The development of bank lending to the private sector

The growth in lending by German banks to domestic enterprises and resident individuals has been very weak for some time. Both lending to the various categories of borrowers and lending by the various categories of banks have been very similarly affected. In public debate, this is occasionally being interpreted as a "credit crunch". However, an in-depth analysis shows that the weaker credit growth is mainly due to the underlying economic situation, ie primarily to low credit demand. Moreover, the importance of special effects has waned, these having boosted credit growth in Germany over fairly long periods in the 1990s. In view of the poorer credit quality of their borrowers, the high number of insolvencies and the narrow margins in lending business, the banks are also being rather cautious about granting loans. The new Basel capital requirements have probably done little more than raise the banks' income and risk awareness. The planned new rules, which are scheduled to enter into force at the end of 2006, are not generally expected to produce an overall increase in borrowing costs; instead, they are likely to increase the differentiation of credit terms in line with borrowers' creditworthiness.

The development of lending by German banks to domestic enterprises and resident individuals – an overview

Credit growth – a longer-term view

When viewed over the longer term, lending by German banks to the domestic private sector can be divided into three periods. The 1980s were characterised by very strong fluctuations in loans granted to German enterprises and households. Credit growth increased sharply in the 1990s in connection with the reunification boom and remained relatively high even after the boom had come to an end. By contrast, it has weakened continuously since 2000. The current growth rate of lending to enterprises and individuals is only around 1% (see chart on page 33).

Stronger fluctuations in the 1980s

In the 1980s credit growth was linked relatively closely to economic developments. It mirrored both the weakening of the economy at the start of the decade and its subsequent recovery. The same pattern was evident in the second half of the decade, although it was eclipsed by an extensive influx of funds from abroad. In 1986 and 1987, in particular, this led to a sharp appreciation of the Deutsche Mark and to an attenuation of the domestic credit demand.[1]

Effect of government promotional measures in the 1990s

Lending by German banks regained momentum even before reunification. During the reunification boom, bank lending to the private sector expanded by 11% at times. When the boom came to an end, credit growth declined again but persisted until the end of 1999, with fluctuations, at a quite high average growth rate of 7%. This was furthered by numerous government promotional measures associated with the reconstruction of eastern Germany. Their expiry often had a particularly noticeable impact on borrowing as there were extensive anticipatory effects, such as in 1993-94 and 1998-99. Towards the end of the 1990s, the increase in foreign direct investment by German enterprises – in 1999 roughly seven times more money flowed abroad in this connection than ten years previously – is likely to have given a perceptible boost to credit demand. However, greater investment activity abroad does not allow immediate conclusions to be drawn about the sources of financing that are being used. The spate of mergers and acquisitions in Germany may also have led to an increase in borrowing by German enterprises.

Continuous decline since 2000

Since 2000 bank lending to domestic enterprises and resident individuals has marked a virtually steady decline against a background of an economic downturn. However, the slowdown in credit growth was somewhat stronger than in earlier periods in which the economic climate had cooled.

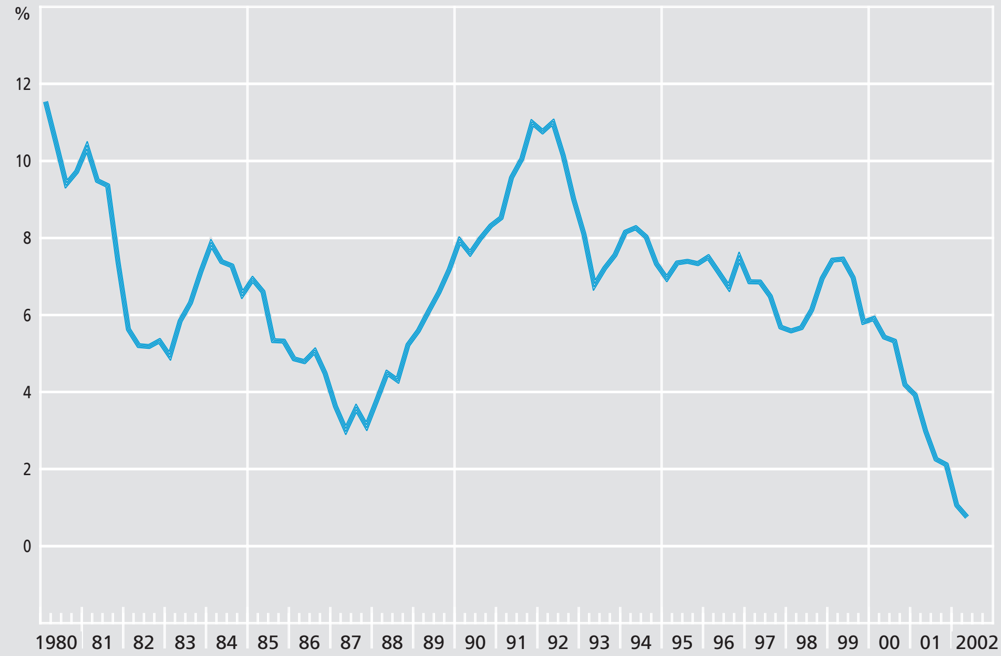
Development, by borrower

When viewed by borrower, the development of loans granted by German banks to the domestic private sector in the 1980s was mainly characterised by the changing dynamics of lending to enterprises and self-employed persons (see chart on page 34). Well into the second half of that decade, consumer credit and housing loans certainly showed no ap-

1 An analysis of the development of the money stock and lending in Germany in 1986 and 1987 is presented in J Reischle, *The role of the analysis of the consolidated balance sheet of the banking sector,* in: H-J Klöckers and C Willeke (eds), *Monetary analysis: tools and applications,* European Central Bank, August 2001.

Loans made by German banks
to domestic enterprises and resident individuals

Change from previous year



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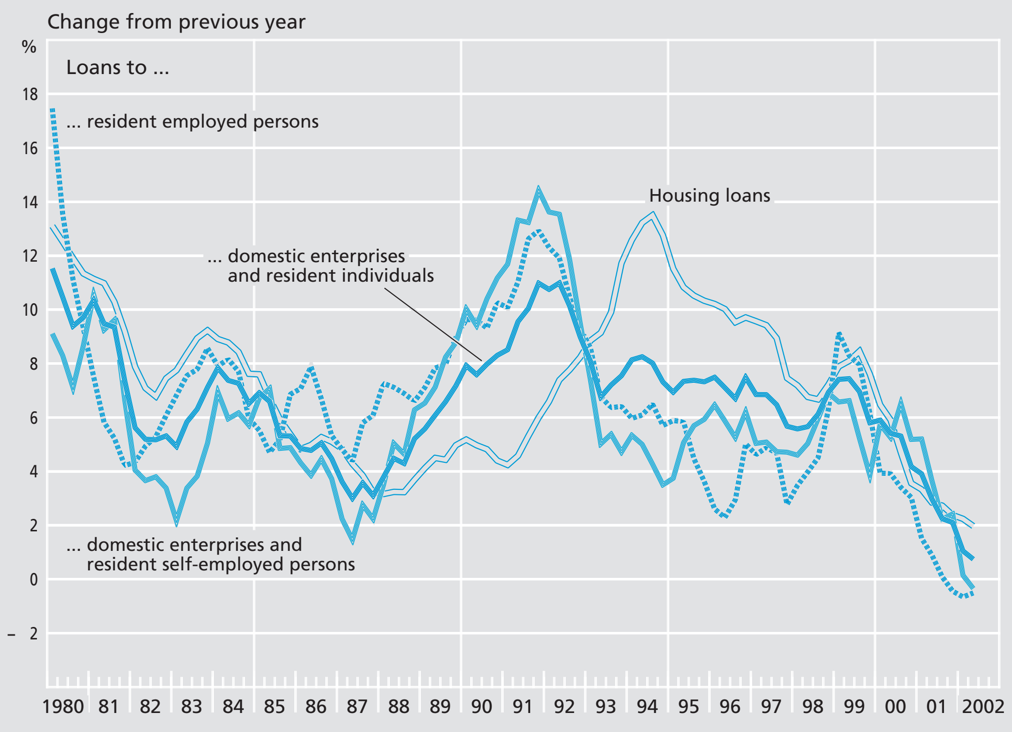
preciable departure from this pattern. However, after the upswing in lending in 1987, lending developed differently in the various sectors. Loans to enterprises and consumer credit increased strongly as the economic upturn got under way, while the rise in housing loans initially remained somewhat subdued. The growth rate for that type of loan did not pick up again markedly until reunification. It reached its peak value of 13½% in autumn 1994 – at a time when the growth of lending to enterprises and consumer credit had already declined distinctly again. Up to the end of the 1990s housing loans grew far more strongly than other categories of loans.

The slowdown in lending by German banks to the domestic private sector was initially strongest in consumer credit. The growth of housing loans, which had already been slowing down successively during the adjustment crisis in the construction industry in the second half of the 1990s, declined more strongly from mid-2000 onwards. At first, lending to domestic enterprises and self-employed persons remained strong for cyclical reasons but then decreased sharply from the winter of 2000-01. At the end of the period, outstanding loans to enterprises and consumer credit were both slightly down on the year.

Lending to domestic enterprises

In the past the development of total loans to domestic enterprises and resident self-employed persons (including housing loans) was determined primarily by that of lending to the services sector (including the professions), which is statistically rather broadly de-

Lending, by borrower



fined.[2] This was particularly apparent in the reunification period. However, loans by German banks to enterprises were subsequently still taken up primarily by enterprises in this economic sector, which includes housing enterprises and other real estate firms. Around the turn of the year 1999/2000 the indebtedness of enterprises in the transport and telecommunications sector rose sharply for a time; somewhat later, there was a strong expansion of lending to manufacturing. As the economy began to slow in the second half of 2000, however, the demand for credit declined perceptibly again in these sectors, too (see chart on page 35).

Lending, by category of bank

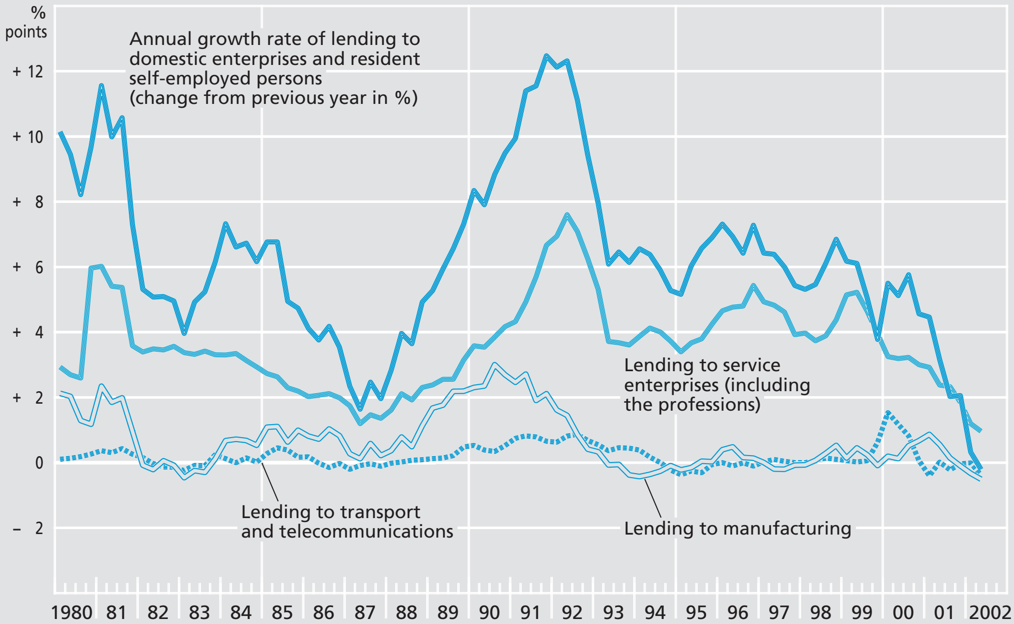
The marked acceleration in lending at the end of the 1980s came mainly from commercial banks. Loans granted by *Land* banks and savings banks did not begin to gain momentum until 1991. While lending business at commercial banks began to lose much of its dynamism from the end of 1992, it did not weaken perceptibly at savings banks and *Land* banks until the second half of the 1990s.

Recently, lending to domestic enterprises and resident individuals has slowed most at the commercial banks, followed by the cooperative banks. Year on year, lending by commercial banks to the domestic private sector is

2 In addition to lending to enterprises in the IT sector, research and development (15%), health and social services (10%) and leasing and holding companies (10%), approximately 50% of loans to service enterprises go to housing enterprises and other real estate firms. These include property management and real estate holding enterprises (including closed real estate funds) and housing development companies.

Lending to selected economic sectors

Contributions to growth [1]



1 Contributions to growth are the growth rates of lending to the various economic sectors, weighted by the share in total lending to domestic enterprises and resident self-employed persons.

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currently even lower, and lending by the cooperatives banks is only marginally higher. This is mainly due to the decline in short-term lending, which plays a more important role at commercial banks. Lending by *Land* banks and savings banks has risen by 2% year on year (see table on page 36).

Empirical analysis of credit development in Germany

Econometric analysis of credit development

In attempting to use the main macroeconomic determinants, such as GDP and interest rates, to explain lending in Germany, owing to their differing development, one needs to observe not only total lending, but also the partial aggregates "long-term lending to enterprises" (29½% of total loans), "short-term lending to enterprises (13%), "housing loans" (47½%) and "lending to employed persons" (consumer credit, 10%).

Fundamental problems of identification

When interpreting estimated credit equations, one must note, however, that they do not allow a precise breakdown by factors relating to credit supply and credit demand as the concomitant problems of identification cannot be resolved at the macro-level. Nonetheless, one can safely assume that the estimated relationships are mainly credit demand effects. The results also show whether there might also be other explanations in addition to the average dependence of lending on income and interest rates.

Lending, by category of bank

Change from previous year in %, end of period

Period	Lending to enterprises and households in Germany, by ...							
	... all banks		... commercial banks		... savings banks and *Land* banks		... credit cooperatives and regional institutions of credit cooperatives	
	Total	*of which* Medium to long-term	Total	*of which* Medium to long-term	Total	*of which* Medium to long-term	Total	*of which* Medium to long-term
1989	7.6	6.9	12.4	12.4	5.9	5.2	7.8	7.2
1991	11.7	10.7	12.4	12.4	12.6	10.7	10.7	9.9
1993	8.2	10.6	7.2	13.5	11.2	13.0	8.0	10.1
1995	7.4	7.5	7.4	8.6	7.7	7.5	9.1	9.0
1997	5.9	7.0	4.8	6.7	6.1	7.0	5.8	6.7
1998	7.7	7.1	8.4	6.6	7.2	7.0	6.3	6.5
1999	6.4	7.5	5.5	5.9	8.9	10.7	4.6	6.5
2000	4.3	4.1	4.1	3.8	4.9	4.0	3.2	3.4
2001 Q1	4.1	3.7	3.9	3.7	4.6	3.6	2.3	2.5
Q2	3.1	3.0	1.8	2.1	4.3	3.5	1.7	2.1
Q3	2.4	2.5	0.4	1.1	4.0	3.2	0.4	1.4
Q4	2.3	2.3	0.8	0.5	3.8	3.6	0.4	1.1
2002 Q1	1.2	2.2	– 1.6	0.4	3.1	3.4	0.4	1.6
Q2	0.9	2.0	– 1.1	1.2	2.5	2.9	– 0.2	1.5
July	1.0	2.2	– 0.7	1.2	2.3	3.1	0.3	1.7
August	1.0	1.9	– 0.7	1.3	2.1	2.7	0.4	1.5

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Long-term analysis

German reunification suggests that splitting the estimation period ...

As the description of credit development given above has shown, growth in loans by German banks to the private sector was at times clearly influenced strongly by German reunification. In order to take due account of this influence, estimations were carried out for two sub-periods as well as for the whole period. In that exercise, the years from 1990 to 1992 were excluded as taking them into account would have had a marked impact on the estimates for the sub-periods or led to instability.

... is the only way to identify stable relationships

Owing to the effects of reunification, for most aggregates no stable and significant relationship could be found between credit volume, gross domestic product and interest rates over the whole period (from 1980 to 2002). The only exception was consumer lending, which is comparatively unimportant in terms of volume. By contrast, with the exception of short-term lending to enterprises, which frequently fluctuate more widely, the separate analysis of the sub-periods revealed a stable credit relationship in the first period. If the aforementioned special effects of the 1990s (an increase in investment linked to the restructuring of eastern Germany along with more direct investment and mergers and acquisitions in Germany) were captured by additional linear or quadratic time trends, the second time period also showed a plausible connection between the credit aggregates and the gross domestic product (see Box on page 38).

In sum, over the long term it can be seen that credit development in Germany can be adequately explained by the situation with regard to interest rates and income. It is, however, characterised by a structural break at the time of reunification. Unlike the 1980s, there was an apparent additional demand for credit in the 1990s which was not solely based on the development of interest rates and income (see adjacent chart). This influence seems, however, to have weakened in the meantime.[3]

Analysis of more recent credit development

Short and long-term deviations of credit growth

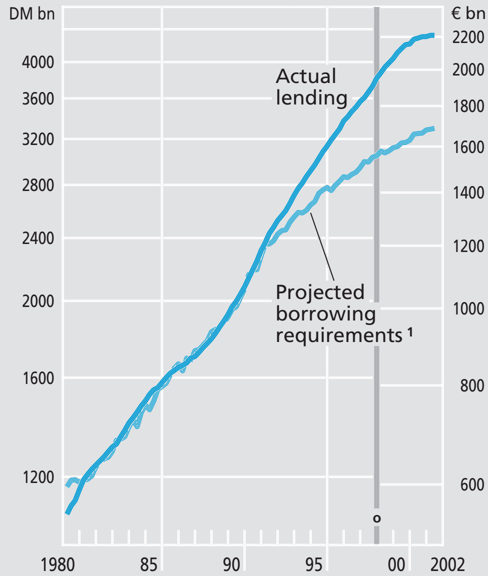
In estimating the weak current credit development, it is important to determine whether this weakness is the consequence of fairly short-term disruptions or of a deviation from the long-term growth path. This can be examined on the basis of the econometric models which we used.[4]

From the short-term perspective, credit growth too small at times

In the short term, credit growth is affected by unsystematic shocks, which have no impact on long-run tendencies. If the credit growth rates are adjusted for these shocks, the rate obtained can be explained by the estimated model at a given development of interest rates and income. The chart on page 39 shows that, in the case of total lending and long-term lending to enterprises, actual credit growth since the turn of the year 2000/2001 is well below the explainable growth rate and that the gap is tending to become smaller. This means that actual lending has become far weaker than might be assumed from the development of the macroeconomic factors, ie interest rates and income. By contrast, in the case of housing loans, there is hardly any deviation of the actual from the short-term explainable growth rate. In both cases the trend is perceptibly downward.

Increase in borrowing requirements in the 1990s

Seasonally adjusted, quarterly, log scale



1 Estimated on the basis of long-term lending in the 1980s. Adjusted for statistical breaks. — o From 1999, in euro.

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No major slump in the long term

In the long run, credit development is determined by a stable structural relationship between income and interest rates (see Box on page 38). If deviations from this relationship occur, it means that credit development is deviating from its long-term path to a degree which cannot be traced back to non-

3 Unlike credit development, the money stock does not reflect the particular importance of reunification. This is consistent with numerous studies which provide evidence of the stability of money demand in Germany (see also Deutsche Bundesbank, Review of the monetary target, *Monthly Report,* August 1997, p 17-32).
4 More information about the method employed is given in the Annex, p 45-46.

Estimating long-term lending equations

Estimations of long-term credit relationships (see equation 2 in the Annex) for the whole of the period (1980:1 to 2002:2) and the two sub-periods (1980:1 to 1989:4 and 1993:1 to 2002:2) produced the coefficients shown in the table below.

time to be modelled; the second also permits the modelling of a trend which increases or decreases disproportionately fast over time.

Long-term lending equations

(Semi-)elasticity

Type of credit	Period 1980:1 to 2002:2		Sub-period 1980:1 to 1989:4		Sub-period 1993:1 to 2002:2	
	GDP	Interest rate	GDP	Interest rate	GDP	Interest rate
Total lending	[1] –	[1] –	1.16**	– 0.01*	2.65**	– 0.03**
Long-term lending to enterprises	[1] –	[1] –	1.58**	0.0	2.4**	– 0.02**
Short-term lending to enterprises	[1] –	[1] –	[1] –	[1] –	3.41**	– 0.04**
Housing loans	[1] –	[1] –	1.16**	– 0.03**	3.4**	– 0.04**
Consumer credit	1.79**	– 0.01**	1.63**	– 0.01**	1.87**	– 0.01**

When the two sub-periods are compared, it is immediately apparent that the income elasticities for total lending and long-term lending to enterprises, and especially for housing loans, are far higher in the second sub-period than in the first. As they appear unusually high, they may well reflect more than merely the greater responsiveness of lending to a change in the gross domestic product (GDP), probably pointing to other credit-boosting developments which show a trend over time similar to that of GDP growth. In that case, the GDP coefficients would be distorted upwards. Possible additional expansive factors are the increased borrowing needs resulting from the reconstruction of eastern Germany and the enhanced foreign direct investment activities of German enterprises towards the end of the 1990s. The chart on page 37 shows the increase in borrowing requirements compared with the 1980s. The actual development of lending by German banks to domestic enterprises and resident individuals is set against the volume derived from the estimate of the long-term credit relationship in the 1980s. The period after German reunification was evidently characterised by a stronger upward trend than the first sub-period.

As it is difficult to measure the aforementioned special effects on credit growth empirically, linear and quadratic time trends were added to the long-term lending equations. The first specification allows a trend in lending which rises proportionately over

The results in the table below show that GDP elasticities re-assume plausible values when the special effects are taken into account by means of time trends;

Long-term lending equations taking account of time trends

Sub-period 1993:1 to 2002:2; (semi-)elasticity;
$K_t = b_0 + b_1BIP_t + b_2r_t + b_3t + b_4t^2$

Type of credit	GDP	Interest rate	Trends	
			Linear	Quadratic
Total lending	1.67**	– 0.013*	0.025*	– 0.0001*
Long-term lending to enterprises	1.56**	– 0.013**	0.004**	–
Housing loans	1.14**	– 0.006	0.077**	– 0.0003**

those values do not deviate particularly strongly from the elasticities of the values determined on the basis of the 1980s. The linear trends are highly positively significant. The partially significant negative quadratic trends indicate that the importance of the special factors tended to decline towards the end of the 1990s as well as at the end of the period.

* Significant at 5%. — ** Significant at 1%. — **1** „–“ means no, or an unstable, cointegration relationship.

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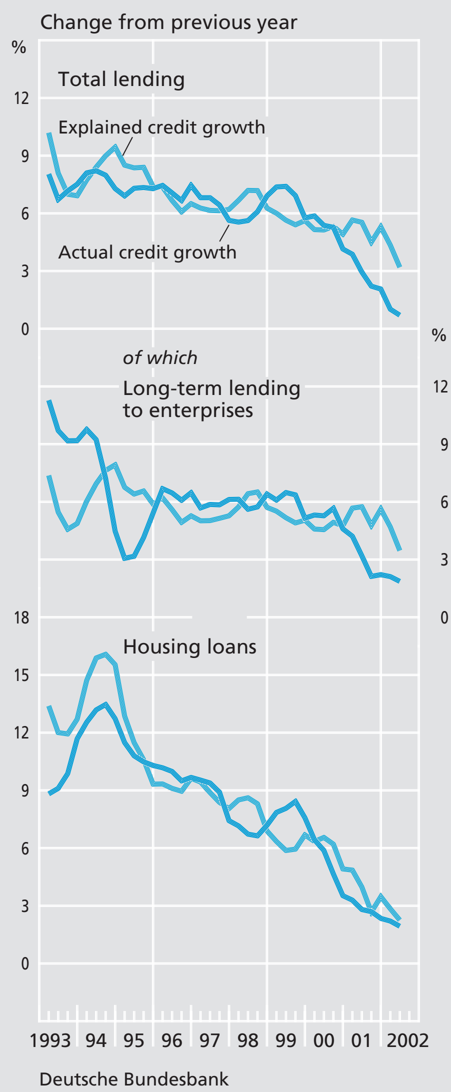
recurrent unsystematic shocks alone. The question is therefore whether the current weakness in credit growth is due, from a long-term perspective, to insufficient lending. In order to tackle this question, the credit growth which would be obtained on the basis of the structural long-term relationship at a given development of interest rates and income must be determined.[5] The chart on page 40 shows that in the case of total lending, long-term lending to enterprises and housing loans, the currently prevailing real credit volume is 1 or 2 percentage points below its long-term equilibrium value. However, if the whole period from 1993 is examined, there were definitely earlier periods during which the deviations were even greater. It should also be borne in mind that, in each case, the current credit development is determined only to a relatively small extent by the long-term relationship. All in all, the present weak credit growth cannot therefore be seen as a dramatic structural slump in lending. Rather, the deviations seem to be caused by short-term disruptions.

Credit growth as explained in the estimation equation and actual credit growth



Factors explaining the present low level of lending in Germany

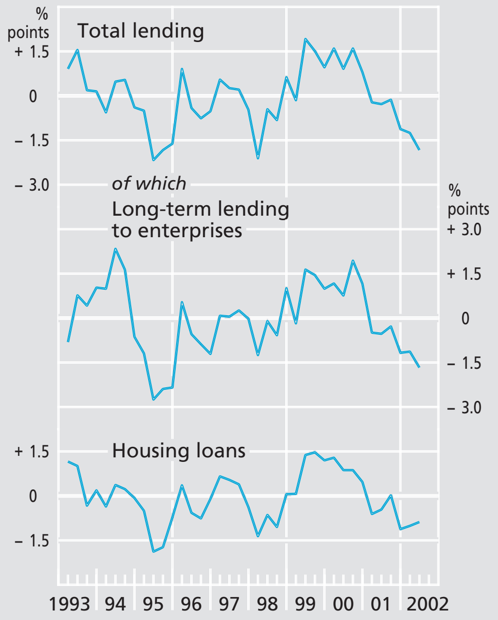
Weak credit growth mainly cyclically induced

As the result of the empirical analysis of loans granted by German banks to domestic private non-banks, it must be noted that the currently weak credit expansion is primarily cyclically induced and thus probably mainly due to credit demand adjustments. A decline in stimulating special effects may also come into play. Nonetheless, additional factors relating to credit demand and credit supply may also be playing a role.

5 The structural long-term relationship can be obtained by using an error correction model (see equation 2 in the Annex). It should be noted that the speed of adjustment c of the long-term relationship in the error correction models (equation 1) is between approximately –0.1 and –0.2 only. In the short term, the relative importance of disruptions and dynamic adjustment processes is therefore considerably higher.

Deviations from the long-run equibrium *

Seasonally adjusted



* Real; deflated with the GDP deflator.

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Increase in banks' net external assets

For instance, borrowing in Germany may have tended to be dampened of late because large amounts of funds have flowed to private non-banks from abroad. The net external assets of the German banking industry, in which these incoming funds are recorded, have risen by €95 billion since mid-2001, after a clear overall decline. In the past a slight negative correlation between net external assets and borrowing by domestic enterprises was generally apparent.

Sources of the inflows

The inflows of funds from abroad come from both current and financial transactions. Lower levels of direct investment abroad have played just as great a role in financial transactions as net purchases of German securities by non-residents. There was also a slight expansion of the indebtedness of German enterprises and individuals abroad. However, private non-banks increased their claims on non-resident debtors to a slightly greater extent over the same period, with the result that no overall tendency to increase net borrowing abroad can be perceived on the part of domestic enterprises and resident individuals. Nor does lending business conducted by foreign subsidiaries and branches of German banks with the domestic private sector provide any indication that lending is being shifted abroad from Germany.

Role of securitised lending ...

The weak growth in loans might be partly due to the fact that, as a result of the increasing securitisation of corporate liabilities, German banks have substituted securitised for unsecuritised loans to a greater extent. A tendency for securitised lending to gain in importance has been observable for some time now. The ratio of securitised lending to German enterprises to unsecuritised loans to the domestic private sector went up from around 2% in the mid-1980s to roughly 8% in 1995, peaking at just over 13% in April 2001. However, this is mainly due to a clear increase in the volume of equities held by the banks; from a statistical point of view, these are included in securitised lending by German banks to domestic enterprises. Its share in lending to the domestic private sector rose from 2% in the early 1990s to as much as 10½% in April 2001 and subsequently decreased. However, this increase probably also reflects, in particular, the strong gains previously made in the equity markets; the CDAX index more than doubled between the end of 1990 and April 2001. By contrast, the share of debt instruments issued by residents, such as corporate bonds, in lending by German banks to domestic enterprises and resident individuals was still around 1% in August 2002, a figure that had not changed since the early 1990s. This does not indicate that banks are substituting securitised corporate liabilities for unsecuritised lending.

The securitisation of lending by banks in the context of asset backed securities (ABS) programmes may also conceivably have contributed to the weak development of unsecuritised loans. However, if one looks at the data on ABS managed by German credit institutions that are reported to the Bundesbank, the possible importance of that kind of programme is put into perspective. After a sudden increase in ABS in mid-1998 and at the start of 1999, their volume – €15 billion in August 2002 – was only ¾ percentage point of total loans by domestic banks to German enterprises and households.

... and securitisation tendencies

The comparatively small volume of securities on the banks' balance sheets does not, however, rule out the fact that, for external financing purposes, domestic enterprises have resorted increasingly to the financial markets as a means of exploiting direct financing opportunities. The sharp increase in corporate bonds outstanding issued by residents might be indicative: since early 2000 the outstanding volume of this paper issued in Germany and abroad has more than doubled. Despite the huge increase in recent years, the volume of corporate bonds outstanding corresponds, however, to only around 2½% of the loans made by German banks to the domestic private sector.

By contrast, financing by means of equity holdings in German non-financial corporations has become more important, particularly from 1998 onwards. For instance, the share of equity financing in the financing of non-financial corporations rose from an average of just under 3% between 1991 and 1995 to more than 7% between 1996 and 2001. However, as most of these capital increases were related to corporate mergers and acquisitions, it cannot necessarily be concluded that new share issues have been used as a financing alternative to bank loans to a noticeably greater extent, especially as issuing shares is not an option open to most smaller firms.

Lending restraint at credit institutions

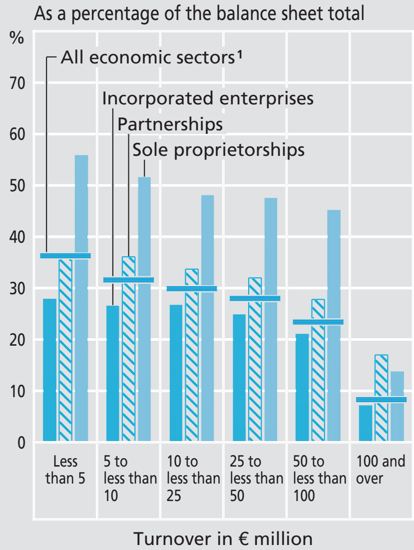
Banks' credit supply

In addition to the factors referred to above, supply-side effects are also increasingly assumed to be a further cause of weak credit growth. This assumption is partly based on surveys of different associations and institutions[6] whose results give at least certain indications of changes in lending by banks, but partly also on comments on this subject by the banking industry itself. With regard to the overall development, however, a distinction needs to be made between corporate and retail banking. A further distinction needs to be made between a fundamental shift in supply behaviour by the banks and their reaction to

6 See, for example, KfW, *Unternehmensfinanzierung im Umbruch,* April 2002, Creditreform, *Wirtschaftslage und Finanzierung im Mittelstand,* spring 2002, and DSGV, *Diagnose Mittelstand,* January 2002.

Bank lending to German enterprises in 2000, by size of turnover and legal form

As a percentage of the balance sheet total



1 Electricity, gas and water supply, mining (including quarrying), manufacturing, construction, trade and transport (excluding railways and telecommunications).

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a mainly cyclically induced worsening of borrowers' creditworthiness.

Bank lending predominates in SME financing

Those enterprises affected by the banks' lending policy are mainly firms which, in terms of their external financing, are particularly or solely reliant on bank loans, ie, in particular, small and medium-sized enterprises (SMEs). The dependence of German enterprises on bank financing increases as company size decreases and is particularly high for non-corporations, of which sole proprietorships are especially affected (see chart on page 43). However, against the backdrop of the economic situation and rising uncertainty on the international financial markets, larger enterprises have probably also become more dependent on banks again. This is especially true of firms whose rating has fallen below the investment grade and which are therefore hardly in a position any longer to consider financing on the capital markets.

Low capital ratios of German enterprises

In particular, SMEs – and especially partnerships – in Germany have a comparatively small capitalisation. These low capital ratios endow the problems of asymmetrical information (such as moral hazard and adverse selection) and thus the necessity of an extensive flow of information between borrower and lender with additional importance, this being reflected in the high degree of dependence by smaller enterprises on banks. However, the balance sheets of partnerships, in particular, frequently provide little information about their capital.[7] It also needs to be borne in mind that, owing to the low balance sheet valuation for real estate, for instance, and the concomitant opportunity to build up hidden reserves, the capital shown in the balance sheets leads in some cases to major underestimations of the actually liable capital.

Sharp increase in company insolvencies

Against the background of the weak economic situation and the uncertainties on the financial markets, a further factor is the increasingly tense business situation of many enterprises. There was already a sharp increase in the number of company insolvencies in Germany in 2001. At over 32,000, these were 14.4% above the previous year's figures, which were already quite high. They will probably increase markedly again in the current year. Purely in terms of figures, most in-

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7 For further details, see Deutsche Bundesbank, German enterprises' earning and financing patterns, by form of business organisation, *Monthly Report,* December 2001, p 45-77.

solvencies are occurring among smaller and newer enterprises.[8] However, the number of insolvencies among larger and older enterprises, which involve the majority of employees affected by insolvencies, went up sharply last year (see adjacent table).

Decline in borrowers' credit quality

When assessing the quality of borrowers, the capital ratios, some of which are small, lead, in times of high and increasing insolvency risk, to the enterprises in question being given a lower credit rating. Against this background, average lending terms would also have to become more restrictive, even if the banks' supply policy were to remain unchanged. This should not be interpreted as a change in lending behaviour on the part of the banks.

Lending and Basel II

In connection with borrowers' credit rating and the loans granted on that basis, it has frequently been suggested of late that the new ruling introduced by the Basel Capital Accord (Basel II) is another restrictive factor. The new capital requirements, scheduled to enter into force at the end of 2006, stipulate, in the context of their first pillar (minimum capital requirements), that the capital required to back loans by banks must take greater account of risk than was previously the case. The latest Quantitative Impact Study (QIS 2.5) in Germany at the end of 2001 showed, on average, no change in the capital requirements when the standard approach based on the banks' internal rating was taken. In accordance with that approach, there were clear reductions in capital requirements, especially in the area of retail portfolios for private customers and smaller enterprises, whereas, in the case of lending to governments, banks and major enterprises, a higher or lower amount of regulatory capital is required, depending on their credit quality. In the meantime, the Basel Committee has also approved reductions in capital requirements for medium-sized enterprises with an annual turnover of less than €50 million.[9] Those types of expos-

Company insolvencies in Germany

Item	2000	2001	Change from previous year in %
Total	28,235	32,278	+ 14.4
of which			
> 100 employees	197	264	+ 34.0
> €25 m claims	93	126	+ 35.5
> 8 years old 1	7,309	9,132	+ 24.9
of which			
Small businesses	2,981	3,795	+ 27.3
Sole proprietorships	6,667	7,231	+ 8.5
Partnerships	2,211	2,624	+ 18.7
Private limited companies	15,832	17,857	+ 12.8
Public limited companies	176	442	+ 151.1
Other	368	329	– 10.6

Source: Federal Statistical Office. — **1** Excluding small businesses.

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8 According to data from Creditreform, in 2001 just under 60% of the enterprises concerned had an annual turnover of less than €2.5 million, more than 50% are "microfirms" employing no more than five people, and almost every fifth enterprise concerned is no more than two years old.

9 On the one hand, lending to most of the German SMEs (approximately 90%) will probably come within the scope of the "retail portfolio" and thus be subject to a lower risk weighting. For loans to individuals and smaller enterprises, the retail portfolio assumes that granularity and diversification will be higher than for the portfolio of loans to other enterprises. The ceiling for loans in that category is €1 million. On the other hand, the intention is for account to be taken of a special size-dependent component for small and medium-sized enterprises in the risk weighting function for SMEs not included in the retail portfolio. (See also the press release issued by the Basel Committee on Banking Supervision at the Bank for International Settlements (BIS) on 10 July 2002.)

ures are generally to be backed by 10% less capital than exposures to large enterprises; the maximum reduction will be 20%. Overall, a more marked differentiation of lending margins can therefore be expected, although this is unlikely to lead to a general tightening of credit terms – at least not because of the capital requirements – but should, in part, create greater leeway for concessions, particularly for smaller enterprises.

Basel II as a catalyst

Nonetheless, both surveys of enterprises and comments by the credit institutions indicate that there has been a change in banks' lending policy. This is likely to be reflected in the aforementioned heterogeneous credit development across the different categories of banks. Owing to the unsatisfactory income and expenditure situation and the extensive value adjustments required in the field of corporate loans,[10] the banks are coming under greater pressure, on the one hand, to concentrate on particularly lucrative business sectors and to give lower priority to possible investment in longer-term credit relationships which represent less profitable lending. On the other hand, poor performance has also meant that banks are attempting to achieve higher, perhaps risk differentiated, lending margins. As outlined above, Basel II has presumably contributed to an increase in income and risk awareness on the part of the credit institutions. Lending behaviour and lending rates are now more obviously dependent on their internal rating and therefore on the enterprises' risk position. Nor can it be ruled out that, if, on the basis of Basel II, banks align their credit policy more closely to borrowers' current credit rating, this will have a greater procyclical impact on lending than was previously the case. In order to counter this, the banks would have to conduct stress tests to simulate, for example, a decline in the quality of assets in a recession.

Loans to retail customers

Just as in the case of corporate lending, lending to retail customers has also been affected by the economic climate and the associated increase in the need for value adjustments. The number of consumer insolvencies also rose sharply from 10,479 in 2000 to 13,277 in 2001, which represents an increase of 26.7%. As in corporate lending business, here, too, terms and lending policy are likely to be aligned more closely with customers' creditworthiness. The credit institutions are already using scoring methods to assess the creditworthiness of retail customers. The banking industry is currently working on extended procedures which should make it easier to achieve a risk-weighted categorisation of customers based on socio-economic data. In the future, in this area, too, the spread of margins based on the individual customers' credit rating can be expected to widen and lending policy to be more strongly geared to these risk categories. However, given the comparatively high margins in this area of business and the savings in administrative costs resulting from a greater standardisation of procedures, a somewhat higher degree of involvement by banks can nonetheless be expected in the future.

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10 See Deutsche Bundesbank, The performance of German credit institutions in 2001, *Monthly Report,* September 2002, p 15-45.

Summary

Credit growth can be largely explained by fundamentals

Overall, it can be seen that weak credit growth in Germany can be explained primarily by the development of interest rates and income, ie it is probably to be viewed as linked, in particular, to the cyclically induced restraint in credit demand. The expiry of special developments, such as the government promotion of investment in eastern Germany or the decline in the large volume of foreign direct investment by German enterprises, which stimulated lending in the 1990s, is also contributing to the slowdown in credit growth.

However, a certain restraint also evident at the banks…

Nonetheless, the econometric results for the various credit aggregates also show that other factors may well also be causing weak credit growth. Indications that particular use is being made of other sources of financing are currently fairly weak. By contrast, there are signs of a certain lending restraint among banks. Set against a background of poor performance by the German banking industry, not only the narrow lending margins but also, in particular, the high number of company insolvencies and the low capitalisation of many enterprises have probably put additional negative pressure on firms' credit quality.

… but not attributable to Basel II

By contrast, the proposed new Basel capital requirements, which are being debated in public, have probably done little more than heighten the banks' income and risk awareness. They are therefore likely to increase the existing tendency to differentiate more clearly when defining lending terms; overall, however, owing to the fact that the regulatory capital has, on average, remained more or less as it was, the banks' capital costs of lending have not gone up as a result of Basel II.

Annex

Estimating the credit equations: data and methodology

Modelling and estimating econometric models on German credit growth has encountered some methodological difficulties. Lending behaviour has been shaped by numerous special effects, such as those linked to German reunification, for example; these are difficult to measure empirically. Robust procedures such as Engle-Granger or FMOLS were therefore used for the econometric estimation methods as the conditions necessary for the use of the Johansen procedure were not in place.[11]

The basis for the estimations presented here are quarterly data, adjusted for breaks and seasonal and calendar effects, on actual lending (deflated with the GDP deflator), real GDP and nominal capital market rates (the yield on domestic bearer bonds outstanding). The estimation period extends from the first quarter of 1980 to the second

11 In particular, the normality of the error terms.

quarter of 2002. Account has been taken of lending volume and GDP as logarithmic variables.[12]

The following error correction model was used to describe credit growth.

$$(1)\quad \Delta K_t = \underbrace{a_0 + a_1\Delta K_{t-1} + a_1\Delta BIP_t + a_2\Delta BIP_{t-1} + a_2\Delta r_{t-1}}_{\text{Short-term dynamism}}$$
$$\underbrace{-\,c\,(K_{t-1} - b_0 - b_1BIP_{t-1} - b_2r_{t-1})}_{\text{Error correction term}} + \underbrace{\varepsilon_t}_{\text{Shock}}$$

This specification proved to be eminently suitable and produced a satisfactory empirical description of credit behaviour for most estimations. In accordance with the usual interpretation of error correction models, the current change in the real volume of lending is determined by two explainable factors, the short-term adjustment dynamism and the error correction term, as well as by an inexplicable current shock. The long-term relationship, as shown in equation 2, is of particular interest for the interpretation of credit growth.

$$(2)\quad K_t = b_0 + b_1BIP_t + b_2r_t$$

This equation describes a long-term equilibrium structural relationship of the volume of lending dependent on GDP and interest rates. If, for example, the credit volume is larger than postulated by this relationship, this produces a corrective negative effect on current credit growth ($\Delta K_t < 0$) of the order of the speed of adjustment (– c).

12 As an alternative, analyses using other variables were carried out but they produced either no different results or economically unsatisfactory descriptions of credit growth. For example, in the case of housing loans, investment in housing construction was used as a sector-specific activity variable. In the case of short-term lending to enterprises, the inclusion of short-term or current account interest rates failed to produce any stable results. This is due to the fact that such lending is less determined by cost factors than by short-term liquidity requirements, which change in the course of the economic cycle, for instance. The capital market rate seems, in this case, better suited to modelling factors of that kind. Short-term interest rates, by contrast, tend to measure monetary policy effects, which make only a slight impact on short-term borrowing.