle. Therefore, risk premia are usually required to provide some protection against a rebound in credit market volatility. But this is barely the case in current markets.

Furthermore, it seems important to keep in mind the lessons of the work done by Robert Barro<sup>5</sup> : it basically highlights the importance of low probability but large impact events in asset pricing. The magnitude of some tail events, outside the normal probability distribution, might indeed be large enough to significantly impact asset prices.

We can apply this line of reasoning to interest rates and credit spreads. This helps understanding how, for example, a fear of a low probability but large impact geopolitical event (with the risk of an ensuing economic recession) might have contributed to lower bond yields. However, the related risk of a surge in default rates should have contributed to increase credit spreads. Hence, the difficulty to always account for both low long term interest and tight credit spreads at this stage of the macroeconomic cycle. Obviously, a benign scenario could in the future validate the current market configuration. But this is only one scenario among many other more risky ones. It is not prudent to rely too much on its permanence.

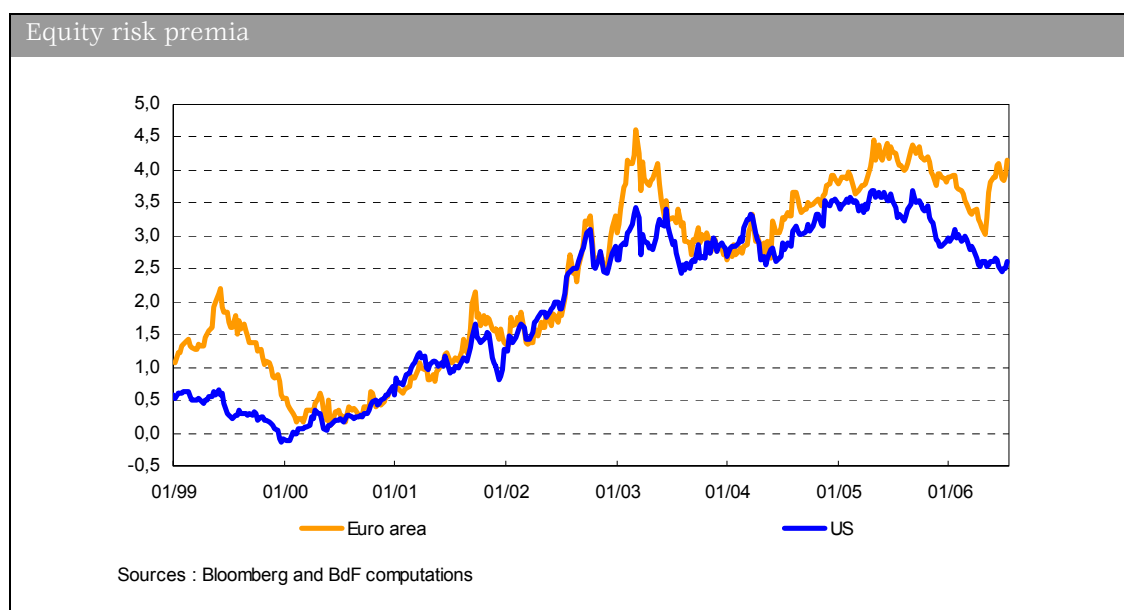
<sup>3</sup> Among many others, both from public but also private sector market economists: Goldman Sachs Global Markets Viewpoint, Issues No. 2005/09 and 2005/40, "Unpleasant EDM Arithmetic" and "Emerging Markets and the Global Economy: Hysteresis not Hysteria", or Kenichiro Kashiwase and Laure E. Kodres, "Emerging market spread compression: is it real or is it liquidity?", IMF Research Working Paper, October 2005.

<sup>4</sup> The situation varies depending on ratings and historical reference periods but, generally, it is the case for speculative grades. See for example: Deutsche Bank, Fundamental credit strategy, 13 March 2006, "What credit spread is required to compensate for historic default probabilities?"

<sup>5</sup> "Rare events and the equity premium", NBER working paper 11310, May 2005 and "Rare disasters and asset markets in the twentieth century", The quarterly journal of economics, August 2006, as well as the related research carried out by Morgan Stanley, "What should equities and bonds be worth in a risky world", Global economics, 12 September 2005.

### 1|3 The configuration of equity and credit risk premia is still puzzling

In current market conditions, the contrast between very low credit risk premia and high equity risk premia is striking. Equity risk premia have indeed been at historically high levels since the burst of the Dotcom bubble, even if they have declined from their peak<sup>6</sup>.



In the past, for example when the excesses of the internet bubble had to be wiped out (i.e. equity risk premia had to go up and stay there) without too much damage to economic growth (i.e. low term premia and a return to tight credit risk premia was useful), the decrease in credit spreads in the face of high equity risk premia might have served financial stability.

But, currently and for the longer term, these advantages seem less clear. Higher term and credit risk premia (with stable or slightly declining equity risk premia) might indeed bode better for future financial stability. Since modern financial markets are characterized by strong linkages between interest rate, credit and equity markets, a historically abnormal configuration of the various risk premia could build the roots for future financial instability. More risk discrimination in credit markets, following such trend in the equity markets, could be desirable.

A renewed continuum in bond and equity risk pricing could also have the specific advantage to contribute to a slowdown in the issuance of hybrid financing products, such as subordinated and/or perpetual debts, which has grown sharply in recent times. These instruments aim at profiting from the various classifications of hybrid products - sometimes as bond, sometimes as equity- by market analysts, rating agencies and the various regulators, in a context of divergence between credit and equity costs. In practice, investment banks aim at structuring these products such as to have them look like bonds for the investor regulator / tax authority and as equity for the issuer regulator / rating agency. Specific to the current juncture is a context where hybrid financing products, depending on how their bond and equity components are analysed, face a particularly wide pricing band in-between bonds and equities, benefiting from the large differences of risk premia.

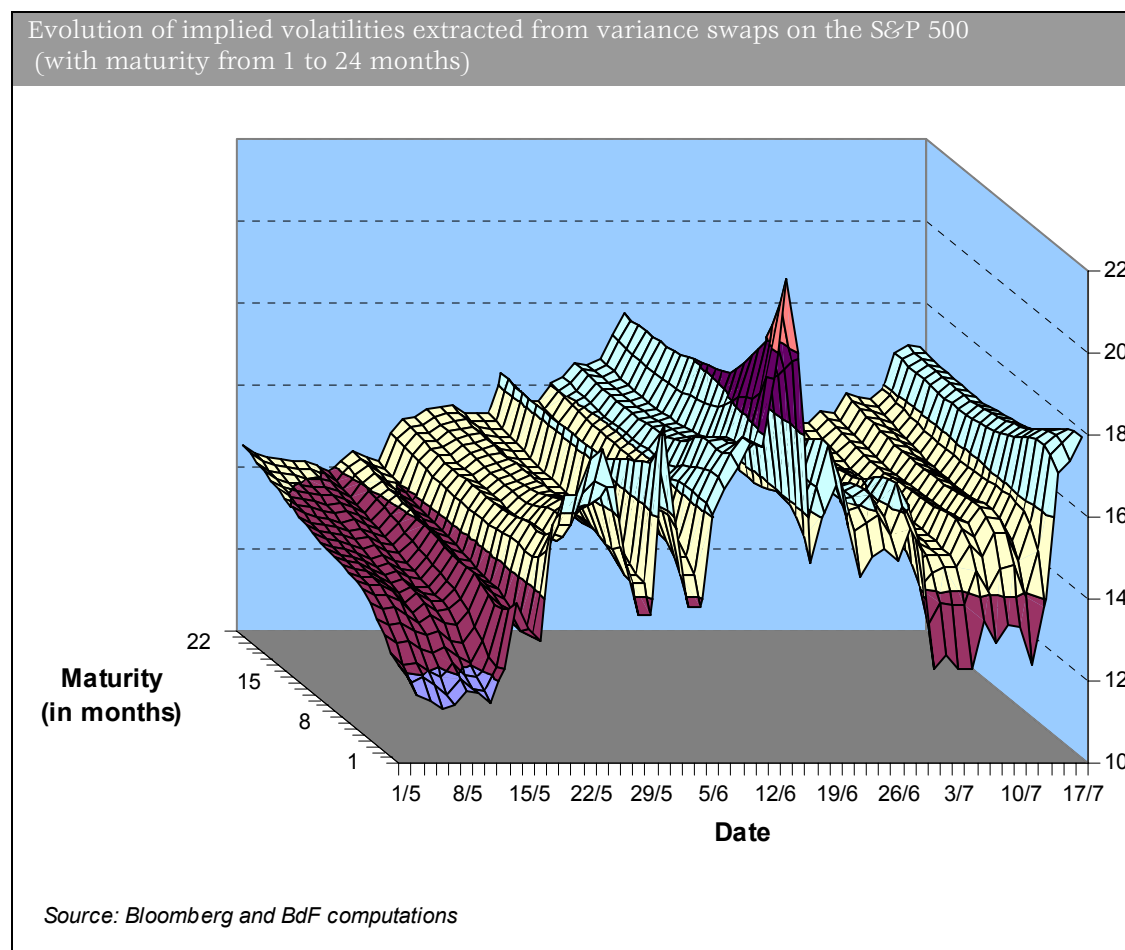
In the short run and to a certain extent, this is normal financial market arbitrage activity (taking also into account that equities, hybrid products and bonds are characterised by different social rights). However changes in relative equity and credit risk premia could have the benefit to contribute to avoid overstretching such trend to levels which could increase the vulnerabilities affecting financial stability over the long run (when it increases risks without providing enough protection to investors).

<sup>6</sup> It comes from generally rising profits (which led to stable Earning per Share) combined with low long term interest rates; the equity risk premium being here defined as  $\text{Dividend yield} + \text{Expected earning growth rate proxied by the expected GDP growth rate} - \text{Real long term interest rate}$ . It remains also high in historical terms, although sometime less strikingly, with alternative computations made with other data available for longer periods.



## 1|4 Recent market tensions have highlighted several vulnerabilities

Contrasting moves have taken place in financial markets since May, with the unwinding of positions which had been appealing to many earlier on. In addition to the fall in some asset prices, market volatility has, in general, increased significantly<sup>7</sup>.

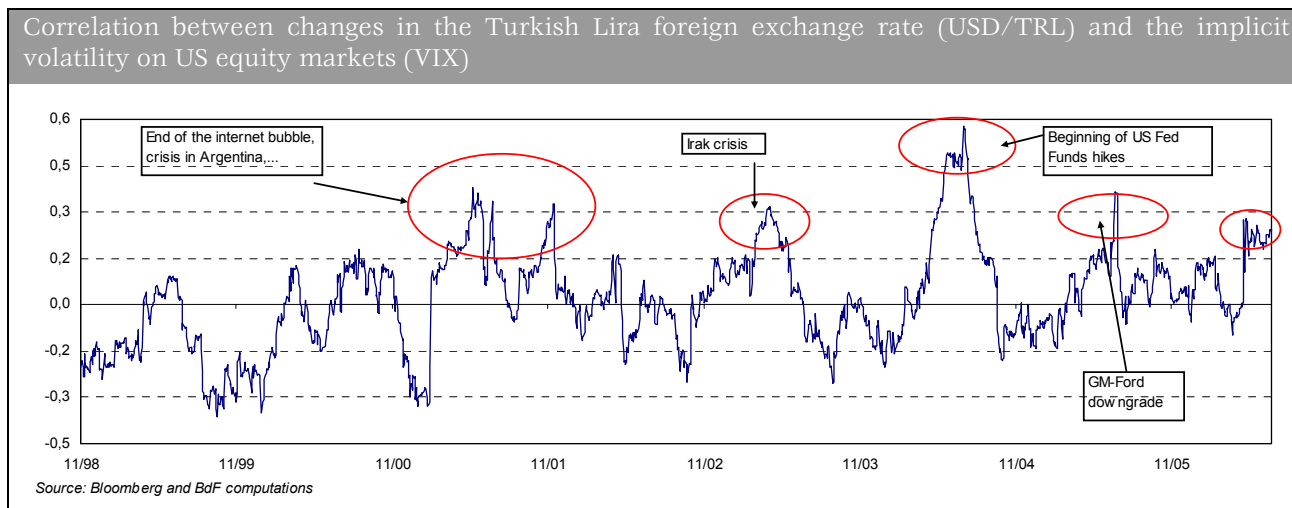


At this stage, these recent market moves had many characteristics of a classic correction. Acute market tensions (with the related increases in volatility) were short lived and most (although not all) strong changes in asset prices took place on assets which had often been considered overvalued. This has led to differentiated increases in risk premia. At this stage, we did not see any indiscriminate safe-haven search. In addition, no clear market dislocation occurred.

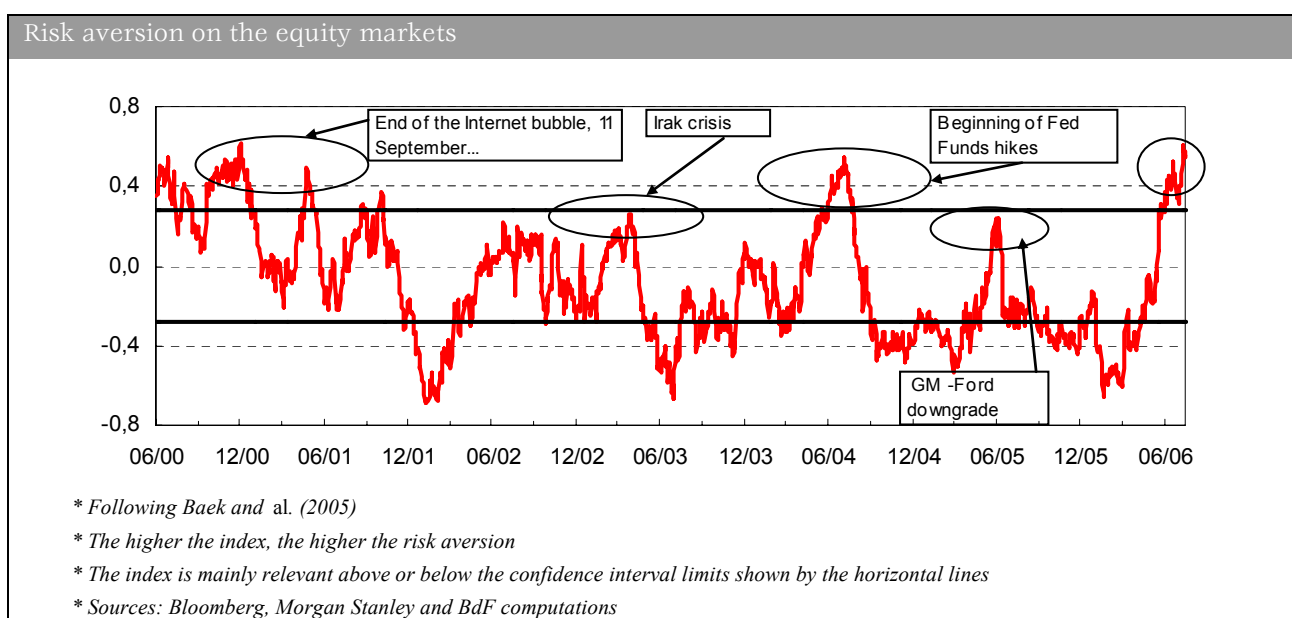
However, in a macro economic environment which was changing only gradually, many portfolio reallocations seem to have been linked to a much more abrupt re-assessment of the vulnerabilities attached to various financial assets. True, volatilities have increased more for short term than for longer term maturities but, even after the return to less tense market conditions, volatilities have remained more prone to sudden spikes than earlier on.

In addition, significant co-movements between asset prices took place, posing challenges for risk management. Such co-movements are also always hard to distinguish from financial contagion. Changes in correlation, e.g. between US equity option markets and Turkish lira foreign exchange rates, can simply characterize transition times but they might also characterize unstable market conditions, in particular if they do not end quickly.

<sup>7</sup> The volatilities shown in the graph are drawn from equity variance swaps with various maturities. A variance swap is a contract to exchange, at maturity, the realised volatility over the contract length against the variance strike, i.e. the implied volatility agreed upon at the start of the swap.



At a macro level, risk aversion changes have probably been key in driving recent market dynamics. Some of our risk aversion indices have indeed surged markedly, in particular in equity markets<sup>8</sup>.



We have however not been confronted with a long-lasting surge of risk aversion across the board so far: for example, no persistent and general risk aversion took place in credit markets. Recent weeks look mainly like a period of changes in relative asset prices. By itself, this is not a challenge for financial stability, in particular when financial institutions balance sheet and profitability is in good shape.

But, in the past, changes in risk aversion have often constituted the trigger which transformed vulnerabilities into financial instability. And, in the present juncture, it is worth noting that the changes in relative asset prices, which have taken place so far, did not change significantly the picture in credit markets: as discussed earlier on, this entails short term advantages but also longer term risks; in particular, protection against a potential future increase in credit risk remains low. In addition, while price dynamics on equity and emerging foreign exchange markets have returned to more stability, the underlying risk aversion on worldwide equity markets remains relatively high (as shown by the graph above). This could be a threat for markets stability and pose challenges to risk management in the future.

<sup>8</sup> Risk aversion indices can be computed according to several methodologies and can cover different types of markets, taken in isolation or combined. A forthcoming article in our Financial Stability Review will expand on the properties of these indicators.

This should lead us i) to remain cautious in our assessment of potential future short term market dynamics and ii) put on top of our agenda the enhancement of the resilience against longer term vulnerabilities.

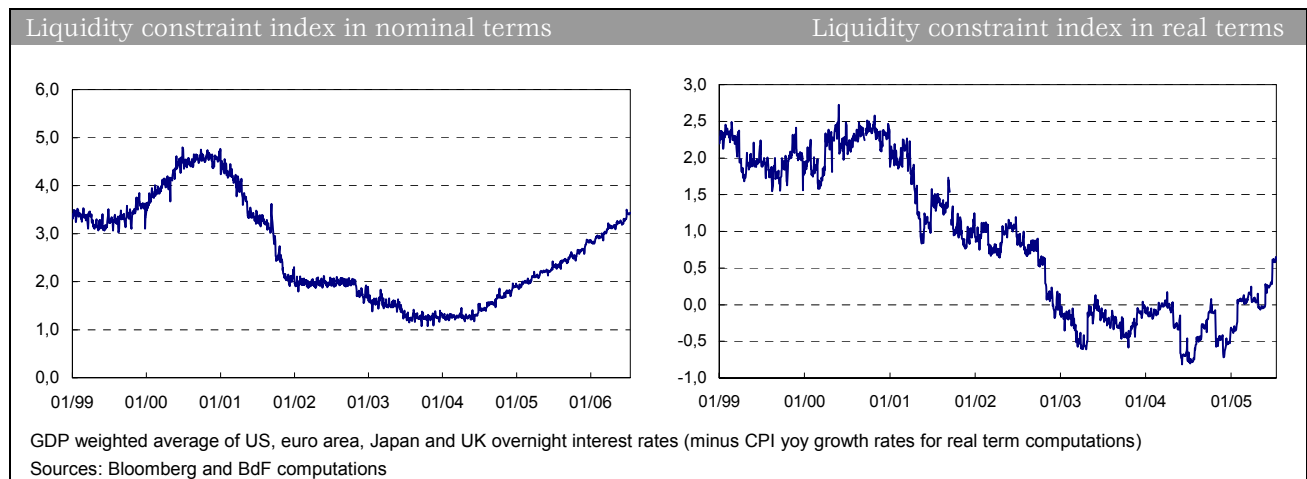
## 2| THE CHALLENGES FACED BY THE MACRO FINANCIAL ADJUSTMENT PROCESS:

Risk premia move constantly because of changes in fundamental factors as well as in risk appetite. Some changes to the present configuration might even be desirable. However some characteristics of the present environment could make such adjustments challenging.

### 2|1 Less accommodative global liquidity conditions make financial market dynamics more complex to predict

Global liquidity is beginning to fade with the tightening of monetary policies which started mid 2004 in the US, end 2005 in the euro area and recently in Japan. It certainly adds a source of pressure for financial markets and financial institutions, not the least because the impact of the global liquidity changes on market dynamics is difficult to predict.

Global liquidity has various dimensions as shown by the graphs below. It can be proxied by quantitative measures like monetary or credit aggregates, either in absolute terms or compared to several benchmarks, e.g. a GDP growth rate. It can however also be proxied by price measures like short term interest rates and, in that case, several choices can be made, in particular nominal or real interest rates. These different measures illustrate different dimensions of the concept of global liquidity, i.e. either the ease to get ample funding or the price of this funding (and this, either in absolute terms or in comparison with other factors). Theoretically, these various dimensions are interrelated but not identical. In practice, they can show diverging signs. Pricing measures might be particularly relevant in terms of financial markets impact (since they directly affect the riskless reference point of any risk/return computations): currently, liquidity appears to have been already restrained in nominal price terms while real price measures have shown a more mixed picture.



The links between global liquidity and asset prices are numerous and the strength as well as the time lag of any impact are not clear. Therefore, an unequivocal analysis regarding the impact of global liquidity changes on risk premia dynamics is hard to make. However, it does not seem farfetched to say that we cannot exclude to be at a turning point, in particular in terms of higher uncertainty.

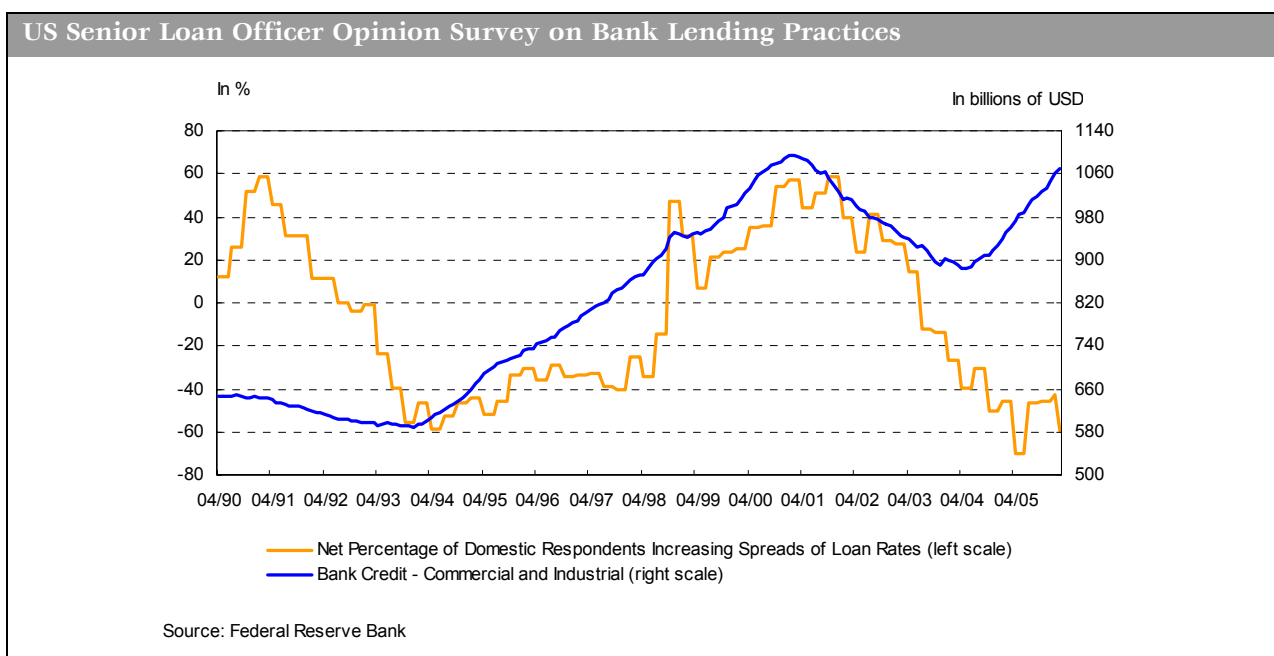
### 2|2 Bank lending standards might be looser than in a steady state

We would expect that, as the credit cycle evolves, credit standards are tightened. This has not yet been the case to any significant extent, as shown by the graph below drawn from the "senior officer loan opinion survey on bank lending practices" carried out by the Fed. The US has been taken as an example since this survey has a much longer history than in the euro area. We can see that, although bank credit has been surging for more than a year, banks credit standards have not yet adjusted. While this might

have been normal at the very beginning of a credit cycle, this does not seem anymore to be in line with this stage of the cycle. In addition, a recent Fitch Ratings report<sup>9</sup> shows that, in the US syndicated loan market, request for covenants decreased in 2005 at the expense of banks protection.

Another case in point is to be found in the surge of LBOs, which amounted for exemple to more than EUR 70 billions in the first half of 2006, growing at the yearly rate of nearly 30%. While LBOs often contribute to useful corporate restructuring, they obviously also increase financial risks associated with higher leverage. These risks need to be managed closely by lenders. The current trend might also affect market dynamics since it contributes to an increase of the proportion of less well rated issuers, for example in speculative rated issuance.

Corporate M&A activity is a related issue. Corporate M&A has been sharply rising over the last two years, both in Europe and in the United States. The buoyancy of such financial operations contrasts with the tepid recovery in physical investment. In addition, it is important to note that when M&A are paid in cash, it leads, in aggregate, to returning cash to shareholders instead of investing or deleveraging. And, indeed corporate have been engaged in large share buy-backs programs. Specifically, the combination of share buy-backs and dividend increases in the US in recent years has been more or less in line with profit growth but much larger than fixed investment growth. As a result of these shareholder friendly policies, the corporate balance sheets deleveraging trend, which had helped financial stability over the past years, seems to be coming to an end<sup>10</sup>.



The transition to a situation of tighter credit standards, more in line with the conditions likely to be seen over a full economic and financial cycle, with its benign but also its rough times, might create new vulnerabilities, with financial stability implications. Indeed, if credit standards are finally tightened more strongly, this would benefit financial stability in the medium term. But the transition includes challenges for borrowers which have in recent years relied on cheap credit.

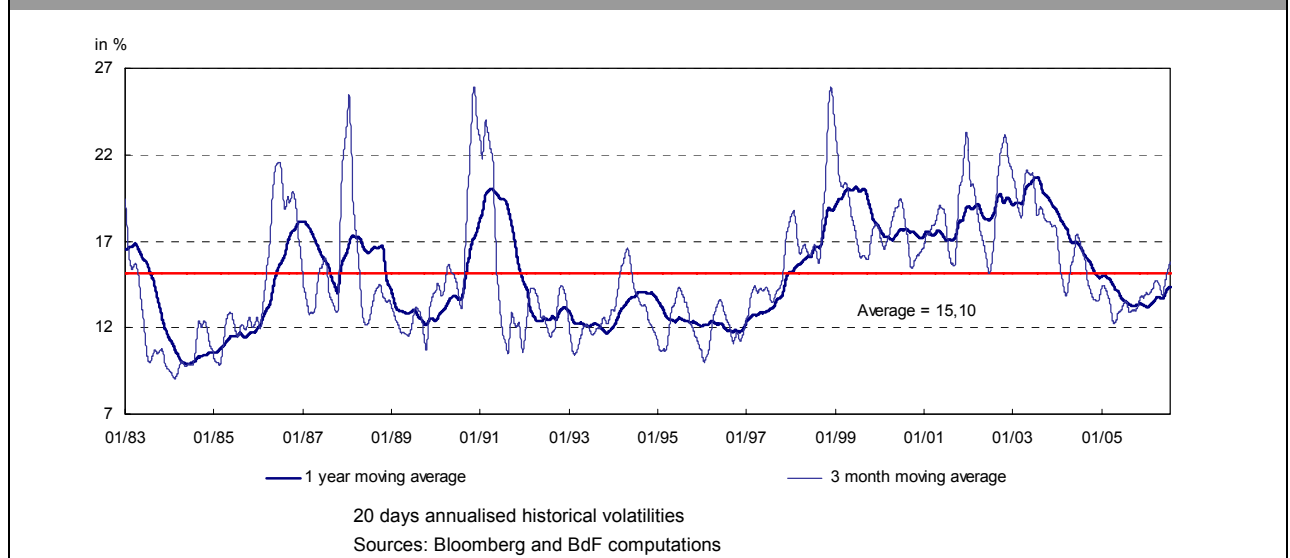
## 2|3 Cyclical lows on financial market volatility might be behind us

Even after the recent spikes, financial volatility in developed countries is in general still low compared to its historical average. But there are reasons supporting the idea of potential changes in the future.

<sup>9</sup> "Loan volume surge, covenants shrink in 2005", April 2006.

<sup>10</sup> Even if no clear statistical evidence is yet available, when looking at the balance sheets of the big corporate, which show mainly a volatile stabilization.

**Average of volatilities on : DAX, S&P 500, Nikkei, EUR/USD, USD/JPY  
10 year rates in the US, Euro area, Japan, Oil and Gold**



Volatility tends indeed to be mean-reverting and this period of low volatility has already been there for a significant time, with the specificity of little short term spikes (until recently). A slow upward trend might be emerging and spikes around this trend might be more common in the future. The macroeconomic cycle and the related progressively tighter monetary policies simultaneously in the US, euro area and Japan could, over time, contribute to such a mean reverting move, as this has often been the case in the past. This could also be self-fed by financial institutions asset allocation changes, which could be related either, directly, to the macro economic changes behind a volatility rebound and/or, indirectly, to the need to unwind some positions if risk limits (such as VaR) are hit after a volatility rebound.

## 2|4 Portfolio diversification might not protect enough financial institutions in time of market stress

Risks taken by financial institutions have in general increased in recent years. However, this increase has been limited by the diversification effect, as shown by the VaR figures<sup>11</sup> in the graph below.

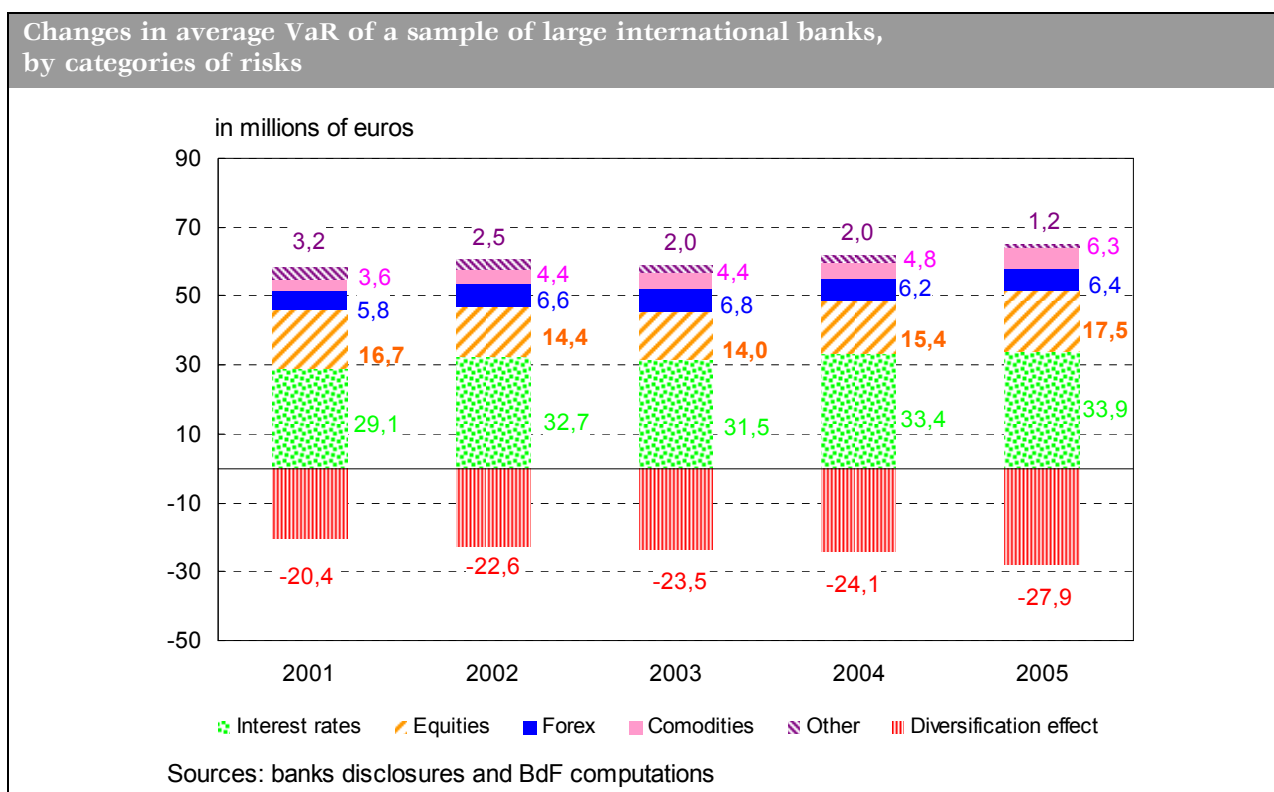
Financial institutions make increasingly use, in their risk management, of the expected diversification between their various risky positions. VaR figures, for example, take into account, through the variance/covariance matrix, the decrease in the global risk of a portfolio due to the diversification between assets whose risks are not completely correlated or, even better, which are negatively correlated. And indeed diversification works well in a stable environment, when correlations do not change quickly. VaR figures, therefore, are likely to reflect reasonably adequately potential market losses in such a context.

However, it is well-known that VaR underestimates potential risks in time of difficult market conditions, when risk aversion increases and various asset classes move in tandem (and downwards): in such market conditions, portfolios, which were thought diversified, often appear sensitive to the same risk factors. Losses might then be significantly higher than forecasted, even by the stress tests used to complement VaR.

To the extent that the diversification effect might be overestimated in some market conditions, risk might be underestimated. VaR might not give the right picture of the vulnerabilities affecting financial stability. More generally, the risk mitigating effect of portfolio diversification, which is relied upon in order to increase the gross size of positions without having too much an increase in risk measures, might sometime be over-relied upon.

<sup>11</sup> VaR is obviously not a perfect risk measure and this has been highlighted in several recent articles of our Financial Stability Review (e.g. in "Significance and limitations of the VaR figures publicly disclosed by large financial institutions" by G. Levy-Rueff, Banque de France Financial Stability Review, November 2005). But it is one of the rare publicly disclosed figures which gives a idea of trends in market risks taken by financial institutions.

In addition, in particular in time of stresses and in relatively narrow markets which might sometimes be characterized by an abundance of crowded trades, it might not be as easy to unwind positions as quickly as wished by risk management and assumed by VaR measures (i.e. in general over a 10 days period)<sup>12</sup>.



## 2|5 Improvements in model risk management are still needed

Model risk adds a new layer of complexity to risk management<sup>13</sup>. It is also clear that the risk premium components of any asset price, which are always difficult to model, increase model risk.

For the most complex instruments, there is a trade-off between market and model risks. Portfolios with equivalent market risks (whether modelled by a VaR or by stress-tests) can have very different model risks. Hedges can also usefully decrease market risk while, unfortunately, increasing model risk. This is for example the case when a large position taken with a risky, but plain vanilla, instrument is hedged with a combination of less costly but more complex and less liquid derivative instruments.

A case in point is the credit derivatives market where traded volumes have continued to surge while some of the hedges put in place do not always seem resilient to stress situations. Credit derivative market volumes are indeed climbing much more than "simple" corporate bonds and loans. The sophistication in the range of products is also growing, illustrated, for example, by the move from "CDOs" to "CDOs of CDOs" or "CDOs squared", with, obviously, higher nominal yield but at the expense of higher risk leverage and of lower liquidity. In addition, the increase of lower rated issuers at low spread levels reflects the benign attitude towards risk which has been dominant in recent past. This might have created pockets of vulnerabilities for the future<sup>14</sup>. Specifically, the turmoil, which followed the GM/Ford downgrade to the speculative category in 2005, because of the crowded «long equity - short mezzanine tranches» strategies, has highlighted the consequences of model risk in such fast developing

<sup>12</sup> See also on this subject: "Market liquidity and its incorporation into risk management" by A. Bervas in our May 2006 Financial Stability Review.

<sup>13</sup> Pricing of "CDOs squared", for example, can differ in a proportion of 1 to 2.5 depending on the models which are used. See also R. Cont, "Model uncertainty and its impact on the pricing of derivative instruments", forthcoming.

<sup>14</sup> See also, on this issue: "The CDO market: functioning and implications in terms of financial stability" by O. Cousseran and I. Rahmouni in our June 2005 Financial Stability Review.

but still, to a large extent, untested markets. The turmoil was finally relatively short-lived and limited. But the unwinding of crowded trades led to market dislocations in term of correlation pricing, in particular because of the poor liquidity at the time of the rush for exit of some painful positions. This is all the more noticeable that the GM/Ford downgrade had been widely expected: it was not a low probability event. It highlighted some of the vulnerabilities affecting financial stability through the impact of model risk on market dynamics.

## 3| CONCLUSION AND OPEN ISSUES FOR FINANCIAL STABILITY

### 3|1 How can we account for the current configuration of risk premia?

Various hypotheses could be brought forward. To mention only two of them, in the realm of those connected with central bank or public regulator responsibilities:

- A combination of abundant and cheap liquidity as well as low volatility could have contributed to a distortion in risk assessment and investment preferences. When a benign liquidity and volatility configuration contributes to reassuring loose financial conditions, the risk of default on predefined cash-flows (as well as the risk not to be able to quickly unwind market positions) could be underestimated. At the same time, the real uncertainty related to longer term unknown cash-flows (i.e. equity or real investment return) could continue to be subject to normal risk aversion.
- New regulations have various purposes and differ i) within the financial sector, e.g. between banks and insurance companies, and ii) between the corporate sector and the financial area. This segmentation could have some side effects. It can impact in different ways various agents' incentives, hence their risk appetite. This could contribute to divergent trends for risk premia of various asset classes, depending, for each market, on which type of agent is most involved and has the strongest impact on pricing dynamics.

Since these two mechanisms can show varying intensity over time, the current risk premia configuration could change in the future.

### 3|2 What are the main risks and implications?

The issue is significant for central banks, both when analysing monetary policy transmission channels and financial stability related vulnerabilities. It is also complex, in particular when one attempts to assess how the speed and magnitude of potential risk premia changes might affect future financial stability in the transition when interest rates go up and liquidity begins to moderate. This holds particularly true when one takes into account that such markets dynamics tend not to be linear.

The main market related risks, in a context of less ample global liquidity, include changes in risk aversion and risk premia, with the potential for a breakdown in traditional correlations. If significant reallocation flows take place, market liquidity issues have also the potential to transform vulnerabilities into financial instability. The magnitude of these risks might not be perfectly captured by a lot of risk models currently used by financial institutions (including stress-tests).

The main financial system related risks include the scenario in which financial institutions would not decrease sufficiently their search for yield in the future, in an environment where positions aiming at higher returns could be subject to increased risks.

We can certainly envisage an ideal exit scenario in term of financial stability. Various risk premia might move: we might see an increase in term and credit spreads, a moderate decline in equity risk premia and lower real risk premia (i.e. stronger real investment). In case of financial tensions, this might help avoiding contagion, for example between foreign exchange and interest rate/credit markets or equity markets. In addition, if credit spreads move gradually higher, it might allow investors to discriminate more easily between different credit risks and it will increase investors' protection through the credit cycle. Financial institutions might also accept to decrease their short term return targets in order to increase their longer term buffers (for example through higher provisioning).

However, risk premia are not controlled by any single institution and are subject to complex and uncertain dynamics. Financial market dynamics might be more challenging in the future than in recent years. Financial institutions should therefore continuously enhance their resiliency in face of the variety of potential scenarii. The various conditions which tend to prevail during a full economic and financial

cycle need to be seriously taken into account. This means that financial institutions should continue to ensure to avail of sharp risk management practices, emphasising the case when risks (unfortunately) materialise over the short term, even for those risks which are often relegated to long term scenarii. They should also increase their sensitivity to the potential difficulty of a quick unwinding of some positions in difficult market conditions.

The risks, which we highlighted, certainly warrant a specific monitoring i), at the micro level, of financial institutions risk management and ii), at the macro level, of the dynamics behind potential crowded trades. It is the role of central banks and all public authorities, individually and in co-operation, to foster a risk cycle management oriented attitude which allows combining the advantages of real and financial innovation with financial stability and sustainable growth.