Lucas Papademos: Price stability, financial stability and efficiency, and monetary policy

Speech by Mr Lucas Papademos, Vice President of the European Central Bank, at the third conference of the Monetary Stability Foundation on "Challenges to the financial system – ageing and low growth", Frankfurt am Main, 7 July 2006.

The references for this speech can be found on the European Central Bank's website.

* * *

Ladies and gentlemen,

I. Introduction

Joseph Schumpeter, the Austrian economist, once made a justifiably famous statement:

"Im Geldwesen eines Volkes spiegelt sich alles, was dieses Volk will, tut, erleidet, ist; und zugleich geht vom Geldwesen eines Volkes ein wesentlicher Einfluß auf sein Wirken und auf sein Schicksal überhaupt aus."

["A nation's monetary order is a reflection of everything that a nation wants, does, suffers and is; and at the same time a nation's monetary order has a considerable influence on the way it acts and on its very fate."]

It is therefore highly appropriate that the foundation *"Geld und Währung"* devotes its 3rd conference to the challenges which ageing and low growth pose to financial systems – since these challenges will have a significant impact on the destiny of our peoples in the years and decades to come. Over the past few weeks, however, I had the impression that everything that a *"nation wants, does, suffers and is"* was a reflection of the performance of the national football team.

It is a great pleasure to be here and address such a distinguished audience. I should like to thank the Foundation and the Deutsche Bundesbank for inviting me to this conference. The contributions presented here over the past two days have shown that an efficient and stable financial system is an important precondition for strong economic performance, particularly in ageing societies like ours. Promoting financial efficiency and stability is therefore an eminently important task for public policy. As you know, the mandate of the European Central Bank (ECB) is to maintain price stability in the euro area. We do not have a similar direct responsibility for ensuring financial stability and efficiency. However, we do have a very strong interest in these issues, for two reasons: first, because the Treaty establishing the European Community assigns to the Eurosystem tasks related to the smooth functioning of the euro area financial system, and second, because monetary policy and financial efficiency and stability are closely linked. This is reflected in the Eurosystem Mission Statement which states that we *"aim to safeguard financial stability and promote European financial integration."*

Let me define the three key concepts and policy objectives of price stability, financial stability and financial efficiency. Price stability is defined as a state in which the general price level is literally stable or the inflation rate is sufficiently low and stable, so that considerations concerning the nominal dimension of transactions cease to be a pertinent factor for economic decisions. This general definition is widely accepted, although there is some debate regarding the appropriate choice and composition of the price index, the precise quantitative definition or operational target for price stability, and the appropriate time horizon over which monetary policy should aim at preserving price stability. As you are all aware, the ECB aims at a year-on-year increase in the HICP of below, but close to 2% over the medium term.

Concerning the definitions of *financial stability* and *financial efficiency*, there is less clarity and agreement. One useful way of describing financial stability is as a condition in which the financial system – comprising of financial intermediaries, markets and market infrastructures – is capable to withstand shocks and the unravelling of financial imbalances, and it is expected to do so for the foreseeable future. Safeguarding financial stability, that is the resilience of a financial system to risks and vulnerabilities, is important as it mitigates the likelihood that shocks to the financial system, or the unravelling of financial imbalances, can lead to disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment

opportunities. Understood this way, the safeguarding of financial stability requires identifying the main sources of risk and vulnerability; assessing whether the financial system is facilitating a smooth and efficient reallocation of financial resources from savers to investors; and evaluating whether financial risks are being appropriately priced and efficiently managed. This is because financial stability has a forward looking dimension: inefficiencies in the allocation of capital or shortcomings in the pricing and management of risk can, if they lay the foundations for vulnerabilities, compromise future financial system stability and therefore economic stability. Consequently, monitoring financial stability with a systemic perspective and in a comprehensive manner is of major importance. For this reason many central banks around the world, including the ECB, are addressing their financial stability mandates in part through the periodic issuing of a public report.

Financial efficiency can be defined as a condition in which the resources available in a financial system are allocated to the most valuable investment opportunities, at the lowest possible cost. In an efficient financial system, markets are competitive, information is accessible and widely disseminated, and the conflicts between borrowers and lenders that arise from agency problems are effectively dealt with through market contracts.[1] In this way, financial efficiency contributes to minimising the wedge between borrowing and lending rates, as well as the dispersion of risk-adjusted borrowing costs across individuals.[2] From this definition, it is obvious that reducing regulatory entry costs in financial markets and, more generally, enhancing competition, transparency, innovation and financial market integration will enhance financial efficiency.

While *financial stability* and *financial efficiency* are different concepts, they are interrelated. Obviously, a high degree of financial efficiency, in which resources are allocated efficiently from savers to investors and where risks are appropriately priced and distributed, normally contributes to financial stability. At the same time, stability is a precondition for a smooth and efficient functioning of the financial system. However, while financial stability and financial efficiency are in principle complementary, history has shown that there are also circumstances in which attempts to enhance the efficiency of the financial system may undermine financial stability at least in the short term. The converse may also be true, but I will address these issues in more detail later on.

The ECB has a special interest in a stable and efficient financial system: first, because the Treaty explicitly requires the ECB, without prejudice to the overriding goal of price stability, to contribute to financial stability and efficiency. The ECB is required to do this by *(i)* promoting the smooth operation of payment systems (Art. 105.2); *(ii)* by contributing to the smooth conduct of policies pursued by the competent authorities relating to prudential supervision of credit institutions and the stability of the financial system (Art. 105.5); and *(iii)* by acting in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources (Art. 105.1); and second, because there are close complementarities between price stability on the one hand, and financial efficiency and financial stability on the other.

For these reasons, the ECB devotes significant resources to studying financial market developments and the conditions for financial stability and efficiency. This occurs in the context of the monetary and economic analyses underlying monetary policy decisions and in the context of the Financial Stability Review, in which the outlook for financial stability is regularly assessed. Moreover, the ECB's initiatives to promote financial integration contribute, inter alia, to enhanced financial efficiency within the euro area and the European Union.[3]

There is, however, a fundamental difference between the roles played by the ECB in the attainment of these objectives: while the ECB has at its disposal the key instruments and powers needed to maintain price stability over the medium term and therefore to fulfil this mandate, it does not have the instruments and powers necessary to ensure financial stability and financial efficiency. The Treaty did not assign the ECB any direct responsibility for the achievement of these two objectives. But, as I will argue, we can contribute to their attainment in various ways, including through the maintenance of price stability, which is an important pre-condition for financial stability and efficiency. I will now go on to address the following three issues:

---

1 See ECB (2005c) and Hartmann et al. (2005) as well as the survey by Levine (2005).

2 Similarly, Woodford (2002) characterises financial efficiency as a situation where "the dispersion of valuations of claims to future payments across different individuals and institutions is minimised."

3 See our recent release of a regular report on "Indicators of financial integration in the euro area" (ECB 2005b).

- the contribution of monetary policy to financial stability and efficiency;
- the implications of financial stability and efficiency for the effective conduct of monetary policy; and
- the role of regulatory and supervisory policies in safeguarding financial stability and promoting financial efficiency.

II. The role of monetary policy

II.1 The contribution of price stability to financial stability and financial efficiency

Monetary policy, by delivering price stability, contributes to the efficient functioning of the real economy and to economic growth and welfare through various means. First, it protects the real purchasing power of money and households' real disposable income. Second, it enhances the proper functioning of markets and eliminates uncertainty created by high and volatile inflation rates. Stable prices make it easier for people to recognise changes in relative prices as these are not blurred by the general upward drift of all prices. As a result, markets are better able to allocate resources to their most efficient use. Third, price stability also facilitates long-term planning and contracting as people can safely rely on money as a measure of value. This allows people to concentrate on productive activities rather than on strategies to protect their wealth and income against inflation or deflation.

Another beneficial effect of the *credible* achievement of price stability, which has become more evident and better understood in recent years, is the anchoring of inflation expectations to price stability, which implies that temporary deviations of inflation from levels consistent with price stability are not expected to be long-lasting. As a result, adverse supply shocks, such as an increase in oil prices, have a reduced impact on inflation and economic activity and, at the same time, monetary policy has more leeway to respond to such shocks. In fact, the reduction in the volatility of inflation and economic activity observed since the mid-1990s can at least in part be attributed to the success in anchoring inflation expectations.

By eliminating market distortions and uncertainties arising from inflation and anchoring inflation expectations, price stability also contributes to financial stability and financial efficiency in various ways. First, a direct efficiency-enhancing effect of price stability is the reduction of risk premia in interest rates as a result of diminished uncertainty about future inflation and future policy rates. Second, by improving the transparency of price movements in financial markets and anchoring inflation expectations, price stability reduces the likelihood of misperceptions about possible future asset returns.[4] In turn, this lowers the risk of misalignments between asset prices and economic fundamentals, which fosters both the stability and efficiency of financial markets. Third, by maintaining price stability, monetary policy also allows banks and borrowers to avoid potential balance sheet problems related to unexpected but persisting deflation.[5] Such problems may arise because unexpected deflation increases the real cost of debt-servicing, as well as the real value of the debt burden, which may lead to an increased number of borrowers becoming unable to repay their debt, ultimately resulting in financial instability. Finally, a monetary policy that is credibly geared to achieving price stability also avoids creating moral hazard problems and, as a result, excessive risk taking, which might arise if financial market participants expect that monetary policy will help cushion a potential fall in asset prices or will "inflate the economy" in response to a financial crisis.

Transparency in the conduct of monetary policy is of particular importance in this respect. It not only helps to avoid monetary policy surprises which might trigger inefficient and destabilising asset price fluctuations, but also clarifies the *conditionality* of monetary policy to developments and shocks in the context of its systematic behaviour aimed at preserving price stability. This is important for private sector risk management and thus financial efficiency and stability. If the financial sector has a good understanding of the strategy, analysis and "reaction function" of the central bank, it better understands the conditional co-variances of short-term interest rates and major macroeconomic

---

[4] See Schwartz (1995) and Bordo, Dueker and Wheelock (2000).

[5] Irving Fisher (1932, 1933) first suggested this mechanism, calling it debt-deflation, as an explanation for the Great Depression.

variables. This, in turn, helps to improve the management of risk by economic agents, for example, through the choice of the maturity of financing or the frequency of adjustment of lending rates. Thus, the more predictable the monetary policy response is, the greater its contribution to financial efficiency and financial stability.

However, it is important to stress that, while a credible monetary policy aimed at price stability is a necessary condition for financial stability and financial efficiency, it is of course not a sufficient condition for achieving these objectives. As I will discuss in more detail later on, it is the responsibility and the objective of regulatory and supervisory authorities to safeguard financial stability and the responsibility of finance ministries and competition authorities to foster financial efficiency. Financial regulatory and supervisory powers could, in principle, also be assigned to the central bank. There is an ongoing debate as to whether or not this should be the case. The main advantage of such an approach would be the possible economies of scope arising from having monetary and supervisory policies under the same roof. For example, the ready availability of supervisory information may help to improve the conduct of monetary policy.[6] On the other hand, the main disadvantages lie in potential conflicts of interest arising from the conduct of monetary and supervisory policies at the same time.[7] In any case, the involvement of the central bank in banking supervision should under no circumstances compromise its independence and the unambiguous focus of monetary policy on the pursuit of price stability.

II. 2. The role of financial stability and efficiency for the conduct of monetary policy

So far, I have argued and explained that monetary policy, by preserving price stability, contributes to financial stability and efficiency as a welcome side-effect. At the same time, the stability and efficiency of a financial system have important implications for the conduct of monetary policy. Improvements in the efficiency of the financial system increase the effectiveness of the transmission of the impact of the policy rates on the broad range of interest rates and asset prices which are relevant for financing, saving and investment decisions. There is some empirical evidence to suggest that, as a result of increased deregulation, integration and innovation and therefore improved efficiency of the euro area financial sectors, the pass-through of policy rates to bank lending rates in the euro area countries has accelerated in recent years.[8]

Instability in the financial system may reduce the effectiveness of monetary policy. For example, in case of severe financial instability, a reduction in policy rates may have weaker effects than under normal conditions, because increasing risk premia prevent lending rates from falling, or because of credit rationing arising from a general unwillingness on the part of banks to lend. In the worst case, such a situation may ultimately lead to policy rates hitting the zero lower bound, if the monetary authority's successive attempts to reduce the cost of credit do not succeed in improving credit market conditions.

Some recent developments in the euro area financial systems should also mitigate potential funding constraints in credit markets and thereby reduce their role in the transmission and amplification of shocks. The rapid growth of the corporate bond market and securitisation issuances in the euro area in recent years has helped enterprises and financial institutions to tap additional funding sources. As a result, the importance of the so-called credit channel of monetary policy has been mitigated and changes in the monetary policy stance are transmitted to the economy in a smoother and more balanced way, thus reducing the role of inefficient allocative distortions in the transmission process that may arise via the credit channel. More generally, improved funding possibilities strengthen the resilience of the economy to shocks.

A higher degree of financial efficiency, resulting from the further development of capital markets, can also contribute to the conduct of monetary policy by improving the availability and quality of information that can be extracted from financial markets.[9] For monetary policy, this means an increased *availability of financial indicators* which leads to better estimates of private sector

---

6 See, for example, Peek, Rosengren and Tootell (1999).

7 See Blinder (2006) and Goodhart (2000) for a more detailed discussion of these issues.

8 See Angeloni and Ehrmann (2003), De Bondt (2005) and Hofmann (2006).

9 For a more detailed and thorough discussion of this issue see ECB (2004).

expectations and the improved assessment of uncertainties about future developments in real growth, profits, inflation and interest rates. This additional information can enhance the formulation and conduct of monetary policy. However, in order to properly extract financial market information, it is necessary to have a good understanding of the determinants of the level and evolution of risk premia in asset yields. For example, the difference between nominal bond yields and real yields of inflation-linked bonds, known as the "break-even inflation rate", comprises the average rate of inflation expected by the market over the maturity of the bonds and the premium investors demand for incurring the inflation risk. Thus, in order to be able to extract investors' inflation expectations, we have to estimate the inflation risk premium. For this reason, the empirical modelling of risk premia in financial markets is an important and active area of research at the ECB and other central banks.

In sum, financial stability and efficiency matter for the conduct of monetary policy because the above-mentioned effects and signals have to be taken into account in the assessment of the monetary policy stance. If this is the case, should financial stability and efficiency also have a bearing on the monetary policy strategy, i.e. the general framework and guiding principles for the conduct of monetary policy? This is an interesting and pertinent question. While I have argued that, in the long-run, there is no trade-off between price stability and financial stability, there can be situations in which such a trade-off arises over the short to medium term. In particular, a question that is often debated is how monetary policy should react to perceived asset price misalignments or bubbles. Some of these misalignments may imply risks to financial stability. A recently expressed view, supported in particular by analysis presented by the Bank for International Settlements (BIS)[10], is that a too narrow focus of monetary policy on price stability in the short term might pose risks to price stability in the longer term, as the potential consequences of financial instability for long-term price stability might be overlooked.

The ECB's monetary policy strategy is able to take such considerations into account. It is unambiguously oriented towards maintaining price stability. The ECB does not therefore target asset prices or some indicator of financial stability. At the same time, the ECB's monetary policy strategy, with its medium-term orientation and important role for monetary analysis, allows monetary policy to respond to the challenges that may arise from financial imbalances and instabilities within the existing policy framework. The medium-term orientation of the ECB's monetary policy means that we do not aim to keep inflation below, but close to 2% at every *point in time*, but rather over a medium-term horizon. This allows us to take into account the longer-term implications of asset price bubbles and financial imbalances for price stability. It also gives us the flexibility to accept, if necessary, short-term deviations of inflation from the price stability objective in order to better ensure conditions for medium-term price stability in the event that growing financial imbalances – or bubbles – are expected to jeopardise the macroeconomic outlook in the future. It is important to stress that such an approach should be characterised by symmetry in the policy response in order to avoid creating moral hazard problems. If market participants expected the central bank to respond only to the adverse effects of unwinding financial imbalances and asset price crashes, the central bank would essentially hedge investors' risk on the downside. The result would be a systematic under-pricing of risk, leading to an increased likelihood of growing financial imbalances.

Another important feature of the ECB's monetary policy strategy which helps to address and mitigate financial imbalances is the prominent role we assign to monetary analysis. Within the two-pillar framework, monetary analysis serves to cross-check from a medium to long-term perspective the assessment of price developments and inflation risks derived from economic analysis over a more short to medium-term horizon. Historical experience has shown that costly asset price crashes have often been preceded by asset price booms accompanied by brisk growth of credit and money.[11] Recent research at the ECB also shows that broad money growth is a particularly useful indicator of asset price booms which turned out to be particularly costly in their unwinding.[12] Monetary analysis thus helps to identify distortions and imbalances in the financial system and the implied potential risks to long-term price stability in a timely manner. Furthermore, market expectations of the monetary policy response to these long-term risks to price stability would most likely help to contain, and even diminish, the evolving financial imbalances and thereby mitigate the vulnerability of the financial system.

---

[10] See Borio and Lowe (2002, 2004) and Borio, English and Filardo (2003), Borio (2005) and White (2006).

[11] See Borio and Lowe (2004) and Detken and Smets (2004).

[12] See Adalid and Detken (2006).

The above notwithstanding, it should be obvious from what has been said that monetary policy cannot, and should not, attempt to target asset prices or respond to financial instabilities by "inflating the economy". This would undermine the credibility of monetary policy and the predictability of a systematic policy response in order to preserve price stability. Such a policy would ultimately undermine financial stability and financial efficiency. There is, therefore, no conflict between the conduct of a sound monetary policy focused on the preservation of price stability over the medium and longer-term on the one hand and the safeguarding of financial stability and efficiency on the other hand.

III. The role of regulatory and supervisory policies

The above conclusions on what monetary policy can and cannot do for financial stability emphasise the important role of financial regulation and supervision. The financial sector is subject to more regulation and supervision than other sectors of the economy, for a number of reasons.[13] First, the financial sector is special, because it is potentially more fragile than other sectors. The inter-temporal nature of financial contracts relies strongly on credibility and trust; there can be mismatches between the maturity of assets and liabilities of banks; the high degree of interlinkages between banks and other financial institutions through asset markets and payment and settlement systems may all make financial systems more prone to instability. This can have significant effects on real activity. Second, there can be considerable asymmetry in the information available to the buyers and sellers of financial services and the potential for losses of wealth can be such that individuals and firms may not be able to absorb them. This can justify a higher level of regulation and consumer protection than is the case in other sectors. Third, the essential role that finance plays in market economies has also led governments in the past to intervene in the financial sector to pursue broader social objectives, for instance to fight criminal activities through rules against money laundering.

For the purposes of my presentation, the potential of financial sector fragility is of primary interest. As I noted earlier, *financial stability i*s fostered through sound and appropriate *regulatory* and *supervisory policies*. Regulatory policies – including requirements for capital adequacy and disclosure provisions for financial institutions and effective risk management systems – can provide the basis for banks to act in a manner which is conducive to fostering a stable financial system. These policies are – so to speak – the "first line of defence" for stability. Through on- and off-side supervision, compliance with regulations and the identification of emerging risks are checked further. The existence of deposit insurance funds reduces the risk of bank depositor runs. In all of this, there is a micro-prudential focus on the supervision of individual financial institutions.

The ECB does not have a direct role in regulation or micro-prudential supervision. Rather, our activities in this area concentrate on providing advice and technical expertise to the competent authorities at national and EU levels and on sharing our macro-prudential analysis and our assessment regarding identifiable risks to financial stability and potential vulnerabilities within the financial system.

As regards the efficiency of the financial system, the responsibility primarily lies with the main actors in the financial system. Finance ministries and the competent national or European competition authorities can provide incentives and adopt regulations to create an environment conducive to financial efficiency, for example, by safeguarding a level playing field for effective competition and a functioning single market in the financial sector across the EU.

I mentioned earlier, that *financial stability* and *financial efficiency* are inter-related, but in what manner precisely? Intuitively, we would expect the two concepts, which reflect different aspects of the performance of a financial system, to be positively related in the long run. For example, greater efficiency in the banking system may underpin a better pricing of credit risk. This should, in turn, reduce the probability that vulnerabilities might be building up over time, thus mitigating sources of potential future instability. On the other hand, an unstable financial system is clearly detrimental to the overall efficiency of the financial system in allocating savings to the most valuable investment opportunities. That said, stability does not, of course, mean immutability or complete absence of change and development, and, specifically, it should not be understood as implying zero tolerance

[13] See e.g. Herring and Litan (1995, chapter 3) and Goodhart et al. (1998, chapter 1) for extensive discussions of the economic, historical and political reasons for as well as the objectives of financial sector regulations and supervision.

towards individual bank failures. Such a policy would create moral hazard problems and ultimately undermine the efficiency of the financial system.

However, there may also be situations in which a trade-off could emerge between financial stability and financial efficiency, at least in the short run. A pertinent example is provided by the banking sectors of certain countries that were under tight public control in the past, at least partly for prudential reasons, which were stable, but probably not very efficient in terms of cost control or funding of real investment.[14] To mention an extreme case, the Soviet banking system was certainly stable, but it was not efficient. When excessive forms of regulation and control are abolished, the productive efficiency of banks is likely to be enhanced. In the short run, however, such deregulation may undermine the profitability of less competitive banks and therefore their resilience to shocks. The market process can thus lead to the removal of inefficient banks to the benefit of the more efficient ones.

At the same time, abrupt and inadequately prepared or sequenced deregulation can lead to instability, as financial institutions and markets may not be sufficiently prepared for the new environment. For example, the phasing out of Regulation Q in the United States in the early 1980s increased the cost of thrift institutions floating-rate liabilities relative to their fixed-rate assets and adversely affected profitability and capitalisation in the industry. This development – combined with high and volatile interest rates of the late 1970s and early 1980s – together with various other factors, played a very important role in the savings and loan crisis of the late 1980s.[15]

The specific examples I mentioned are circumstances in which public policy can be confronted with a trade-off, at least in the short term, between financial stability and financial efficiency. In the long run, however, I would regard this trade-off as being a fallacy. The interactions between efficiency and stability are complex, multi-faceted, and probably time-varying. A brief look at the academic literature on the relationship between competition and stability in banking confirms this.

Survey studies on the relationship between banking competition and stability tend to find that both theory and empirical evidence illustrate cases of complementarities between competition and stability as well as cases of trade-offs. Some influential studies, however, may overstate the trade-offs.[16] For instance, one paper (using partial and general equilibrium models) shows that greater competition sometimes increases instability.[17] In other cases, when a model of bank contagion with imperfect competition is used, banks are less susceptible to contagion under imperfect competition compared to perfect competition.[18] There appears to be no consensus among academics as to which form of competitive structure may lead to the optimal combination of efficiency and stability in the system.[19]

So much for the theory, what does the available evidence tell us? It is equally mixed. Some economists have found evidence that increased national banking concentration does not lead to more instability.[20] They argue that banking concentration measures are not a good proxy for the degree of competition in banking markets when controlling for regulatory and other variables related to the contestability of markets. More recent work shows that more competitive banking systems are less prone to systemic crises.[21]

At the same time, the growth of larger institutions as a result of consolidation may also lead to "too big to fail" dilemmas.[22] Some research for the United States finds that return correlations between the

---

[14] The recent studies by Guiso, Sapienza and Zingales (2005) and Bertrand, Schoar and Thesmar (forthcoming) provide some evidence in this direction.

[15] See Federal Deposit Insurance Corporation (1997) and Curry and Shibut (2000). The number of federally insured thrift institutions declined by about 50% from 3,234 to 1,645 over the period 1986-1995. By the end of 1995, the crisis had cost the US taxpayers USD 124 billion.

[16] See Carletti and Hartmann (2003).

[17] See Allen and Gale (2004).

[18] This is because each bank reacts strategically as its own individual actions affect the price of liquidity. A bank can avoid its own bankruptcy and contagion by providing adequate liquidity to the market.

[19] See Northcott (2004). Another recent paper by Boyd and De Nicolo (2005) models both deposit and loan markets as a contracting problem as opposed to just modelling one side of the banks balance sheet. The finding from this model suggests that banks may rather become more risky as markets become more concentrated.

[20] Beck et al. (2005).

[21] Schaeck et al. (2006).

[22] De Nicolo and Kwast (2002).

securities prices of large US institutions have risen over time, which can be interpreted as reflecting increased systemic risk owing in part to consolidation. However, these correlations are time-varying and other factors may also have been important in driving them. The presence of a trade-off is dependent on the modelling approach used and the empirical method and time period considered. Although this is a very brief review, it is reasonable to say that no concrete policy conclusions can yet be drawn from the academic literature on the relationship between efficiency and stability.

Even if the nexus between the two concepts still requires further theoretical and empirical study, public policy is confronted – already here and now – with real, practical challenges in responding to developments in the financial system which affect the complex, multi-faceted, and time-varying interrelation between financial stability and efficiency. As examples, I would like to mention three challenges:

- how supervisory authorities can deal with potential asset price bubbles;
- how to manage financial integration in Europe; and
- how to address crisis situations in a set-up where monetary policy is conducted at the supranational level, while supervision remains at the national level.

First, how should the competent national supervisory and regulatory authorities deal with the risks posed by asset price bubbles? A menu of options seems conceivable. With a view to preventing, *ex ante*, the emergence of asset price bubbles, supervisory initiatives ranging from dialogue to direct regulation may help to realign long-term incentives for risk-taking. Central banks, even those without supervisory functions, can also contribute by calling attention to the risks and vulnerabilities in the financial system through their financial stability work. Ex post, that is, in the case where a bubble has already emerged, the adoption of specific prudential measures (e.g. increases in prudential risk weights on top of the regulatory minimums for high Loan-To-Value (LTV) loans in the case of a real estate price bubble) might help.

Second, what are challenges posed by integrating financial markets in Europe? The interactions between *financial integration* and *financial efficiency* and their relationship with *financial stability* are complex, and this is an area that we are only just beginning to understand. Increased integration is likely to improve the capacity of the system to diversify risk over a larger number of economic agents. It also implies that the number of potential contagion channels in the financial system will be greater, meaning that large adverse shocks will no longer remain localised, but will be propagated more broadly across the financial system. This may mean that the frequency of financial crises may diminish as financial integration proceeds or it could also imply that the severity of crises, when they occur, could be greater than before. It is therefore important to monitor the increasing inter-linkages between different participants in the financial system.[23]

Third, in what manner does the specific environment created by Economic and Monetary Union (EMU) affect the relationship between monetary and supervisory policies? Monetary policy is conducted for the euro area as a whole, supervisory policy is still primarily based on national competencies and coordinated through the relevant EU Lamfalussy Committees, such as the Committee of European Banking Supervisors (CEBS). One important implication of EMU is that monetary policy can no longer directly respond to national developments, let alone to regional ones.

While the complexity of this multi-layered system may not matter much under what could be called "normal circumstances", it becomes relevant when a shock to the financial system causes a financial crisis. Under such extraordinary circumstances, effective crisis management arrangements have to be in place. To that end, agreements (in the form of Memoranda of Understanding) on cooperation and exchange of information in crisis situations have been agreed at the EU level between central banks, finance ministries and supervisory authorities. With regard to potential emergency liquidity assistance (ELA) to financial institutions, this is primarily a national responsibility, so that all costs and risks associated with such operations would be borne by the competent national authorities. At the same time, any liquidity effects of potential ELA operations must not interfere with the implementation of the ECB's monetary policy; in order to ensure this, the Eurosystem has established the necessary rules and procedures. Finally, crisis simulation exercises at area-wide level have been organised and

[23] Recent research results on this topic have been presented in the ECB's Financial Stability Review (see Special Features in the December 2004 and June 2006 issues).

conducted to enhance the degree of preparedness of the authorities concerned in dealing with a real crisis having a cross-border dimension.

IV. Concluding remarks

In my presentation, I have tried to tackle the triangular relationships between price stability, financial stability, financial efficiency and the roles of monetary policy and supervisory policy in attaining these objectives. As we know, triangular relationships can be complex and conflict-ridden. Nevertheless, I have tried to shed some light on the nature and dynamics of some of the fundamental interlinkages between the three concepts, and some general conclusions have emerged:

- First, a monetary policy geared towards price stability contributes to financial stability and efficiency by eliminating market distortions and uncertainties arising from inflation and by anchoring inflation expectations. Transparency in the conduct of monetary policy is important in this respect. However, while a credible and stability-oriented monetary policy is a necessary condition for financial stability and financial efficiency, it is not a sufficient condition for achieving these objectives.
- Second, improvements in the efficiency of the financial system increase the effectiveness and the speed of the transmission of the impact of monetary policy in the economy, while financial instability influences monetary policy effectiveness adversely. Efficient financial markets also enhance the quality and availability of financial indicators which can provide useful signals for the formulation and conduct of monetary policy.
- Third, the ECB's monetary policy strategy aimed at price stability, with its medium-term orientation and the prominent role it assigns to monetary analysis, allows monetary policy to address challenges that may arise from imbalances and potential instability in the financial markets.
- Fourth, central banks, through their financial stability monitoring and macro-prudential supervision contribute to safeguarding financial stability and thus complement the activities of the competent supervisory and regulatory authorities.
- Fifth, in the long run, financial stability and financial efficiency are complementary and should reinforce each other. In the short run, however, there can be circumstances in which trade-offs between the two exist. Further theoretical and empirical work is needed to elucidate the relationship between financial efficiency and stability, and the connection to central bank policy.

This last comment indicates that we still have plenty of work to do. Eddie George, the former Governor of the Bank of England, once remarked: *"Central banks don't have divine wisdom. They try to do the best analysis they can and must be prepared to stand or fall by the quality of that analysis."* Conferences like this one help us to enhance the quality of our analysis and our understanding of monetary policy issues – which is why we should look forward to the conferences of the Foundation *"Geld und Währung"* next year, and in the years to come.

Thank you very much for your attention.