Structural changes in the German capital market in the run-up to European monetary union

The second largest capital market in the world will arise in Europe with the start of Stage Three of European monetary union. This move towards integration is changing the competitive conditions in the national capital markets and is accelerating the process of structural change already in the run-up to monetary union. This article examines key trends in the German capital market over the past few years and evaluates them from a macroeconomic point of view. It concludes that the German capital market has attained further efficiency; it therefore appears well equipped to cope with monetary union. This higher financial market efficiency is in accord with the aims of the central bank as it tends to strengthen the impact of monetary policy measures and to raise the quality of financial market indicators.

Fundamental effects of monetary union on the European capital markets

Extended investment opportunities and intensified competition

The start of Stage Three of European monetary union (EMU) on January 1, 1999 will mark a high point in the process of European financial market integration. The irrevocable fixing of exchange rates will put an end to the associated currency risks and the transition to a single monetary policy will further reduce the remaining small differences in inflation between the participating countries. A single currency area will give investors access to a wider range of equities and bonds that are

more homogeneous and free from exchange rate risk and will intensify competition between issuers and financial intermediaries. Within the EU, cross-border investment operations and the level of competition were already raised in recent years by the liberalisation measures in connection with the creation of the single European market and in the wake of the general trend towards the internationalisation of the financial markets. But the forthcoming monetary policy changes are qualitatively different in that the single currency will eliminate fundamental distinguishing criteria between domestic and foreign financial products. From the German point of view, this move towards integration will signify a particularly dramatic break with the past because the abolition of the Deutsche Mark will mean the disappearance of a globally acknowledged seal of quality for German financial products.

Possible forms of structural change and their implications

Altered competitive conditions between investors, issuers and financial intermediaries – such as investment banking firms, securities traders or stock exchanges – can give rise to different forms of structural change. Besides mobilising additional capital, they especially promote product innovations, new market techniques and improvements in the infrastructure. Structural change can improve the terms and conditions at which funds are provided via the bond or share market. To the extent that this process mobilises additional savings and stimulates investment, it could be reflected in higher rates of growth in the euro area. A quite separate question is what effects competition will have on the choice of geographical location for enterprises which provide financial services. The choice of location determines where value will be added in the financial sector and hence where jobs will be created or safeguarded.

Institutional investors ...

The principal beneficiaries of the expanded international investment opportunities and of the competition between issuers and intermediaries will be the institutional investors – i.e. investors who operate with very large resources and use professional techniques. This group – which is usually considered to comprise insurance enterprises as well as investment funds and pension funds but which, taking a broader definition, also embraces credit institutions and large industrial enterprises – is now the dominant force in the securities markets. That manifests itself, for example, in the share of all securities outstanding which they hold. Even in Germany, where the "degree of institutionalisation" (i.e. financial asset formation via insurance enterprises and investment funds) is at the moment still rather low by international standards, about 75 % of the outstanding volume of domestic shares and 85 % of the outstanding volume of domestic bonds were in the hands of domestic and foreign professional investors at the end of 1996 (see table on page 57). This is a key distinguishing feature of the securities markets in comparison with the intermediation of banks which, with the deposits of individuals making up around 60 % of all bank deposits, is determined to a much greater extent by the behaviour of households.

This being so, it is not surprising that the activities of institutional players are very much

... are defining direction of structural change

determining the direction of the structural change in the financial markets. One of the essential requirements of these investors is a product range permitting them to diversify their portfolios sufficiently. This means that the available securities must cover a wide spectrum of yields and risks; the ability to hedge risk positions flexibly, especially through futures contracts, is an additional requirement. The terms and conditions of participation in the market are likewise a very important consideration. Besides the fees and commissions charged for securities transactions, the need for adequate market depth also plays a role; it prevents undesirable price volatility caused by insufficient market liquidity. Finally, institutional investors also want transparent market conventions and sufficiently long trading times.

Securities holdings of selected groups of investors *

Year-end levels; in %

Item	1980	1990	1996
Bonds			
Banks	43.8	42.8	36.7
Insurance enterprises	11.7	9.4	6.1
Investment funds	5.0	6.1	9.6
Non-financial corporations	5.4	4.4	3.0
Non-residents	4.4	15.8	30.5
Total	70.3	78.5	85.9
Shares			
Banks	13.4	15.2	15.4
Insurance enterprises	4.0	4.3	8.2
Investment funds	5.9	5.4	9.4
Non-financial corporations	26.2	28.5	26.8
Non-residents	11.1	17.3	15.2
Total	60.6	70.7	75.0

* Share of domestic securities outstanding at nominal values according to the securities deposit statistics.

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Tendencies apparent in the run-up to monetary union

Market volume

Robust growth since the early nineties ...

In the past few years the German capital market has grown vigorously and – measured by the volume of securities outstanding – is the leading capital market in continental Europe. That applies to both the bond market and the share market. With a total nominal market volume at the end of 1997 of DM 3.0 trillion, the German bond market was around one-and-a-half times as big as its Italian counterpart and more than double the size of the French bond market. With a market capitalisation of DM 1.5 trillion at the end of last year, the German share market was around one-quarter larger than that in France and approximately two-thirds larger than the Dutch equities market, which occupied third place in the rankings (see table on page 58).

... but little change in role in overall financing

Measured by GDP, however, the volume of domestic bonds and shares outstanding, at around 80 % and just under 40 %, respectively, is merely in the middle of the European table of rankings. Ultimately, this is a reflection of the relatively unchanged intermediation structures in the German financial system, which continues to be characterised by the fairly strong role played by banks (see table on page 59). Despite the rapid growth of the securities markets since the beginning of the nineties, no marked trend has been discernible towards a shift in financing relationships away from banks and towards the

International comparison of bond and share market capitalisation

End of 1997

Country/ Group of countries	Bond market [1]			Share market		
	in DM billion	as % of GDP [2]	annual growth in the nineties [3] in %	in DM billion [4]	as % of GDP [2]	annual growth in the nineties [5] in %
Austria	242	53	9	66	15	6
Belgium	524	121	6	245	57	8
Denmark	292	88	5	168	51	12
Finland	92	37	13	132	54	16
France	1,191	42	7	1,209	42	9
Germany	3,025	81	12	1,479	39	11
Ireland	44	32	4	88	65	45
Italy	2,035	87	13	618	27	14
Netherlands	368	48	7	840	111	16
Portugal	82	39	13	70	33	61
Spain	390	41	19	520	54	16
Sweden	393	95	8	474	115	14
United Kingdom	827	35	10	3,707	155	12
EU-11 [6]	7,993	66	.	5,327	44	.
Japan	6,998	90	6	3,737	48	– 10
United States [7]	17,264	117	8	19,028	129	18

Source: BIS, FIBV. — **1** Nominal value of domestic bonds outstanding at the end of September 1997; excluding international issues. — **2** Nominal GDP in 1997; partly estimated. — **3** Covering the period from the end of 1989 to the third quarter of 1997. — **4** Market value of the shares of domestic listed companies at the end of 1997. — **5** Covering the period from the end of 1989 to the end of 1997; Ireland and Portugal 1995 to 1997. — **6** European Union excluding Denmark, Greece, Sweden and United Kingdom. — **7** Market capitalisation of the NYSE and Nasdaq.

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capital markets as in other countries. For one thing, a large portion of the bonds issued during this period served to cover the public sector's credit requirements related to German unification. This gave a boost both to government bonds and to communal mortgage bonds *(öffentliche Pfandbriefe)* issued by banks in order to refinance their lending to the public sector. For another thing, the importance of the share market in the financing process has been exaggerated by the surge in share prices since 1996; domestic producing enterprises procured less than one-tenth of their financial resources via the equity market in 1997.

Changes on the part of issuers

Bond market facing special challenges

Monetary union will entail radical changes for the bond markets of the participating countries. Interest rate differentials related to inflation or exchange rates will disappear with the result that the yield and risk profiles of bonds and notes issued by European borrowers will tend to converge. In fact, this process of convergence has already occurred to a considerable extent in the run-up to monetary union. The yields of all countries that are expected to be participants in monetary union have moved very close together. Even at this stage, therefore, the sole remaining basic distinguishing criterion are differences in credit standing, although hitherto these differences – especially in the case of public bonds – have mostly been of minor import-

ance in Europe compared with exchange rate risks. In the government bond segment, therefore, countries have stepped up their efforts to safeguard their competitive position under EMU. The aim is to establish the country's own issues as the benchmark in the European bond market, which secures favourable credit terms and can have a positive impact on the position of the indigenous financial centre. The preconditions for achieving this market leadership are a first-class credit rating, a complete maturity range and a high degree of liquidity of the financial instruments.

Changes in the Federal Government's issuing structure ...

Against this background the Federal Government has modified the range of its financing instruments since 1995 in several stages (see overview on page 60). In order to increase the liquidity of its instruments, it introduced regular auctions for five-year special Federal bonds *(Bobls)* – after the close of open market trading – and increasingly reopened issues of Federal bonds *(Bunds)* and *Bobls*. In July 1996 the Federal Ministry of Finance and the Bundesbank also reached agreement on the issue of Federal discount paper with a maturity of less than one year *(Bubills)*[1]. The range of Federal financing instruments was complemented by the introduction of two-year Treasury notes *(Schätze)*, regular issues of thirty-year *Bunds* and the possibility of bond stripping. The introduction of a futures contract on two-year *Schätze* by the German Financial Futures Exchange (DTB) rounded off this development. A further innovation in spring 1998 was the bundling of the previously separate issues of the Federal Government and of its special funds. Finally, the Federal Government will redenominate its listed old debt in euros already on January 1, 1999. As new issues will be denominated in euros from the same date, the monetary union will be able to draw from the outset on the level of liquidity attained in the market for Federal securities.

Figures on the intermediation structure of the German financial system *

Year	Share of bank deposits in households' total financial assets	Share of securitised liabilities 1	
		of producing enterprises	of credit institutions
1970	52.4	30.9	17.3
1975	54.5	26.8	20.1
1980	52.4	21.4	21.1
1985	46.1	29.5	26.6
1990	44.5	25.3	24.1
1991	43.1	24.4	25.9
1992	43.0	23.9	27.3
1993	42.5	29.4	28.7
1994	41.5	32.5	28.2
1995	39.9	29.7	30.1
1996	39.2	31.1	31.1

* Year-end levels in %; from 1990 Germany as a whole. — 1 Liabilities arising from shares and bonds.

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... and in bank bonds

The credit institutions, too, have made their issues more liquid and hence more attractive for institutional investors. The foremost innovation is the issue of large-volume mortgage bonds *(Jumbo-Pfandbriefe)* since 1995 with an issue volume of at least DM 1 billion in what was previously a fairly fragmented market segment. In each issue of such *Jumbo*

1 See Deutsche Bundesbank, The securitised money market in Germany, Monthly Report, October 1997, page 45 to 59.

Innovations in the Federal Government's issuing policy

Date	Measure
July 1993	Introduction of a quarterly calendar.
July 1995	Immediately after the close of open-market selling of a series of five-year special Federal bonds, the Federal Government issues another partial amount by auction.
July 1996	The Federal Government regularly issues six-month Treasury discount paper up to a circulation of DM 20 billion.
Sep. 1996	Regular issue of two-year Treasury notes.
July 1997	Bond stripping introduced, i.e. the separate trading of principal and coupon components. The Federal Government simultaneously resumes the issue of thirty-year bonds.
Jan. 1998	Federal Bond Consortium abolished; major Federal securities are now issued by auction through the "Bund Issues Auction Group".

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Pfandbriefe at least three banks are obliged to quote buying and selling prices within a relatively narrow range to ensure that the paper is tradable at all times. The sales success of the "Jumbos" has led to pronounced structural shifts, especially in the case of communal bonds *(öffentliche Pfandbriefe)*. At the end of 1997 the number of large-volume issues of such bonds was 158, compared with 12 at the end of 1994; their volume outstanding grew over the same period from DM 14 billion to DM 246 billion (see chart on page 61). The average volume of all *Pfandbriefe* issues outstanding doubled within a few years to around DM 100 million. The success of this innovation is indicated by the fact that purchases of communal bonds by non-residents have increased sharply since 1995; in the past two years these amounted to a combined total of DM 26 billion net.

Issuers in the share market relatively little affected

The direct effects of EMU on issuing behaviour in the share market are to be rated as less pronounced than in the bond market. As a rule, enterprise-specific and country-specific profitability and risk factors play a more important role in share purchases than do exchange rate uncertainties, which means that the share markets will remain heterogeneous even after the introduction of the euro. That does not signify, however, that the national share markets are not subject to more intense competition. Both the general trend towards internationalisation and – over time – closer real economic integration of the European economies will tend to increase competition. Sector-specific investment strategies are therefore likely to become more important than country-specific strategies in the longer

run. Given the "underdeveloped" state of the German share market at present, further strenuous efforts will have to be made to raise the importance of shares as both an investment and a financing instrument.

New issuing techniques

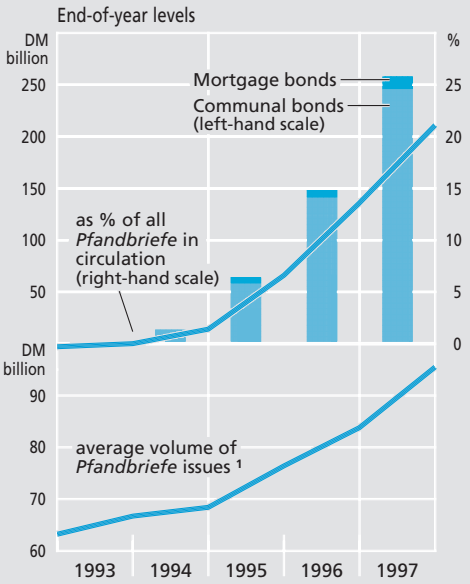
In major segments of the German capital market new issuing methods have been applied for some time which give a greater role to professional market participants in the placement and pricing process. Of particular note in this context are the fixed-price-reoffer method[2] for bond issues and bookbuilding[3] for the issue of shares. Finally, the Federal Government abolished the Federal Bond Consortium and changed over at the start of 1998 to issuing its tradable Federal debt securities via a "Bund Issues Auction Group". The Auction Group is open to all institutions with sufficient placing capacity; the new method accords with the established German banking structure and ensures that Federal securities will continue to be placed on terms that are in line with market conditions.

Changes in the investor profile

Trend towards internationalisation in the bond market ...

The international integration of the German securities markets has proceeded rapidly in recent years (see chart on page 62). Thus domestic investors purchased bonds issued by non-residents for a total of DM 77 billion alone in 1997, which was more than three times as high as the 1996 figure. At the same time, net purchases by foreign investors in the German bond market, at DM 122 billion, reached the second highest level recorded since 1993 when massive resources had flowed into the German bond market owing

Large-volume mortgage bonds *(Pfandbriefe)* outstanding *



* Issues with a volume of at least DM 1 billion.— **1** Total volume of *Pfandbriefe* in circulation relative to the number of issues outstanding.

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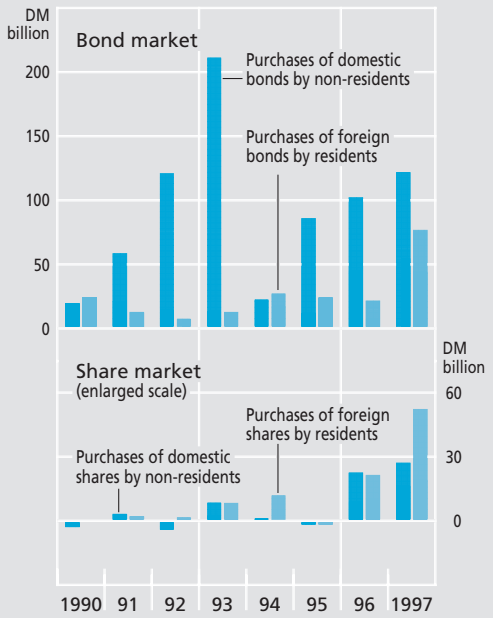
to the EMS crisis. However, these voluminous cross-border capital movements are probably related more to the general international orientation of institutional investors and to asset relocations in the wake of the crises in East Asia than to the forthcoming launch of EMU. But a direct association with EMU is indicated by the currency pattern of the foreign currency bonds sold in Germany in 1997. Some DM 26½ billion of those instruments were lira-denominated paper; the prospects of convergence-related price gains in the Italian bond market evidently had a major influ-

2 Under this method the issuer and the syndicate banks agree on a minimum price that must be honoured for a defined period in reselling underwritten tranches.
3 Bookbuilding is a method of determining the issue price of shares which – unlike the conventional fixed-price method – takes into account the pricing suggestions of potential investors prior to the actual placement so as to avoid the danger of mispricing.

Cross-border securities transactions *



* Net purchases.

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ence on the investors' decisions. Whether this "convergence trade" presages a sustained major diversification in the euro area is still unclear, however. On the one hand, currency-related preferences are no longer a factor in choosing domestic financial instruments; on the other hand, the risk profile of bonds is converging, a fact which – *per se* – argues against international diversification.

... and in the share market

A pronounced trend towards international diversification has likewise been apparent in the share market in the past two years. Purchases of foreign shares by residents, at DM 52½ billion net, and purchases of domestic equities by non-residents, at DM 27 billion net, both achieved record levels in 1997. In this instance, too, the global orientation of investment strategies was probably a more important factor than movements of funds connected with EMU. That is indicated, for example, by the fact that domestic share-based funds (which appear to have bought a considerable part of the foreign shares in 1997) with a non-European investment focus also attracted large inflows of resources. But it is also conceivable that in future investment decisions may be made more, say, with a view to reflecting the weights of individual industries in a European share market in the portfolio mix.

Changes in the market infrastructure

Stock exchange infrastructure ...

The intensification of competition is making itself clearly felt in the German stock exchange landscape; technical improvements to the market infrastructure are playing a role, as are modifications of the institutional and legal framework. The objective of the innovations at the technical level is primarily to make stock exchange trading faster and more flexible. Since the end of 1997 spot trading has progressively been given a new electronic basis with the trading system Xetra; this speeds up trading through the automatic matching of executable orders. Additional aims are cost reductions and the increased use of cross-border screen trading, which has already been successfully implemented on the DTB.

... and the institutional ...

The most important institutional innovation in the share market was the establishment of the "New Market" in March 1997 designed to make it easier for young, innovative firms, in particular, to gain access to the capital market. After a year 17 enterprises were listed in

this market segment and a number of other firms have already signalled their interest in a possible flotation. On the futures front, the DTB has concluded cooperation agreements with foreign financial futures exchanges. They extend trading possibilities in terms both of trading times and of the range of available products.

... and legal framework

These measures taken by private market players were supported and supplemented by far-ranging changes in the legal framework associated with the Second and Third Financial Market Promotion Acts. The centrepiece of the Second Financial Market Promotion Act in 1994 was the reorganisation of the securities supervision system and of the monitoring of trading activities; a particularly important development in this connection was the establishment of the Federal Supervisory Office for Securities Trading. One of the intentions of the Third Financial Market Promotion Act, which came into force on April 1, 1998, is to complement the range of investment activities for investment funds; besides authorising "funds of funds" and mixed securities and real estate funds, this includes setting up dedicated funds for private old age provision.

Structural change in the capital market in the light of financial market efficiency

Efficiency as an evaluation yardstick

Competition promotes financial market efficiency

The intensified efforts of market players at the microeconomic level stimulated by the growing pressure of competition led to a broader product range, lower transaction costs and more liquid financial instruments. This can be equated with a gain in efficiency in that financial transactions in the German capital market can now be undertaken with less friction and in a greater variety of forms. Improved microeconomic efficiency is usually accompanied by a macroeconomically desirable improvement in the allocation of the production factors. The longer-term financial instruments traded in the capital market are provided in a diversity, on a scale and on terms that allocate financial resources to uses and in a time-frame that increase both present and future consumption possibilities.

It is true that conflicts can also occur between microeconomic and macroeconomic capital market efficiency, e. g. if financial innovations tie up economic resources which perhaps could be deployed more productively in other applications. Furthermore, the spread of "short-termism" might result in price volatility or "speculative price bubbles" in the financial markets that impair the cost-accounting foundations of economic agents geared more to the longer term[4]. Such developments must be countered not least by a monetary policy course that is as steady as possible. Overall, however, the structural change in the German and – later – in the European capital market should have a positive effect on real economic developments, owing to the further strengthening of competitive elements in financial relationships between savers and investors, and hence pro-

4 See Deutsche Bundesbank, Financial market volatility and its implications for monetary policy, Monthly Report, April 1996, pages 51 to 67.

Various definitions of financial market efficiency

Allocative efficiency: Given perfect competition, an economy is allocation-efficient if it is not possible through further exchange operations to increase the utility of one economic agent without simultaneously reducing the utility of another individual. If this "Pareto criterion" is met, all economic resources will be allocated to their most productive uses. In this system, money and credit markets acquire a significance of their own only through the fact that economic transactions entail costs. By providing transaction and credit media at low cost, the monetary markets act as a kind of lubricant for the frictionless exchange of goods.

Market completeness: Pareto efficiency requires markets to exist for all uncertain consumption claims of economic agents linked to particular future states, such that agents can hedge themselves against economic risks by contracting today to exchange these state-contingent claims (Arrow-Debreu contracts). In this case the market structure is said to be complete. The same hedging effect can be achieved indirectly through the involvement of securities markets as long as all possible states of nature can be covered by corresponding combinations of a sufficiently large number of securities with independent features. In this case one speaks of complete financial markets.

Transaction cost efficiency: The costs of financial market transactions must be as low as possible in order to meet this criterion. The concept of cost is very broadly defined in that case. It embraces all outlays of money, time and effort involved in canvassing, executing and settling a financial market transaction. These transaction costs drive a wedge between a borrower's financing costs and the net return that savers receive after deducting all charges, taxes and other costs. The wider this differential is, the smaller is overall economic saving, capital formation and hence also economic growth.

Information efficiency: This presupposes that all relevant information is reflected immediately, completely and correctly in the price of a traded financial instrument. The feature "correctly" demands that the market participants do not commit any systematic expectation errors in valuing the asset; if that is the case, the price of a security cannot deviate lastingly from its fundamental value reflecting optimal ("rational") expectations.

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mote growth and employment in the longer run.

Completion of the capital market

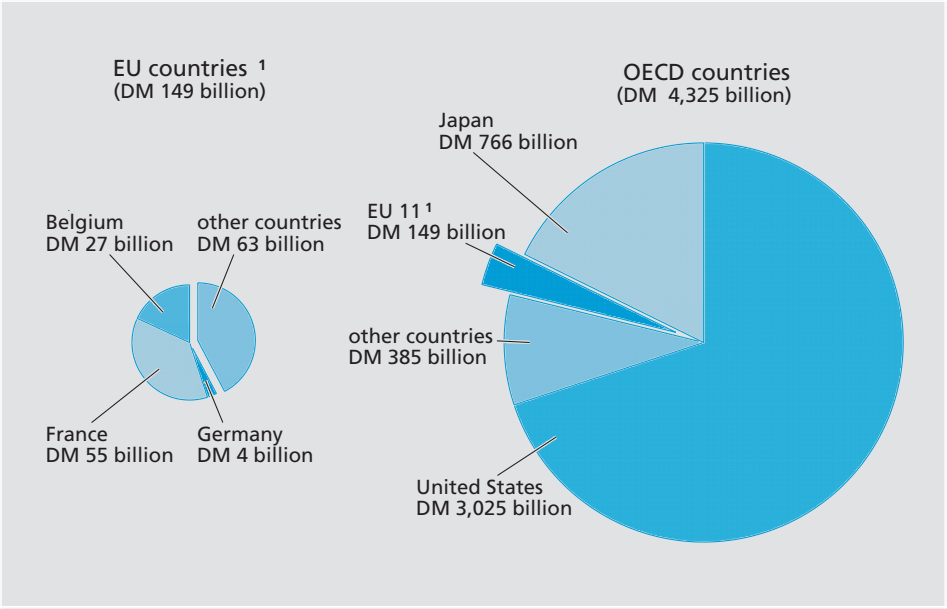
Completion through product innovations

New financial instruments help to complete the capital markets if they have features which could not previously be produced through the combination of existing products on equally favourable terms. The most important step in this direction in the recent past was the creation of efficient forward and futures markets which make it possible to hedge microeconomic risk positions cheaply and flexibly. The completion of the market in this respect can be regarded as largely accomplished – at least with regard to market risk. In the spot market the bond market is being completed over time by the above-mentioned completion of the maturity range via regular issues.

Significance of corporate bonds still small

Both the German and the overall European capital market appear relatively incomplete in respect of the marketability of credit risk. This is mirrored in the negligible significance of corporate bonds. The volume of corporate bonds in circulation in Germany, at around DM 4 billion – or one-tenth of 1% of GDP – is even tinier than that of other EU countries (see chart on page 65). The situation will change with the coming of EMU because the elimination of the exchange rate risk will put the spotlight on credit risk in comparing different European bond issues; given the fairly extensive substitutability between government bonds in the European countries, the demand for debt securities with less closely

Volume of corporate bonds outstanding by country *



* Outstanding volume of domestic issues at end of September 1997. — 1 EU countries excluding Denmark, Greece, Sweden and United Kingdom. Source: BIS, Bundesbank calculations.

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correlated exposures could grow at the same time.

It is fairly unlikely, however, that this will actually lead to a rapid expansion of the market for corporate bonds and to the displacement of bank lending. The small extent to which enterprises directly access the capital markets reflects a number of inherent features of continental European financial and economic systems, such as the minor importance of equity financing (which in turn – through the associated corporate public disclosure requirements, for example – often plays a "pathbreaking" role in procuring external funds via the capital market), the size structure of the corporate sector, tax considerations and, finally, the specific advantages of bank borrowing. It may well be that monetary union will turn out to be a catalyst of economic policy reforms and real economic changes which ultimately could also lead to greater recourse to the market for corporate bonds. Without structural changes in the real economy, however, an abrupt expansion propelled by the financial sector alone would probably soon come up against its limits.

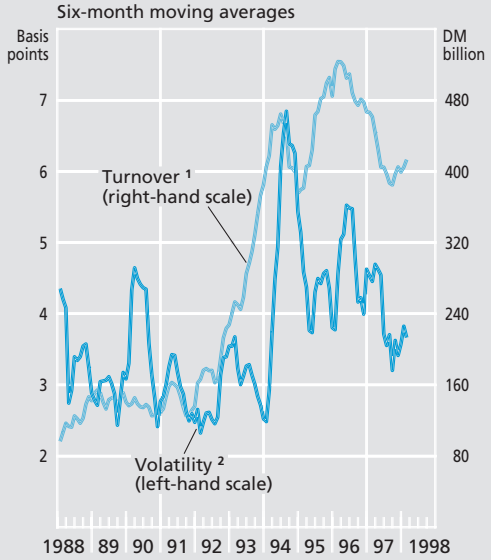
Transaction cost efficiency and information efficiency

Rise in transaction cost efficiency …

The transaction cost efficiency of a financial market increases with the dismantling of price distortions based on market participation fees, information costs, taxation, regulations and premiums which cover the illiquidity, exchange rate or counterparty risk. The measures taken in the German bond and

Turnover and volatility of yields in the bond market

Six-month moving averages



1 Monthly stock exchange turnover of bonds issued by the Federal Government, the Railways and the Post Office. — **2** Monthly standard deviation of daily changes in the yields of public bonds.

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share markets to increase market transparency (modified issuing procedures, issuance calendar), to improve market liquidity (bundling of issues, creation of benchmark products, market-making provision of prices) and the lowering of market participation fees are thus to be regarded as efficiency-enhancing. The elimination of exchange rate-related risks and costs will further improve transaction cost efficiency in a European context.

... and information efficiency probable

The technical advances in communication media and the measures taken to increase market transparency have also improved the prerequisites for information-efficient financial markets in which financial market prices respond without distortion and without delay to new information. An increase in market liquidity leads not only to greater transaction cost efficiency but also to improved information efficiency. It reduces price fluctuations due solely to technical reasons and hence more clearly reveals "genuine" price movements that reflect new information.

Significance of market liquidity

As a general rule, a capital market is said to be liquid if securities can be bought and sold in it at any time both in small and large amounts without any noticeable premiums or discounts on the "true" market prices. Various indicators show that liquidity in the German capital market has probably increased as a result of the changes outlined above. For example, the sharp increase since 1992 in the daily turnover of Federal bonds, coupled with only a slight rise in volatility over the long term, points to a deeper and broader German bond market (see chart opposite). A further indication of increased liquidity in the case of listed Federal securities is the noticeably higher volume of individual issues. For example, the issue amount of ten-year *Bunds* in 1997 was up to DM 30 billion, compared with DM 5 billion at the end of the eighties. In the case of *Bobls* the issue amount expanded from DM 5 billion to DM 16 billion.

Liquidity in the macroeconomic context

Adequate liquidity is a prerequisite for ensuring that the transfer of resources functions without friction. But it depends not only on suitable institutional arrangements but also on stable supply and demand conditions. During phases in which, owing to one-sided investor operations, there is a dearth of willing counterparties or even, in extreme cases, there are no willing counterparties at all, tensions and correspondingly large price movements can occur even in market segments

that are otherwise considered liquid. "Technical" measures to improve market liquidity are therefore no substitute for a long-term perspective of capital market players oriented to fundamentals.

EMU and price formation in the international context

Exchange rate volatility and the international transmission of price fluctuations

Risk premiums due to exchange rate uncertainties also impair market efficiency and hence factor allocation in the international context. The coming of EMU will put an end to exchange-rate-related risk premiums and such yield differentials that are due to separate monetary policy courses in the future member states. To the extent that these country-specific factors indeed made possible an appreciable decoupling from the common interest rate and share price trend in the past, bond and stock returns in the euro area should correlate more strongly than hitherto, other things being equal.

Exchange rate uncertainty impairs international price synchronisation

This assessment is supported by the fact that in phases of stronger (weaker) exchange rate fluctuations, the correlations between the daily price changes in the capital markets of the respective countries usually decrease (increase). Moreover, the relationship between the strength of the price correlation and exchange rate volatility is also inverse in a cross-country comparison. The chart on page 68 shows moving-average correlations of daily stock returns and of the daily changes in ten-year yields between Germany and other EU countries during the nineties. It is striking that during the EMS crises of autumn 1992 to the end of 1993 there was a sharp decrease, in particular, in the interest rate correlations between Germany and those countries whose currencies were particularly affected by the exchange rate turbulence (France and Italy).[5] But the international correspondences between stock returns were affected, too. Subsequently, the correlations in the share market increased successively and of late have reached a fairly extensive degree. In the bond market interest rate correlations initially increased rapidly with the worldwide bond market turbulence in 1994 and stabilised, likewise at a high level, in the wake of the EMU-related interest rate convergence.

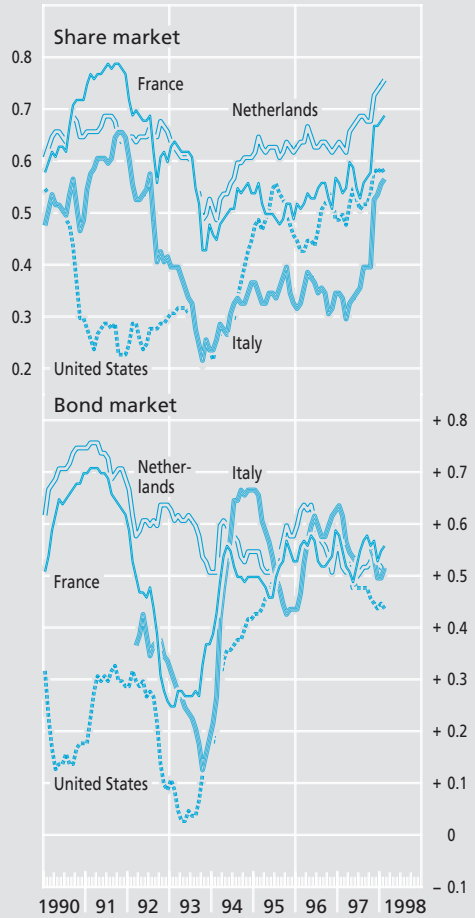
No EMU-related rise in price correlations expected

Whether these correlations will increase further for the participating countries with the start of EMU is fairly doubtful, especially in the case of the share market. For one thing, exchange rate uncertainty is already low at present, and, for another thing, the degree of synchronisation in the share markets currently appears to be somewhat exaggerated by the continuing worldwide stock market boom as it usually increases during phases of rapidly changing prices[6]. If financial market turbulence occurs more rarely in the euro area owing to the elimination of exchange rate-related crises and asynchronous monetary policy courses, the correlations between the national markets could even decrease on a longer-term average, so that they would more strongly reflect the remaining

5 See Deutsche Bundesbank, The recent monetary policy decisions and developments in the European Monetary System, Monthly Report, August 1993, pages 19 to 27.
6 See Deutsche Bundesbank, Financial market volatility and its implications for monetary policy, Monthly Report, April 1996, pages 51 to 67.

International correlation of share price and interest rate trends *

Monthly averages



* Correlations of daily price gains in the share market and yields in the bond market compared with Germany over a moving 260-day period.

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enterprise-specific and sector-specific return and risk factors.

Less close price correlation with the US capital market?

Concerning the correlations in the short-term price or interest rate movements against non-EMU countries, one particularly interesting consideration is whether the German capital market, once it has been subsumed into a euro-wide financial market, will be more independent of price or interest rate movements in the United States. One indicator which suggests that this could be the case is that a larger and more liquid market has a greater resistance to foreign price influences. That must not necessarily be so, however. Thus for the German bond market, at least, no correspondence can be demonstrated in the same direction between the level of foreign investment and interest rate correlations with the United States. A close price synchronisation is likely to continue to result primarily from symmetrical investor expectations for the two markets, which typically manifests itself in the fact that the international price correspondences increase sharply during turbulent phases, in particular. In calmer periods the latitude for decoupling depends on how sharply the price-determining fundamental factors of the respective countries diverge.[7]

Structural change in the capital market and central bank policy

Fundamental harmony of aims ...

In view of the rapid structural change described above, the central bank is confronted, firstly, with the question of how it is to respond to these developments in respect of the strategic orientation and implementation of its policy. Secondly, it has to take into account the effects of its actions both on current market trends and on capital market structures. The strategic aims of a monetary

7 See Deutsche Bundesbank, The implications of international influences for capital market rates, Monthly Report, July 1997, pages 23 to 40 and Deutsche Bundesbank, Financial market volatility and its implications for monetary policy, Monthly Report, April 1996, pages 51 to 67.

policy stance geared to price stability are generally supported by a higher efficiency of the financial markets. In principle, a quicker transmission of interest rate signals via competitive markets is in the central bank's interests, as is a higher degree of information efficiency which, for example, improves the quality of financial market prices as monetary policy indicators. Conversely, the process of structural change in the financial system can also be accomplished without particular frictions in a stable monetary environment. Low and steady inflation rates prevent the need for resources to be made available in the financial markets for hedging purposes.

... is fostered by a stability-oriented monetary policy

A credible monetary policy geared to maintaining price-level stability is, furthermore, particularly well suited to averting short-term exaggerations in the financial markets which lead to a misallocation of resources in the real economy and, in extreme cases, can impair the stability of the entire financial system. A stability-oriented monetary policy can also help to keep the level of regulation in the financial sector low and prevent government interference with the market mechanism as far as possible.

Challenges under EMU

Looking at the further development of the capital markets under EMU, it will undoubtedly be even more imperative than it is today to stabilise the expectations of the market players by giving a clear orientation to economic, fiscal and monetary policies. Although structural breaks – stemming, say, from sudden disintermediation – and the problems to which they would give rise appear improbable from the present perspective, the trend towards the "institutionalisation" of the capital markets is likely to continue. Particularly in such a setting, which is more susceptible to short-termism, it is important to provide a long-term orientation to the market players. That encourages the development of long-term financial relationships which ensure that the financial markets are firmly grounded in the real economy without short-term price fluctuations rebounding directly on real economic activities. Finally, it cannot be taken for granted that the emergence of an EMU capital market *per se*, purely owing to its size, will enlarge the chances of a decoupling from market trends in the United States, in particular. In EMU, too, favourable financial market conditions will have to be earned by a credible monetary policy.