

Financial deepening and the monetary policy transmission mechanism¹

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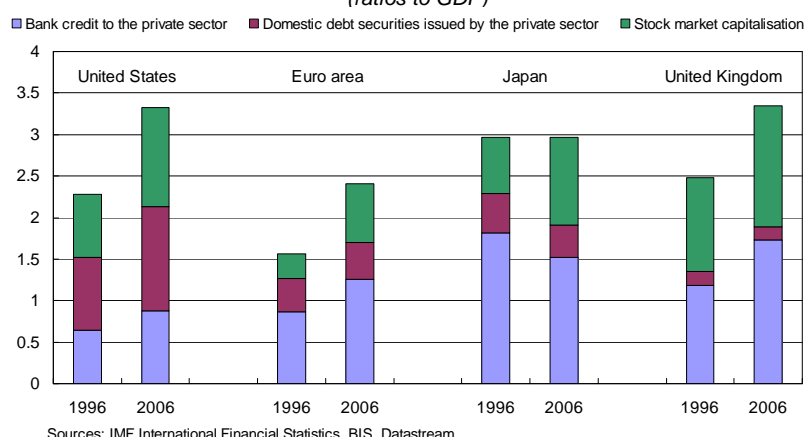
1. Changes in the financial landscape in the euro area and other industrial countries

Since the second half of the 1990s impressive changes have occurred in the financial landscape of industrial countries. The euro area has been no exception: in some regards the pace of change has been even faster than in countries such as the United Kingdom and the United States, traditionally characterised by more developed financial markets.

We may define financial deepening as an increase in the size of the financial system and in its role and pervasiveness in the economy. From a monetary policy perspective, the growing diversification of firms' and households' portfolios is especially relevant, as they are more and more affected by the developments in financial markets. At least five major changes are worth noticing:

- In the last decade *gross financial assets* have increased very rapidly. Between 1996 and 2006 in the euro area they have risen as a ratio to GDP from 6.6 to 10.5 (compared to 9.8 in the United States and 17.6 in the United Kingdom). As an indication of the funds collected by the private sector, the sum of bank credit to this sector, debt securities outstanding and stock market capitalisation has risen from about 150 per cent to around 240 per cent of GDP in the euro-area (compared to over 300 per cent in the United States and in the United Kingdom; Fig. 1).

Fig. 1 - Size of capital markets
(ratios to GDP)

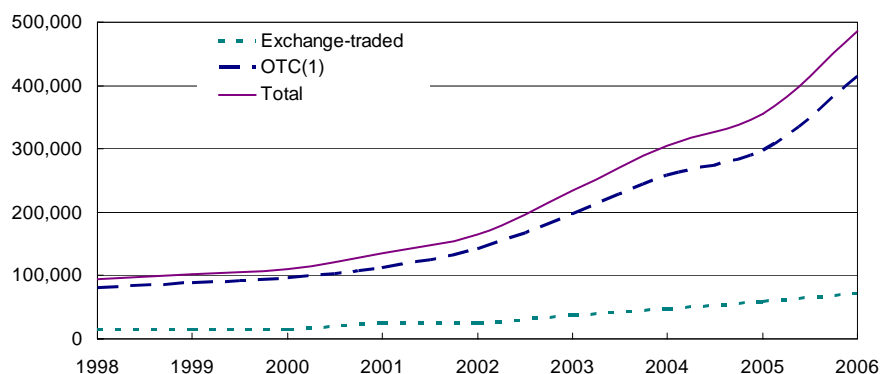


- The use of *derivatives* – futures, options, interest rate swaps and, more recently, credit default swaps together with structured products such as collateralized debt obligations and asset backed securities – has dramatically changed the functioning of financial markets.

¹ I would like to thank Pietro Catte and Paolo Del Giovane for assistance and comments.

They open to market participants the possibility of unbundling various risk components and allocating them among a multitude of investors; in turn, investors have more scope to hedge against future market movements or, alternatively, to increase portfolio leverage and the volume of risks assumed. The use of derivative instruments has sharply increased in recent years: the total outstanding notional amount of over-the-counter and exchange-traded derivatives has risen from about 94 trillion U.S. dollars at the end of 1998 to around 486 trillions at the end of 2006 (Fig. 2).

Fig. 2 - Notional value of over-the-counter and exchange-traded derivatives
(outstanding amounts in billions of US dollars; end of year data)

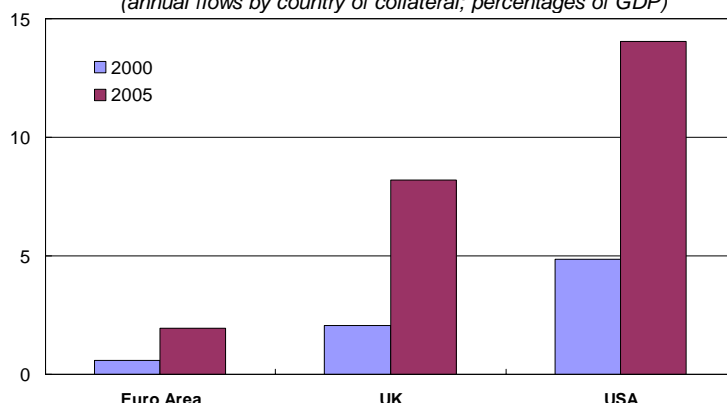


Source: BIS Quarterly Review, September 2007.
(1) OTC derivatives include credit default swaps.

- As a consequence of the new opportunities opened by financial innovation, the *role of banks* has been changing. Commercial banks have exploited credit transfer techniques to add to their traditional business a new role of originating, pooling and distributing credit risks outside the banking system. This has allowed them to free capital and enlarge their lending capabilities. In the euro area securitization has developed later than in the United States and the United Kingdom, accelerating only in the more recent years. Between 2000 and 2005 the annual flow of securitized loans has increased from 0.6 to 2.0 per cent of GDP; in the same period it has risen from 2.1 to 8.2 per cent in the United Kingdom and from 4.9 to 14.0 per cent in the United States (Fig. 3).

Fig. 3 - Securitized loans (1)

(annual flows by country of collateral; percentages of GDP)

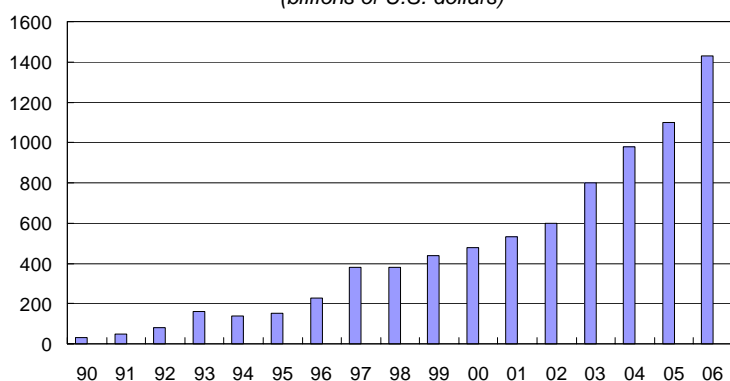


Sources: European Securitization Forum, Bond Market Association, Eurostat.
(1) Euro area figures do not include Pfandbriefe; U.S. data exclude Federal Agency Securities.

- New financial market players*, such as hedge funds and private equity funds, have emerged; in recent years they have become key drivers of innovation in a broad range of markets and transactions. The hedge fund industry provides a good example of this expansion: according to estimates by Hedge Fund Research it grew from 3,873 funds managing 490 billion U.S.

dollars in 2000 to 9,228 funds with around 1.4 trillion U.S. dollars in 2006, corresponding to about 1.2 per cent of global debt and equity outstanding (Fig. 4). Other estimates (by HedgeFund Intelligence) set the assets in global hedge funds at about 2.0 trillion U.S. dollars by the end of 2006, of which nearly 1.5 trillions in U.S. funds, roughly 450 billions in European funds and 150 billions in Asian funds.

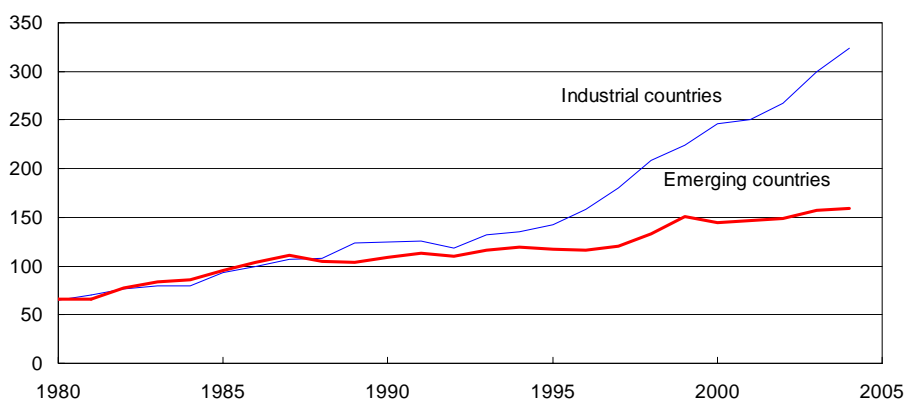
Fig. 4 - Global hedge fund assets
(billions of U.S. dollars)



Sources: Hedge Fund Research, World Federation of Exchanges (FIBV), Bank for International Settlements (BIS) and Swiss Re Economic Research & Consulting.

- An important dimension of the greater diversification of risk has been the increased *international financial integration*. In the last decade industrial countries' gross external financial assets and liabilities more than doubled in proportion to GDP, reaching 320 per cent (Fig. 5).

Fig. 5 - Gross stocks of foreign financial assets and liabilities (1)
(sum of financial assets and liabilities in percent of GDP)

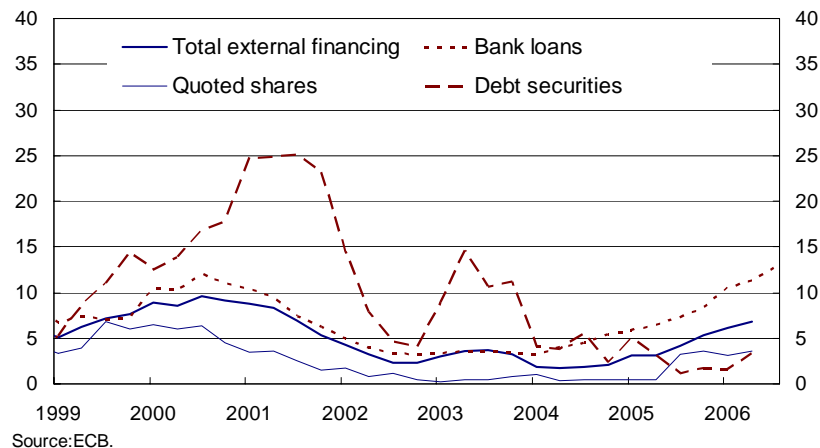


Source: IMF (Lane – Milesi-Ferretti database).
(1) For each group, weighted average calculated using GDP weights.

As a consequence, the range of financing and investment opportunities available to economic agents widened, as reflected in the composition of the balance sheets of firms and households. In particular:

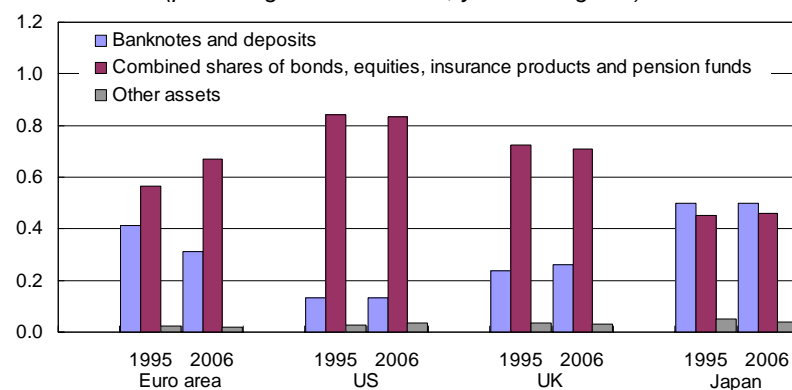
- The set of *corporate finance instruments* used by euro-area firms has broadened. In the first three years after the introduction of the single currency, the net issuance of corporate bonds accelerated dramatically (Fig. 6). The marked deceleration that has been observed in the most recent years reflects, on one side, the impact of corporate scandals, but also, on the other side, the greater availability of bank credit resulting from credit market innovations.

Fig. 6 - External financing of euro-area non-financial corporations
(net issuance; annual growth rates)



- The market has also broadened, not only in terms of the instruments available but also with respect to the *increasing access* of a larger number of firms, including those with lower ratings. This increased availability of funds has been extensively used to finance M&A activities.
- Between 1995 and 2006 the composition of euro-area *households' financial assets* has progressively shifted away from traditional instruments, such as banknotes and deposits, to more sophisticated financial assets whose prices are more sensitive to market movements and credit risk. The share of bonds, equities, insurance products and pension funds has grown from 56 to 67 per cent of total assets, a share that is now closer to those of the United Kingdom and the United States (71 and 83 per cent respectively; Fig. 7).

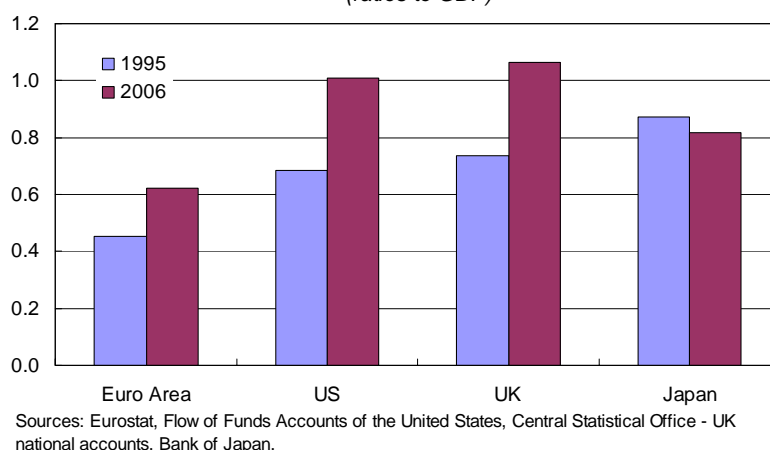
Fig. 7 - Household financial assets, composition by instrument
(percentage of total assets; year-end figures)



Sources: Eurostat, Flow of Funds Accounts of the United States, Central Statistical Office - UK national accounts, Bank of Japan.

- Households have also made an increasing recourse to debt. The increase in euro-area *households' liabilities* has been large (from 45 to 62 per cent of GDP) but it has been outpaced by the increase recorded in the United Kingdom and the United States (from about two thirds to around 100 per cent of GDP; Fig. 8). To a large extent, this reflects the rise in mortgage debt, which has been matched by an even larger rise in housing wealth.

Fig. 8 - Household financial liabilities
(ratios to GDP)



2. Financial market developments and monetary policy transmission

The developments described above affect the speed and strength of the channels of monetary policy transmission to the economy. In a nutshell, one may argue that the traditional “interest rate channel”, as well as the transmission via asset prices, have become stronger, while the “credit channel” has become weaker. At a closer look, however, things are less simple.

- As financial markets are more liquid and complete, *changes in official interest rates are more readily transmitted to the whole term structure* and, more generally, to financial asset prices, affecting the economy through the cost of investment financing and the return on saving (as firms can exploit a wider range of financing opportunities and households’ portfolios are more diversified).
- As a consequence, the *impact of monetary policy through financial market expectations is also more relevant*. Central banks can now affect a whole range of asset prices not just by means of their actual decisions on the very short-term interest rates but also by providing signals on their intentions.² However, since asset prices also reflect expectations regarding other economic variables, it may be difficult, at times, to identify the specific impact of monetary policy actions and announcements.
- A major implication of the increasing weight of financial and non-financial assets in firms and households’ balance sheets is that the effects of monetary policy through *changes in asset prices and related wealth effects* are likely becoming larger. Indeed, available evidence across OECD countries points to increasing wealth effects over time and to an impact of financial deregulation on these effects. The available empirical studies for the United States estimate long-run propensities to consume in a range of 3 to 7 cents out of each dollar of total wealth increase. The propensity in the euro area is somewhat lower (3 to 4 cents per dollar of increase in total wealth) according to recent ECB estimates.³
- The results on the relative importance of changes in financial and housing wealth are not univocal. Importantly, in assessing the relevance of the effects of capital gains and losses

² M. Woodford, “Central bank communication and policy effectiveness”, NBER Working Paper No. 11898, December 2005.

³ F. Altissimo, E. Georgiou, T. Sastre, M.T. Valderrama, G. Sterne, M. Stocker, M. Weth, K. Whelan and A. Willman, “Wealth and asset price effects on economic activity”, ECB Occasional Paper No. 29, June 2005.

we need to keep in mind the relative weights of housing and financial wealth, and the composition of the latter, in the various economies. The volatility of financial and real asset prices also matters, as does the heterogeneity across different categories of households. For example, as rising house values have in general opposite effects on home owners and on tenants who are often saving to buy a house, changes in house prices may have smaller effects.⁴ Finally, as international integration of financial portfolios progresses, wealth effects connected to exchange rate movements may take on greater relevance.

- *Easier access of households to credit* has important consequences. Recent research suggests that this is in itself one of the reasons why the effect of house price changes on consumption may have become larger, in particular in the United Kingdom and the United States. Households' increasing ability to access credit against housing collateral may reinforce the effect of monetary policy through "balance sheet effects", i.e., through the movements in the price of collateral assets. The growing variety of financial products which became available in recent years, such as home equity loans and mortgage refinancing, allow households to borrow more freely against house collateral; if monetary policy affects house values, this is reflected in consumer spending through the cost and availability of credit.⁵
- While speeding up the transmission of policy decisions through the term structure and asset prices, *financial innovation weakens the so-called "bank lending channel"*. Traditionally, interest rate increases were thought to decrease banks' credit supply (through a reduced availability of core deposits), which in turn would affect those borrowers that mostly depend on bank credit for external financing. Asset securitisation increases banks' liquidity and reduces their funding needs in the event of a monetary tightening, while also allowing them to transfer part of credit risk to the markets, thereby easing regulatory capital requirements when needed.⁶ Moreover, a wider range of borrowers is now able to make recourse to financial markets as a substitute for banking sources of financing.

There are still, however, a number of open questions:

- First, *is the broad credit channel really weaker?* True, the relevance of the "bank lending channel" is affected negatively by loan securitisation and the emergence of non-bank lenders. However, as I have mentioned, the effects that work through the value of collateral and the balance sheets of firms and households (the so-called "financial accelerator") are changing, but certainly not losing importance. The conditions at which bank and non-bank lenders are able to attract external funds or to securitize existing loans ultimately depend on their perceived creditworthiness, which is influenced by cyclical developments and also, through the price of collateral, by monetary policy changes.⁷ Funding conditions, in turn, will be reflected in the cost and availability of credit to final borrowers. The recent sharp tightening of lending standards to a broad range of U.S. mortgage borrowers is a serious reminder of this possibility.

⁴ L. Guiso, M. Paiella and I. Visco, "Do capital gains affect consumption? Estimates of wealth effects from Italian households' behavior", in L. R. Klein (ed.), *Long run growth and short-run stabilization. Essays in memory of Albert Ando*, Edward Elgar, London, 2006.

⁵ J. Muellbauer, "Housing, credit and consumer expenditure", paper presented to the Kansas City Federal Reserve's Jackson Hole Symposium, 31st August – 1st September 2007; C. Carroll, M. Otsuka and J. Slacalek, "How large is the housing wealth effect? A new approach", Johns Hopkins University Economics Working Paper 535, 2006.

⁶ Y. Altunbas, L. Gambacorta and D. Marqués, "Securitisation and the bank lending channel", ECB Working Papers Series, forthcoming.

⁷ B. Bernanke, "The financial accelerator and the credit channel", speech at the Conference "The credit channel of monetary policy in the twenty-first century", Federal Reserve Bank of Atlanta, Atlanta, GA, 15 June 2007.

- Second, and more fundamentally, the recent financial turmoil indicates that we need a better understanding of the “*originate and distribute*” model of financial intermediation and its implications for monetary policy transmission. This model allows greater risk diversification and helps ease credit constraints in normal times. However, it may also induce agents to take on more debt and greater exposure – direct or indirect – to highly complex financial instruments. Furthermore, there is a lack of market-determined prices for certain structured finance products, and the evaluation models used by rating agencies have shown limited reliability in taking into account tail risk. These changes can make the system more vulnerable to sudden increases in uncertainty or shifts in market sentiment, that may result in a widening of credit spreads and possibly in credit rationing. In these circumstances, the effects of monetary policy via the value of collateral can be amplified or become less predictable.
- Third, it is important to assess whether *household balance* sheets in the euro-area are really becoming more similar to those in the United States, where households’ portfolios are traditionally more oriented to risky instruments, mortgage markets are more sophisticated and the recourse to consumer credit and credit cards is much more widespread. The more this were the case, the more the euro-area transmission mechanism would start resembling that of the United States, where monetary policy effects via consumption (and residential construction) have traditionally played a more prominent role than in continental Europe.

3. How is the conduct of monetary policy affected?

The above mentioned trends may have important consequences for the way monetary policy is conducted in practice:

- Monetary policy is conducted in a world characterised – even more than in the past – by a high degree of financial complexity and widespread non-linearities: while overall risk may be on average lower in normal times, due to greater diversification, it can increase sharply when large systemic shocks occur, that determine a sudden rise in the correlation of asset price movements. An implication is that we should be *cautious in using macro-econometric models in circumstances of financial unrest*, since they may not adequately capture the role played by large asset price movements. Large price corrections and credit crunches are, in fact, rare and extreme events, and macro-econometric estimates over (relatively) short samples are dominated by “normal time” observations.
- The *interaction between monetary policy and financial stability issues may become more complex*. Indeed, while there is no obvious systematic trade-off between the objectives of price stability and those of financial stability, there might be cases in which a short-term conflict arises.⁸ This is particularly the case when financial and credit market turmoil determines systemic tensions in money markets. In these circumstances the distinction between the aims of liquidity provision and the aims of interest rates setting – an easy task under normal circumstances – is more difficult. On the one hand, actions needed to ensure an orderly functioning of the money market may blur monetary policy signals. On the other hand, decisions on interest rates could be interpreted as revealing major information unknown to the market and hinder its normal functioning.
- In pursuing price stability, we also need to *monitor more closely developments in asset prices* that can eventually have an impact on inflation and growth. There are well-known

⁸ O. Issing, “Monetary policy and financial stability: is there a Trade-off?”, speech at the Conference on “Monetary Stability, Financial Stability and the Business Cycle”, Bank for International Settlements, Basel, March 2003.

arguments why this is not easy to do: the interactions between asset prices and financial stability are complex, while telling the difference between asset price misalignments and changes in fundamentals is inherently difficult. Nonetheless, there have been cases in the past when asset price developments were clearly hardly related to fundamentals. The assessment of asset price developments is a hard task, but these difficulties do not, in my view, justify an attitude of “benign neglect”.

- More generally, this points to the need, for the central bank, to *monitor (and respond to) a wider set of indicators*, without uniquely focusing on inflation forecasts, as it would be implied by a strict (or even a flexible) inflation targeting approach. There is a large, although not undisputed, body of evidence which suggests that persistently high growth of money and credit aggregates may provide useful “early warnings” of emerging financial imbalances that indeed may also matter for the overall underlying price stability.

The greater importance of monetary policy transmission via expectations and asset prices also poses pressing challenges for communication:

- If monetary policy communication is effective, market reactions, by affecting the whole yield curve and other asset prices, may partly “do the job” for central banks. However, and for the same reason, *communication mistakes can be more costly* than in the past, as they may easily destabilise financial markets. Central banks need to insist in their effort to provide proper communication on their objectives, strategies and decisions.
- The interaction between monetary policy and financial stability issues also has *implications for communication, particularly at times of market stress*. In these cases, monetary authorities should not overlook the potential impact, not only of their actions, but also of their communication on the resolution of the financial stability problems. Even advocates of full transparency in the disclosure of future monetary policy intentions agree on the fact that some degree of “constructive ambiguity” may be needed when central banks deal with financial stability issues, to avoid the spreading of fears or, worse, panics.⁹
- The *importance of an effective policy communication clearly emerged this summer*, when a heightened preference for precautionary liquidity by banks following the U.S. sub-prime mortgage market crisis led to strains in the interbank market. The Eurosystem made it clear to market participants that it would intervene to ensure the orderly functioning of the money market, providing liquidity when needed. It acknowledged the greater uncertainty surrounding its assessment of the outlook for economic activity, while, at the same time, provided guidance to medium term expectations by clearly stating that its monetary policy stance would continue to respond to the evolution of the macroeconomic outlook and to risks to price stability in the medium term. As it was observed by the ECB’s Governing Council, providing an anchor for price stability is all the more important in times of financial market volatility and heightened uncertainty.

4. Some implications for emerging market economies

I will now turn briefly to discuss to what extent these trends and the resulting challenges are also shared by emerging market economies.

The *pace of change in EMEs financial markets and instruments* has been even more dramatic than in advanced economies. This has reflected in part a “catch-up” effect following the removal of the main earlier obstacles to financial development – above all, macroeconomic instability, vulnerable

⁹ A. Cukierman, “The limits of transparency”, paper presented at the Third Banca d’Italia/CEPR Conference on “Money, Banking and Finance: Monetary policy design and communication”, Rome, 27-28 September 2007.

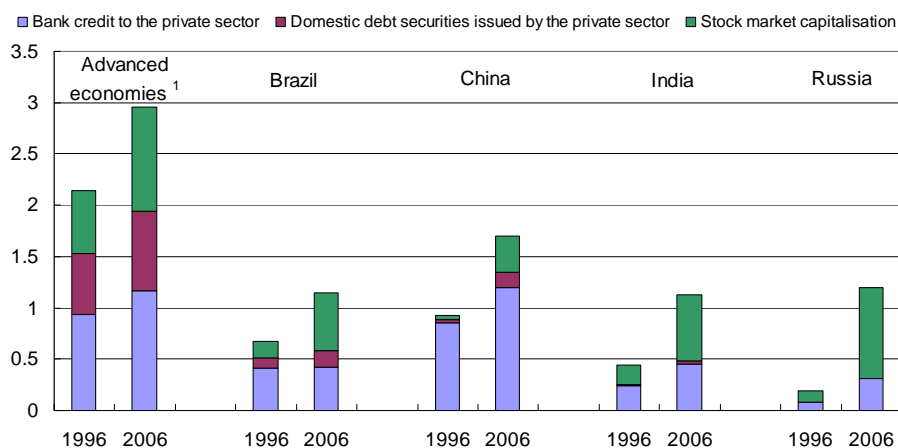
external positions and inefficient institutional and regulatory setups. The process has also been supported by a favourable global financial environment.

The effects include:

- financial system deepening, with strong credit growth and rapid development of bond and equity markets (Fig. 9);
- a shift toward more market-based financial systems: local-currency bond markets have been developed, and both investors' portfolios and sources of financing have become more diversified;
- greater international integration, with foreign banks and international investors playing a greater role in domestic financial markets.

All in all, EMEs are proceeding faster in these directions than advanced economies did when they were at a comparable stage of development.

Fig. 9 - Size of capital markets in advanced and emerging market economies
(ratios to GDP)



Sources: IMF International Financial Statistics, BIS, Datastream.

(1) Weighted average of United States, Euro area, Japan and United Kingdom, with 2000 GDP weights at PPP exchange rates.

These changes in the financial system – together with the fundamental improvement in the macroeconomic and institutional environment – may have important implications for the way monetary policy is transmitted to the economy: (i) as in industrialised countries, transmission may increasingly occur via market prices rather than changes in quantities and the interest rate channel may become more important; (ii) the transmission of monetary policy may be more predictable, thanks largely to the improvement of macroeconomic fundamentals and the stabilisation of inflation expectations; (iii) but financial liberalisation may now make it more difficult to pursue dual objectives in terms of inflation and exchange rates.

If EMEs are becoming more similar to industrialised countries, do their central banks face broadly similar challenges? In part, I think they do, in the ways I have just outlined. But they also face other, more specific challenges.

Probably the most difficult challenge arises from the need to pursue monetary stability and financial stability in a context characterised by rapid structural change in the real economy and in the financial system. This rapid change is desirable, as it brings with it the modernisation of economic and financial infrastructures. However, it may also show up in very strong credit growth, asset price booms and large capital inflows. For the central bank, it is difficult to tell whether these phenomena

are simply the result of a rapid catch-up with more developed economies and stronger fundamentals or, on the contrary, they still reflect underlying distortions, such as unsound lending practices, inadequate regulation and supervision or unrealistic expectations on the part of economic agents. In the latter case, they may be the seeds of future instability. For central banks in emerging economies, developing a sound approach to financial stability and adopting appropriate supervisory tools is at least as essential as a complement to good monetary policy as it is for advanced economies.