

Question E 11. One year bullet margin

Which margins (in %) do you deem appropriate for a loan (one year bullet, EUR 5 mill. notional) with the following PD and LGDs?

Since the question surveying banks' margins over rating grades (E 2.) assumed normal collateralisation, the margins for the remaining LGD categories have to be examined separately. In order to minimise respondents' effort, the margins are surveyed for only one rating grade. The margins for the other rating categories need to be derived through extrapolation. Therefore, a model had to be tested in order to perform the extrapolation. The first chart shows the average decreases of margins over LGD-classes neglecting the particular rating categories. Since creditworthiness is expected to increase with increasing collateralisation, the margin decreases accordingly as expected.

Average decrease of margins over loss given default (LGD) categories

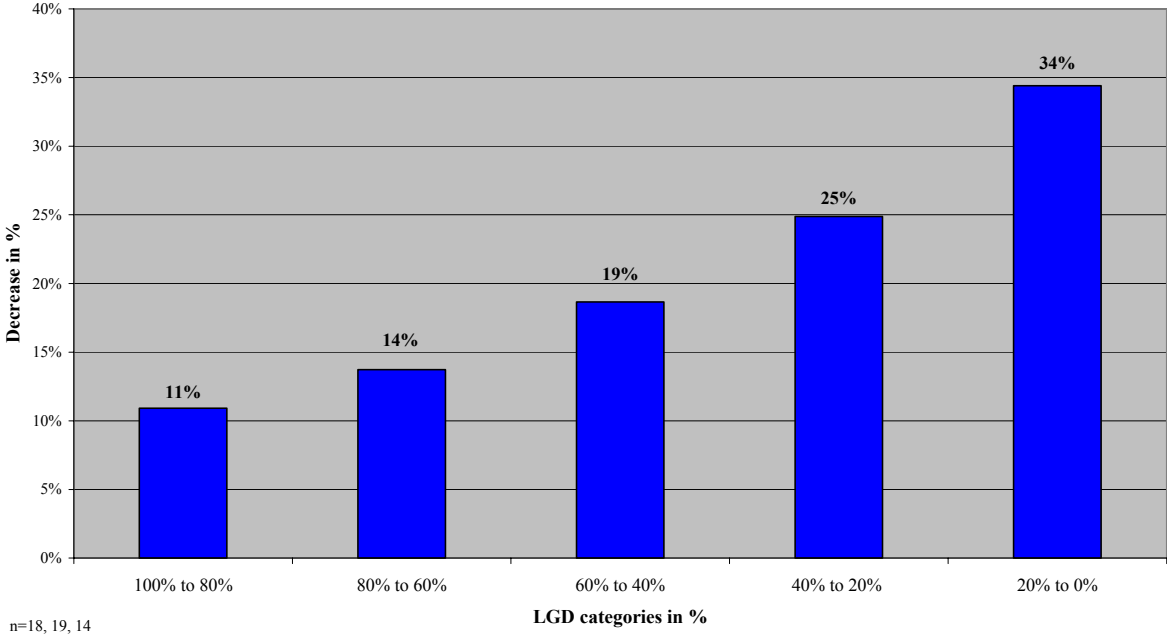


Figure Error! No text of specified style in document.-1

The next chart summarises the appropriateness of linear extrapolation, which is a very simple model aimed to assure tangibility. It turned out that the model suitably fits the data. The model has been applied with the average cost margin as it was reported and with an implicitly derived cost margin, which minimises the prediction error of the model. Both margins were very close together.

The last chart visualises the consequences of linear extrapolation for the collateralisation categories for each rating grade.

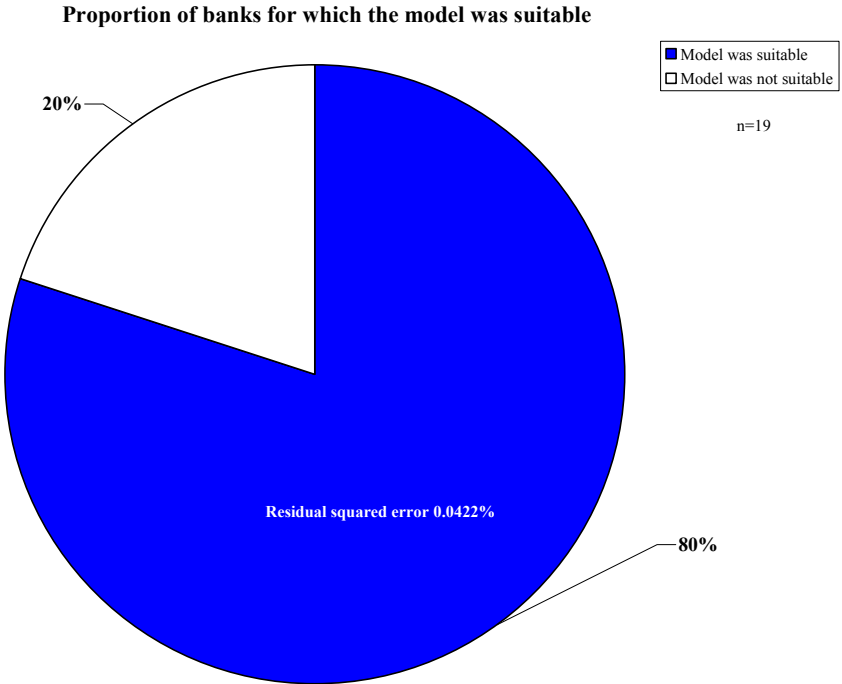


Figure Error! No text of specified style in document.-2

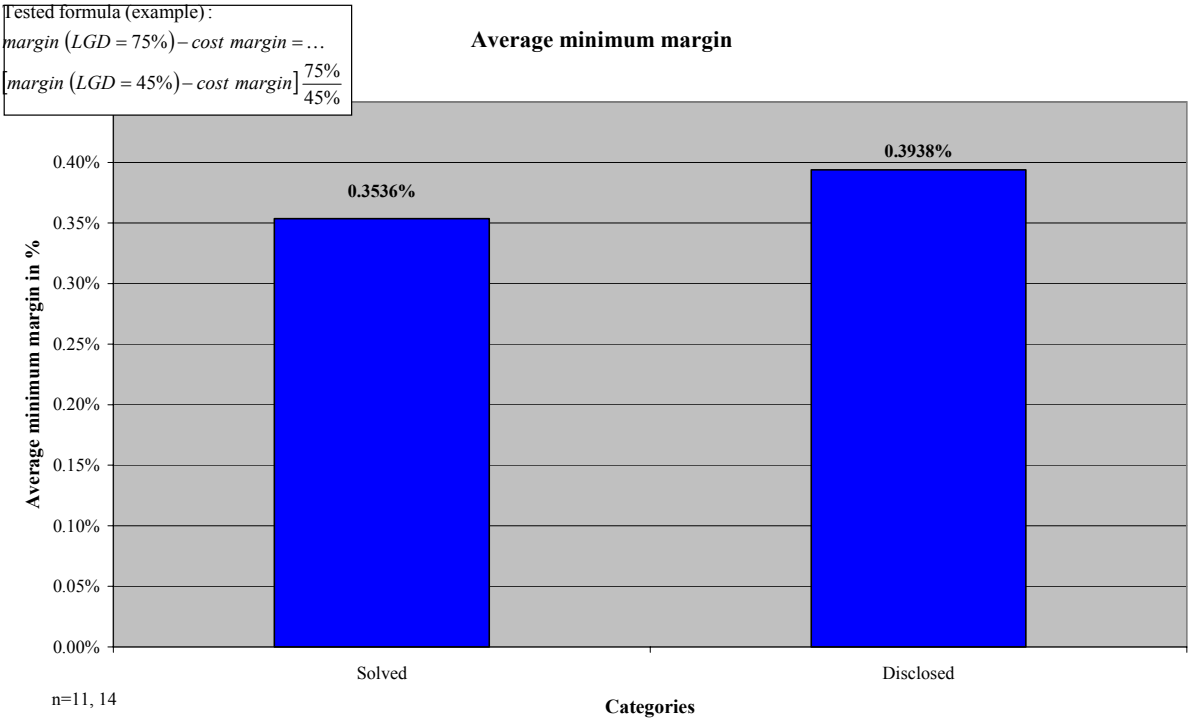


Figure Error! No text of specified style in document.-3

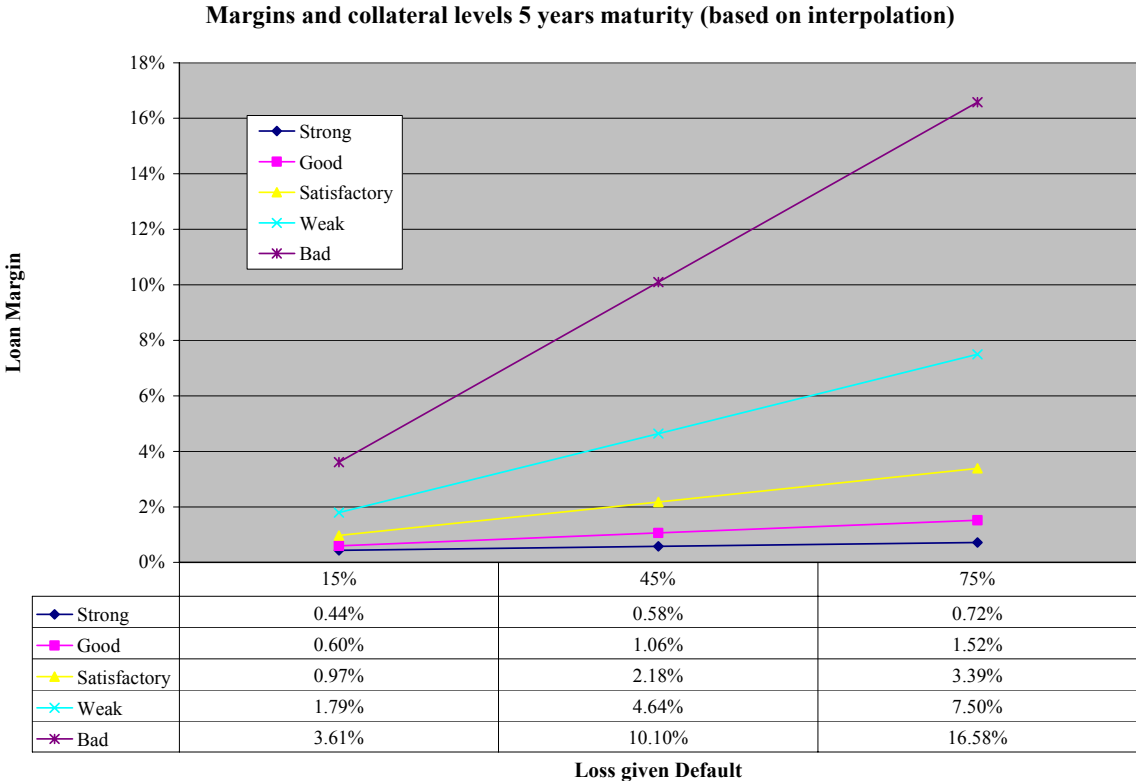


Figure Error! No text of specified style in document.-4

Figure Error! No text of specified style in document.-4 shows that margins increase with LGD linearly according to the linear extrapolation model. In addition, this chart demonstrates the margin differences due to the individual rating categories.

Question E 12. Historical margins

Please specify the historical margins (in % over the last five years) for a loan (one year bullet, 45% LGD, EUR 5 mill. notional) with the following PD.

Historical margins are a good indicator for the development of margins over time. Especially, volatility of margins is important. Based on these data, stability and thus necessity to periodically re-validate margins can be assessed.

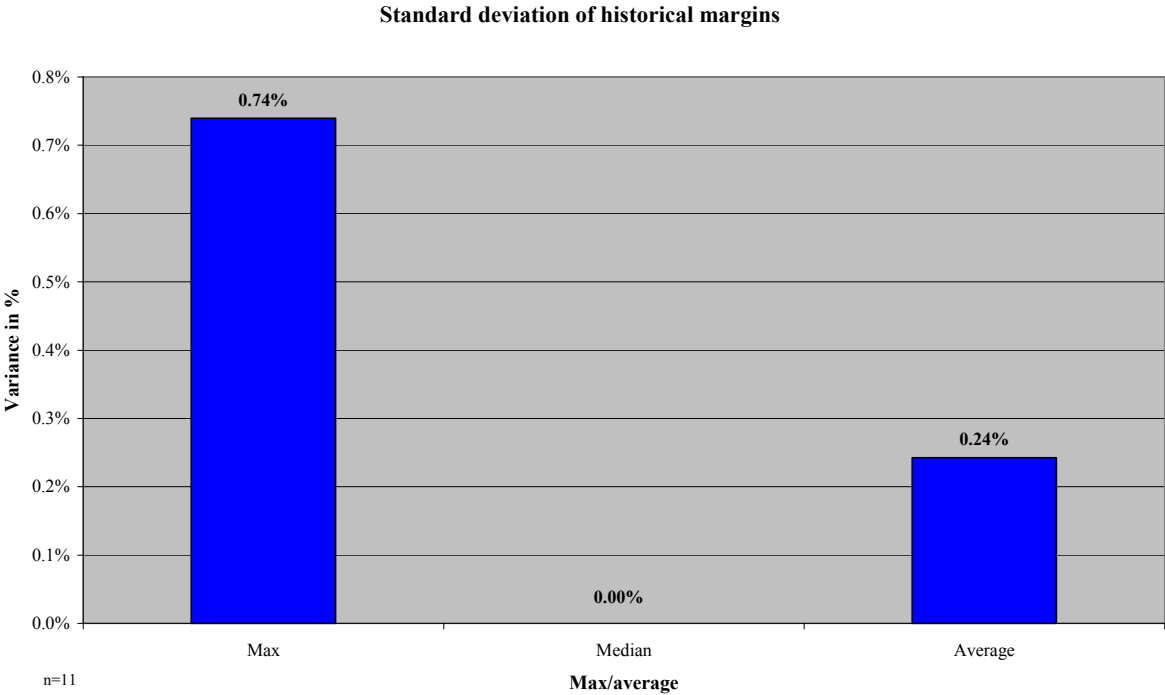


Figure Error! No text of specified style in document.-5

As becomes apparent in Figure Error! No text of specified style in document.-5, historical margins are very stable over time. The standard deviation amounts to 0.24% on average. However, more than half of the surveyed banks reported a complete stability of margins over the past five years. Hence, the future appropriateness of the margin tables can be verified in intervals larger than five years if historical experience is deemed to be relevant for future developments.

Question E 13. Margins differentiated for currencies

Please indicate the margin (in %) your institution would ask for a loan (one year bullet, rating Baa2, 45% LGD, notional equivalent to EUR 5 mill., disregarding country risk) in the following currencies.

Because banks grant loans in different currencies it has to be researched if this practice leads to variations in margins for loans denominated in different currencies. A different currency means also a different yield curve, which can have a considerable impact on pricing.

Differences between margins for loans across currencies in which banks grant loans

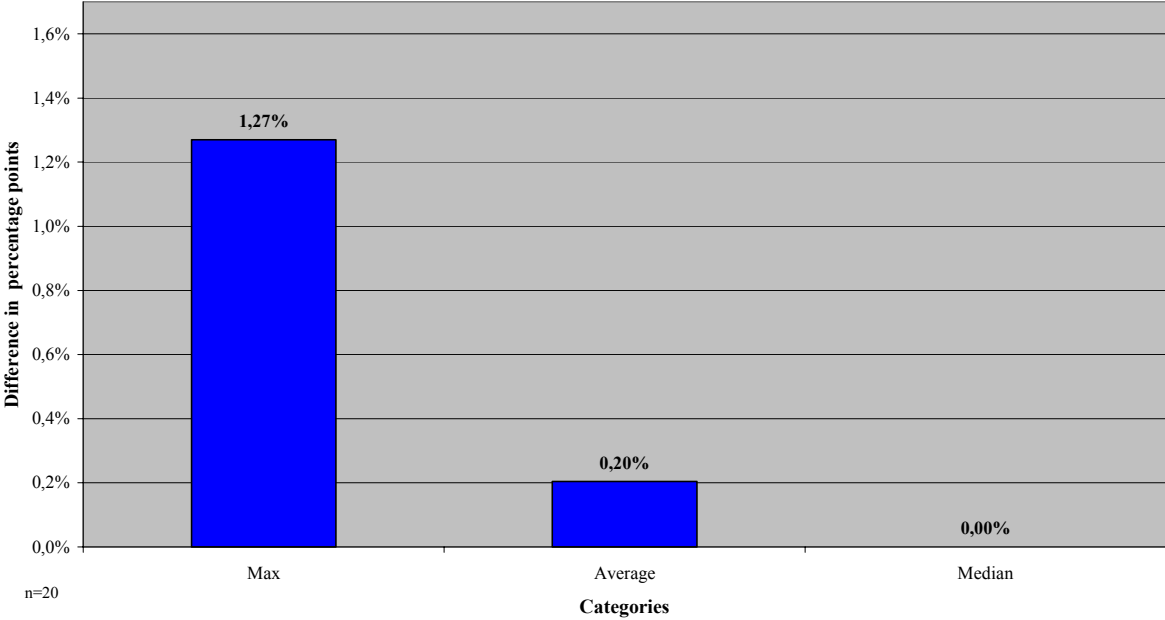


Figure Error! No text of specified style in document.-6

Figure Error! No text of specified style in document.-6 resolves this concern. Half of the banks in the sample report not to differentiate between currencies regarding the pricing. The average difference is about 20 basis points. It is recommended to apply the same margins for all currencies.

1.1.1.1.1 Questions concerning the model

Question F 1. Bond market credit spreads

To which extent is your institution's loan pricing market based using credit spreads observed in bond markets for the following notional amounts?

Loan and bond markets compete with each other at least to a certain degree. Usually, for funds exceeding EUR 50 mill. issuing a bond might be more efficient in terms of costs. However, even for smaller amounts a certain correlation between bond and loan markets might be present, because both market segments should yield a similar return on equity for investors. If there were a dependence, bond market data, especially credit spreads of bonds, could be used for setting up a margin table for the reference rate.

Average responses for dependence of loan margins on bond markets

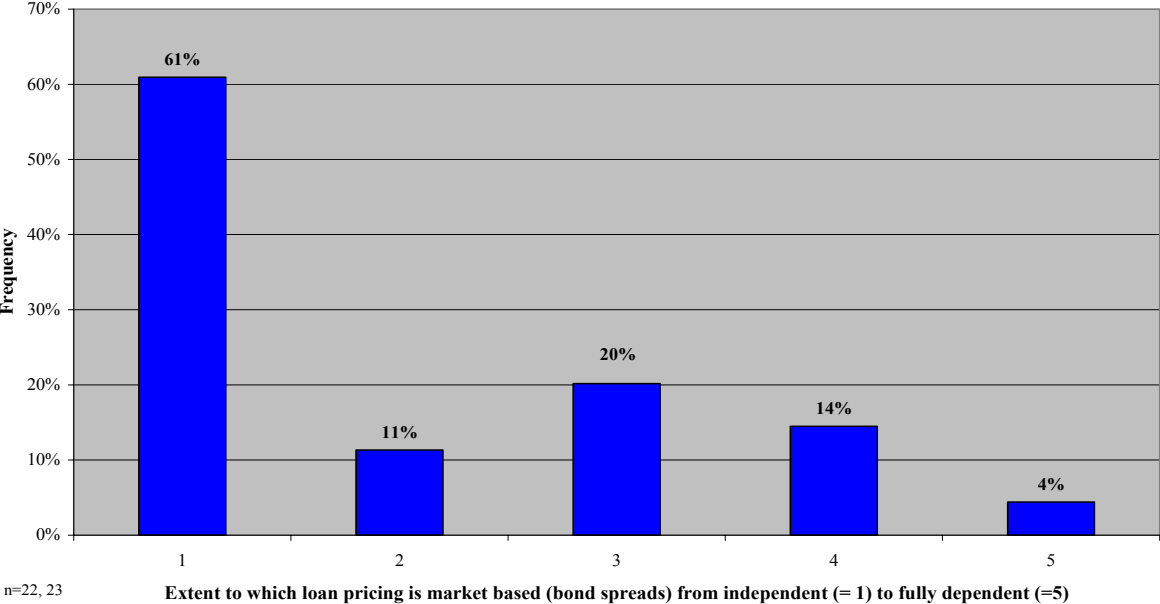


Figure Error! No text of specified style in document.-7

Average responses for dependence of loan margins on bond markets differentiated for notional amounts

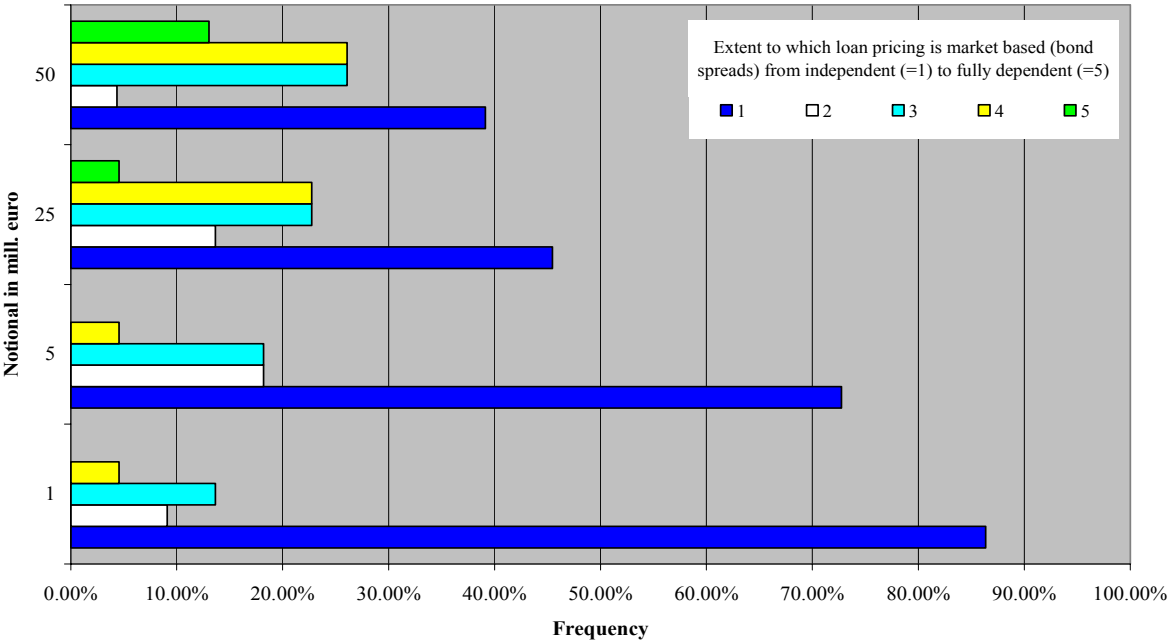


Figure Error! No text of specified style in document.-8

As becomes obvious in Figure Error! No text of specified style in document.-7, the majority of banks (61%) considered loan markets to be independent from bond markets on

average. Figure Error! No text of specified style in document.-8 draws a more differentiated picture. It can be observed that independence is greatest for EUR 1 mill. and EUR 5 mill. but decreases with increasing notional amounts. For EUR 50 mill. more than 10% of respondents saw strong dependence and about 25% indicated to see a certain degree of dependence.

Currently, a strong dependence between loan and bond markets cannot be sustained by the answers. This may, however, change over a medium horizon, as securitisation becomes more standardised.

Question F 2. Return on equity

What is the pre-tax return on equity (ROE) in % you typically demand for loans on average?
When granting loans, banks have to retain a certain amount of minimum capital due to regulatory provisions. This capital retention causes opportunity costs, which have to be recovered through the proceeds from granting loans. This capital cost is included in the loan margin and can be assessed by a bank’s required return on equity.

Distribution of return on equity (RoE) values

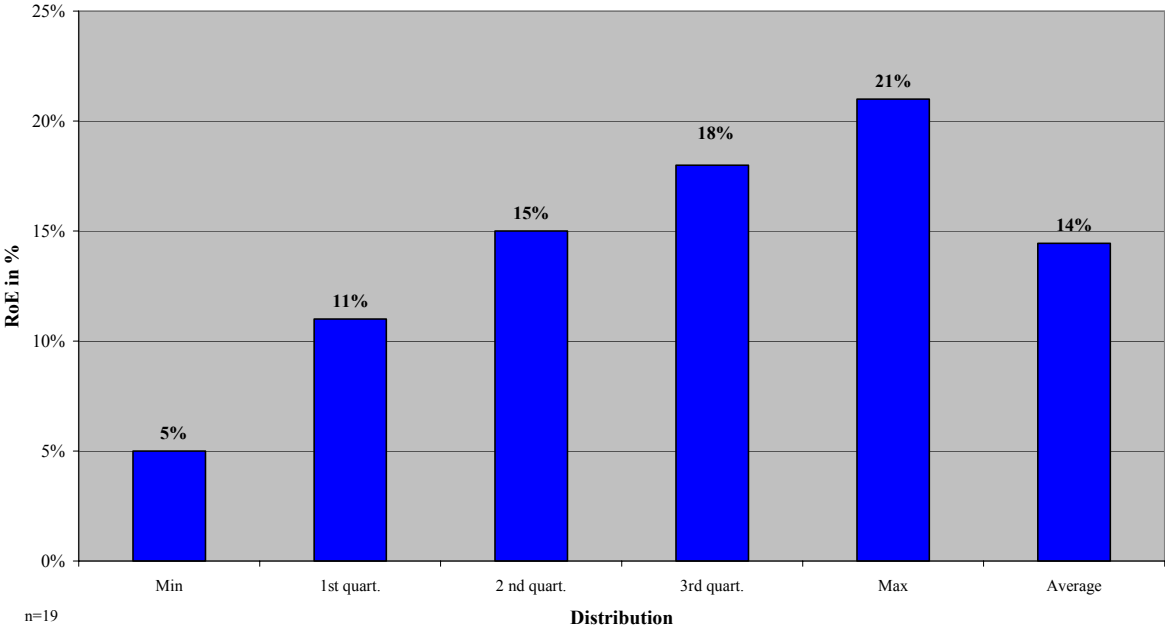


Figure Error! No text of specified style in document.-9

Figure Error! No text of specified style in document.-9 illustrates the distribution of RoE values for the sample at hand. The average RoE amounts to 14%. In line with the sample and due to the authors’ experience a pre-tax return of 15% is an appropriate benchmark for banks’ equity capital.

Question F 3. Differentiation of ROE for certain factors

Concerning the level of the demanded ROE do you differentiate among certain factors (i.e. sector, collateral, etc) and to which extent?

Some banks (40%) differentiate the RoE they demand in form of a margin add-on according to certain factors such as industry or collateralisation. The extent to which banks differentiate is too diverse as it could be taken into account for the standard approach.

Concerning the level of return on equity (RoE) do you differentiate among certain factors?

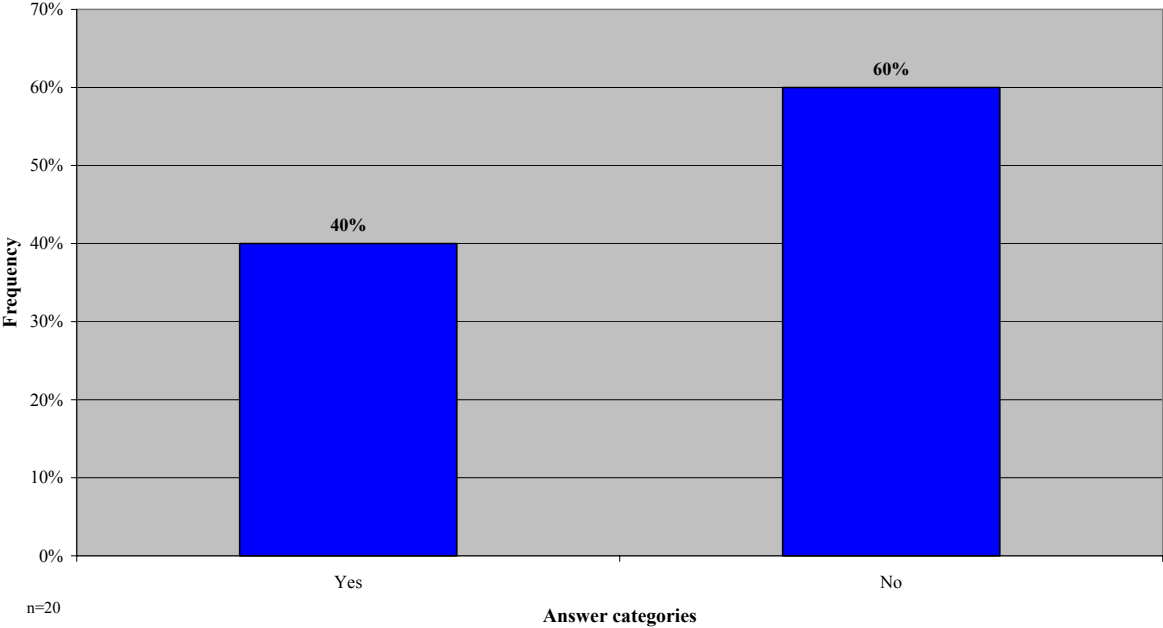


Figure Error! No text of specified style in document.-10

Question F 4. Measuring underlying capital

How do you measure the capital amount (tear 1 and 2) required to underlay granted loans?
Several approaches exist to measure the equity capital banks must retain to underlay credit risk. Depending on the approach, underlying capital can vary within limited boundaries. The regulatory or economic capital determines the component of the margin, which actually ensures the return on equity.

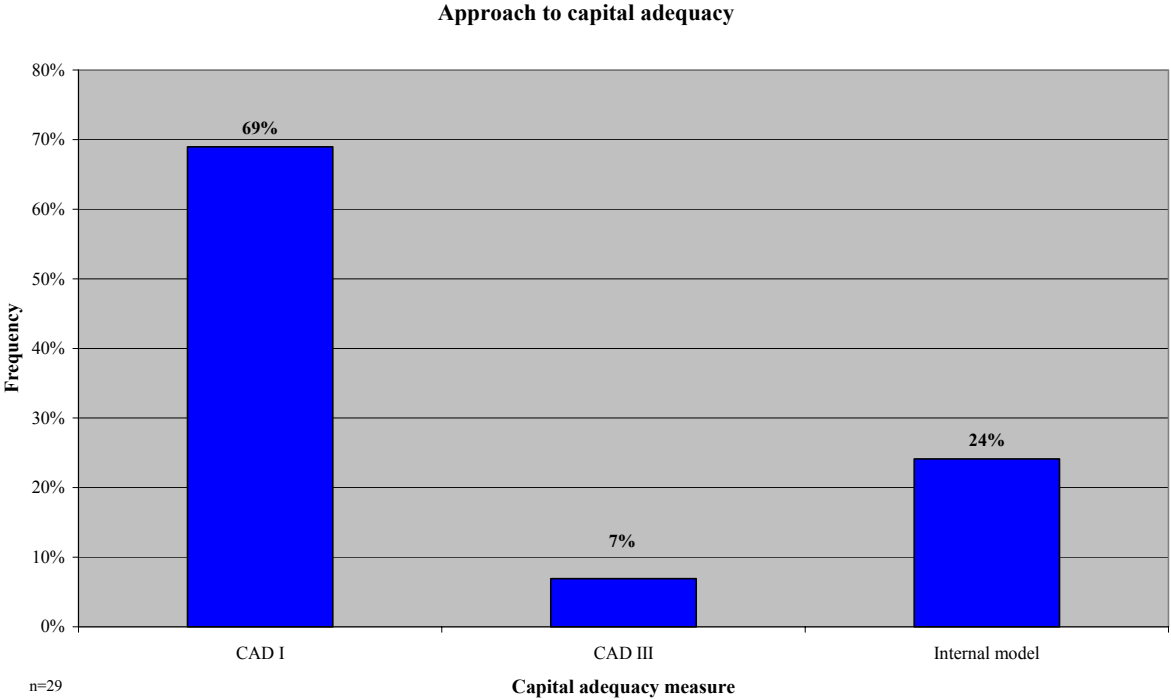


Figure Error! No text of specified style in document.-11

With about 70% CAD I is currently the most widely dispersed approach to measure capital adequacy. This approach has been applied to the validation of margins by the pricing model therefore. In future the CAD I approach will be abolished in favour of the Basel II-approaches to regulatory capital. For the purpose of pricing more banks will move to internal models as these are more advanced. This would make particular recommendations on applicable pricing models difficult as the input parameters will change in foreseeable time.

Question F 5. Approach to capital measuring

If you apply or intend to apply CAD III/Basel II, which approach does your institution use or intend to use to calculate the capital requirements for credit risk of corporate debtors? When do (did) you implement this approach?

In the future, banks in the EU are obliged to apply the European rules on the minimum equity capital requirements according to Basel II. However, within Basel II they can choose among three main alternative approaches, the standardised approach, the foundation and the advanced internal ratings-based approach. The more advanced the applied approach is the less the capital requirement is expected to be on average. This may affect credit spreads since a lower margin component for the tied equity capital is required.

Approach to calculate credit risk within CAD III/Basel II

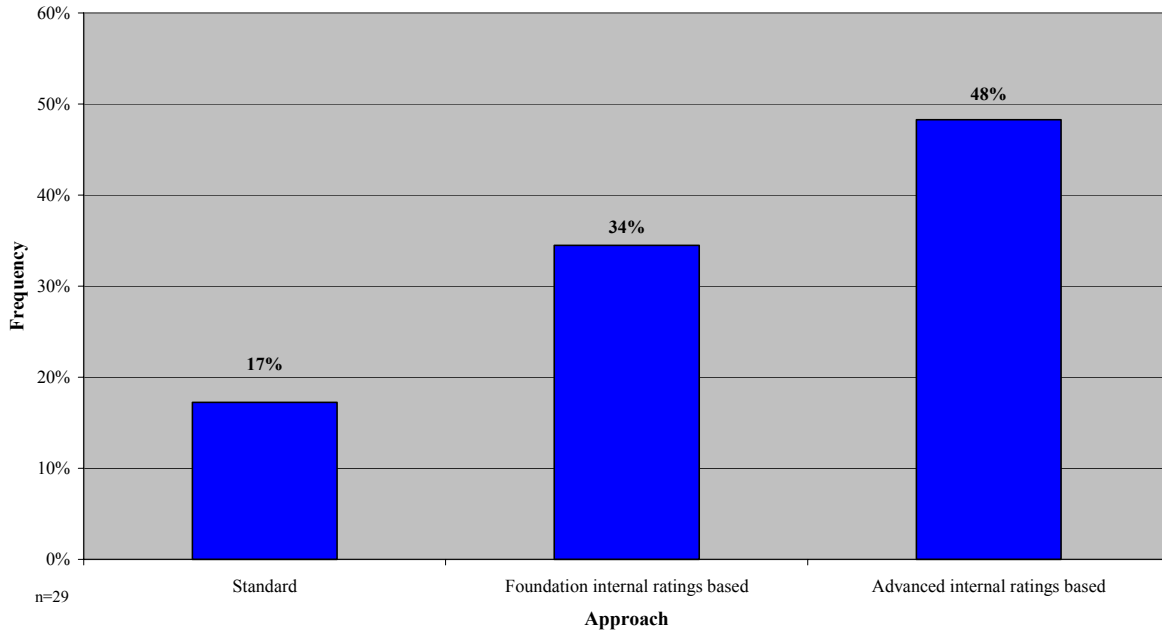


Figure Error! No text of specified style in document.-12

The majority (48%) decided to implement the advanced internal ratings based approach, which is the most complex and sophisticated one (Figure Error! No text of specified style in document.-13). However, it allows capital levels to be slightly lower than those applicable for the other less advanced approaches. Consequently, it can be expected that opportunity costs due to minimum capital requirements will decrease for banks opting for the most advanced approach, thereby reducing the margin.

The underlying regulatory capital is a parameter in common pricing models. For the purpose of an advanced approach for the reference rate a recommendation regarding a specific measurement of capital cannot be drawn from this result as there is no market standard apparently.

The alternative approaches of Basel II for measuring regulatory capital will be implemented between September 2005 and August 2006 on average (see next chart). The pricing behaviour may change at least from thereon, probably earlier as banks take adverse effects already into account. This leads to the recommendation that the MFI-statistics¹ should be tracked in the future in order to detect considerable structure breaks with regard to loan pricing.

¹ See chapter 1.2.3 Differentiated approach for the normal case.

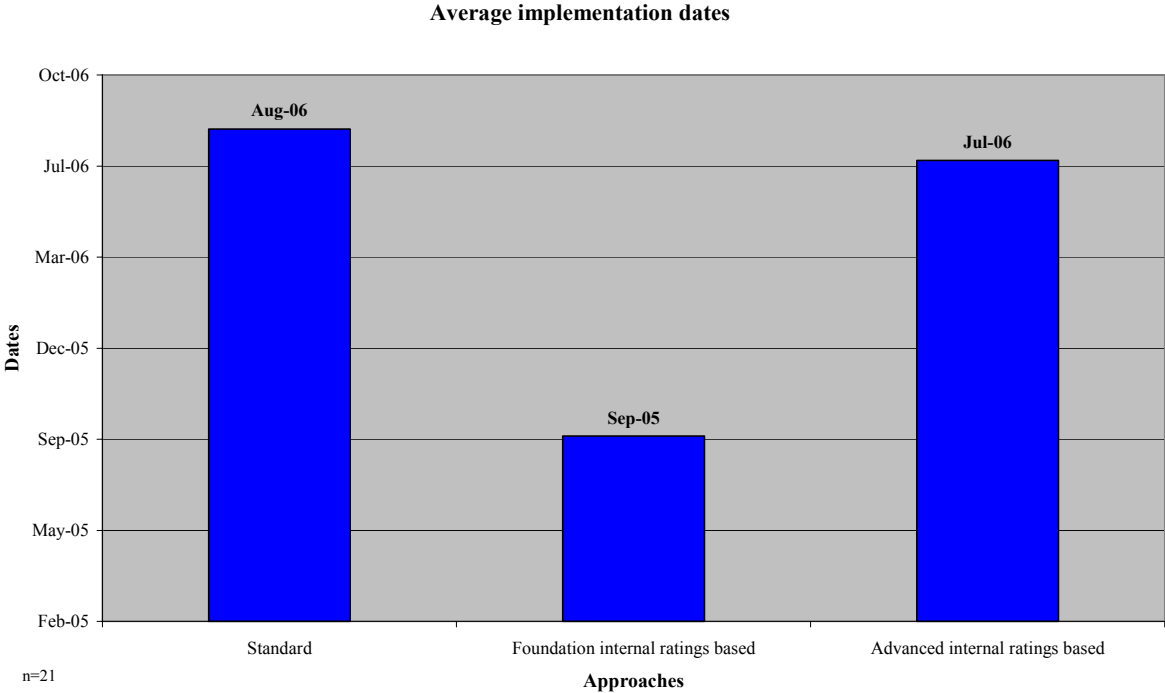


Figure Error! No text of specified style in document.-13

Question F 6. Average share of underlying capital

What is the average share (in %) of capital underlying your institution's loan portfolio?
Since the absolute capital cost depend on the level of capital effectively sustaining loans, these levels should be examined. The average level was intended to be applied in the pricing model in order to validate reported margins.

Average and median share of underlying capital

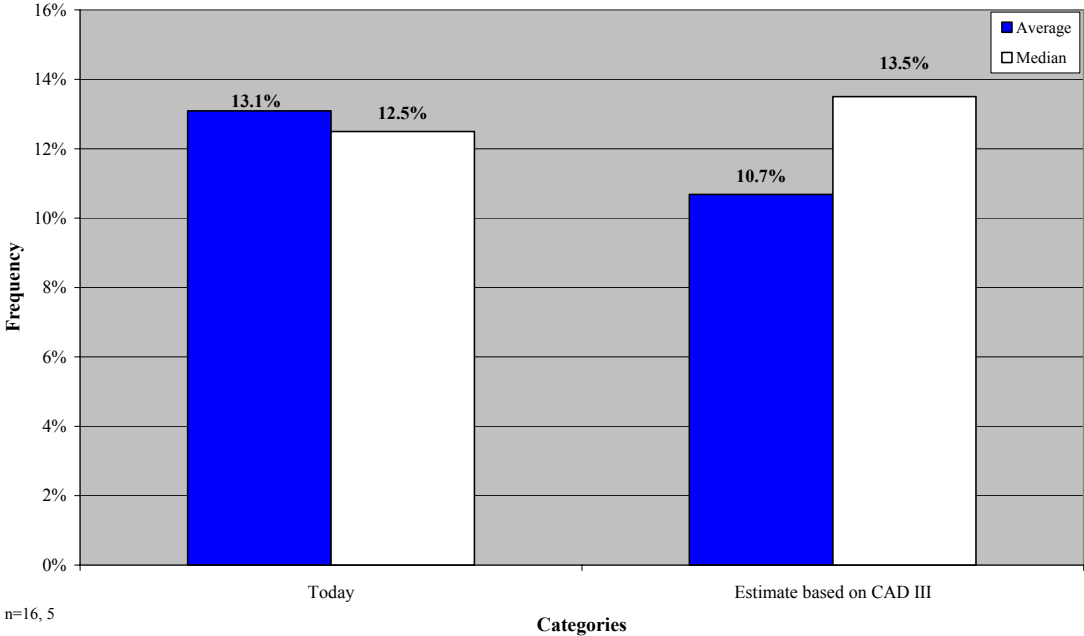


Figure Error! No text of specified style in document.-14

Maximum and minimum capital today and under CAD III

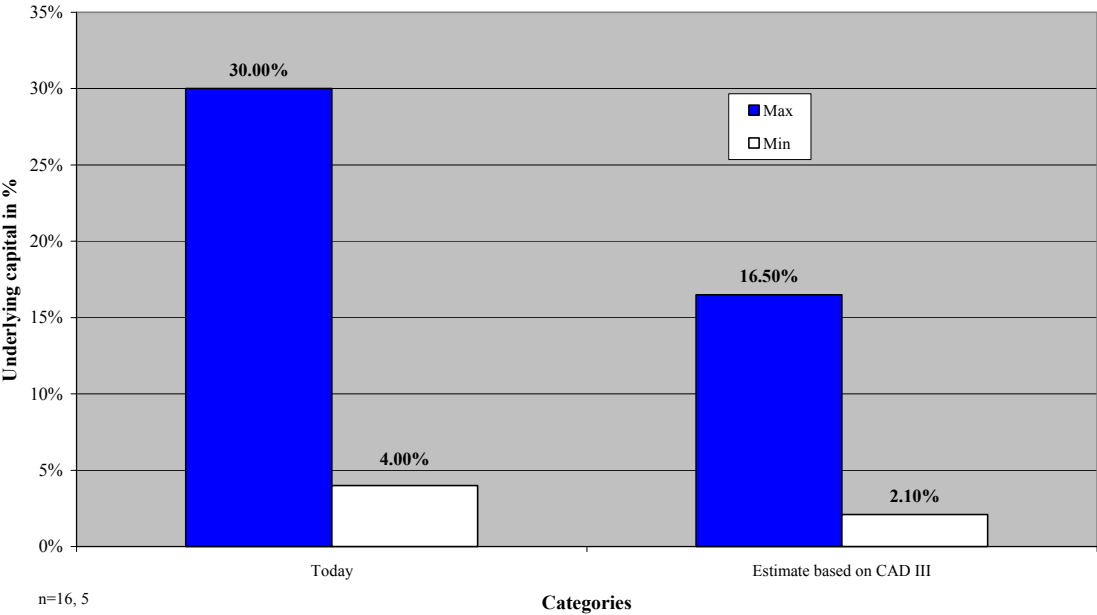


Figure Error! No text of specified style in document.-15

According to Figure Error! No text of specified style in document.-14, average capital held today amounts to about 13% and is expected to decrease to about 11% in the future.

Surprisingly, the median capital is expected to increase. Figure **Error! No text of specified style in document.-15** depicts the maximum and minimum capital levels reported for today and the future. Based on this chart, future capital levels are expected to decrease as well.

However, the maximum and minimum levels do not appear to be representative for commercial banks' usual bandwidth since it would either be too expensive to hold so much equity capital ready or almost be impossible to achieve such a low level.

The reported figures can be expected to reflect the *actual* levels of capital held (especially the maximum levels of Figure **Error! No text of specified style in document.-15**), exceeding the required minimum regulatory capital or the required capital according to internal risk credit models, if the latter is larger than the minimum requirements. As a parameter for a loan pricing model, however, the reported levels seem to be too high as too large margins would result. For instance, 10% excess return on equity over swap on 10% required capital would require a margin of 1% just for own profit, which is not founded by reported margins. The average underlying capital does seemingly not reflect the minimum *marginal* capital that is required for an additional loan and that is decisive in pricing.

Therefore, for the purpose of validating the margins by a pricing model simply the currently applicable minimum capital ratio of 8% has been applied. Thereby an overestimation of the margin stemming from the pricing model, which was used to validate the reported margins, could be avoided.

Question F 7. Loan pricing model

Do you regard the following basic model, which is described by an example of a loan (one year bullet, EUR 5 mill. notional, 45% LGD), as an appropriate simplification of credit market based pricing of loans (please understand the model as pre-tax calculation)?

Question F 7 was designed to validate a basic loan pricing model. Originally, the authors intended to develop a simple pricing model in order to make it applicable to specific cases of State aid. The diversity of banks' answers and the questionable applicability of a model by non-experienced users changed the authors' thinking. Finally, the model was applied to validate the reported margins (see **Error! Reference source not found.**), but was not particularly recommended for an advanced approach.

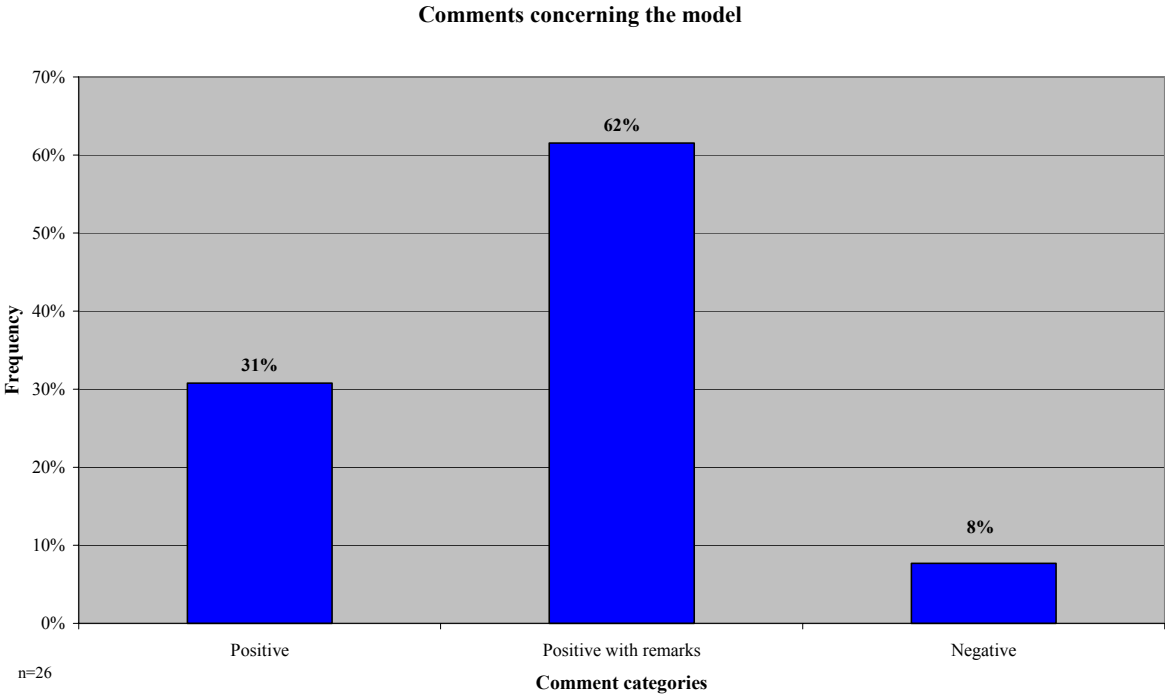


Figure Error! No text of specified style in document.-16

The great majority of respondents considered the model to be useful for basic computations. Even though, about 60% had some remarks concerning the parameters or the logic (see next question).

Question F 8. Alternative model parameters

With regard to the model above what other risk factors or parameters do you regard as important in pricing loans? Are these factors or parameters inevitably necessary in a decent simplification of pricing a standard product?

Because the model contains only the most important standard variables for loan pricing suggestions to consider further parameters were collected.

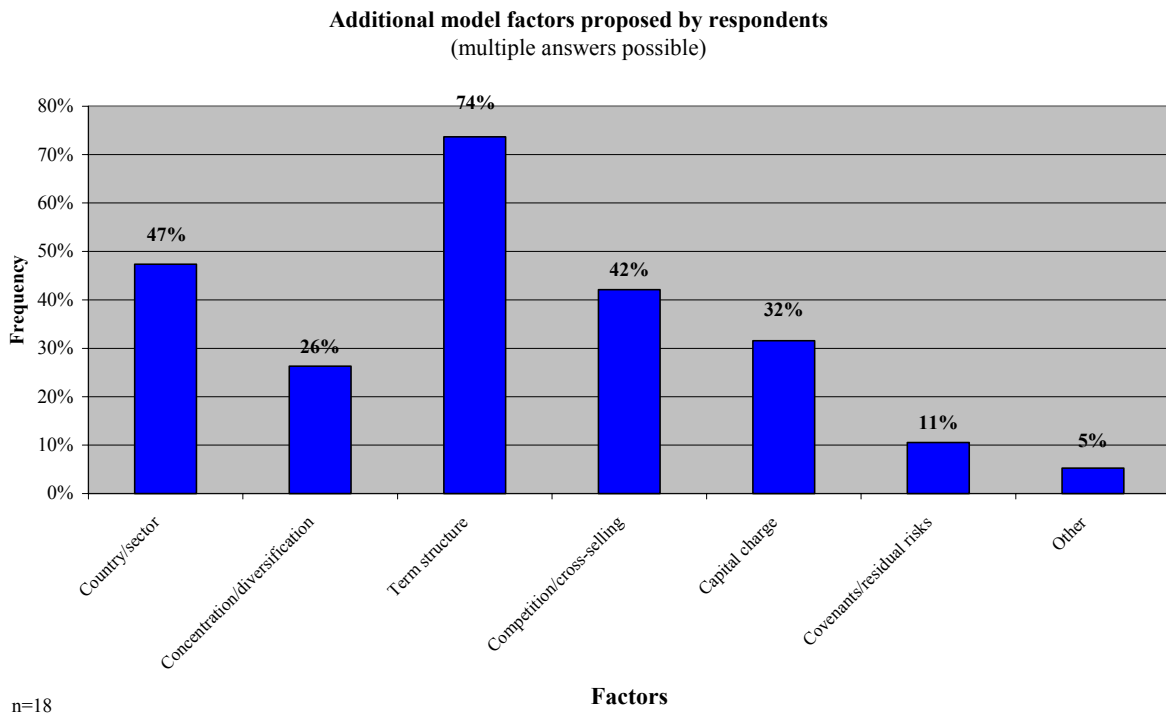


Figure Error! No text of specified style in document.-17

Several factors were suggested by respondents. However, no factor seemed to be particularly prominent. Furthermore, banks' opinions were quite diverse. Because the model should be as simple as possible, the basic model was not altered for the purpose of validating reported margins and for the indication of a benchmark for models under the advanced approach.

1.1.1.1.2 Question concerning the sample

Question G 1. Sample

Please complete the table below for a representative or random sample of loans your institution granted. We would be very grateful if the sample contains at least 20 or more items.

While compiling the questionnaire, the authors very much worried about banks' willingness to supply their minimum or average margins. It was expected that banks were less reluctant to disclose anonymous data about loans, from which risk-adjusted margins could have been recompiled backwards.

Right the contrary turned out to be true. Enough banks supplied margin tables to us.

Moreover, the sample of loans contains so different structures of data (e.g. with PD and without) that it is unduly complex to extract margins thereof.

From a few respondents the authors learned that this question was even more critical than the margin tables. Remarkably, some banks rather decided not to participate in the survey than to leave certain critical questions open.

1.2 MFI statistics

In order to provide additional evidence, interest rate statistics published by central banks will be reviewed. A comparison of interest rates, loan volumes, rate fixation periods and other characteristics might provide some hints concerning regional developments such as divergences and convergences between or within regions and it allows the verification of the survey results.

Most national central banks in the EU report interest rates for their respective countries according to the new MFI interest rate statistics for the EMU (ECB, **Error! Reference source not found.**). This statistics is harmonised, i.e. the statistics is derived based on common predefined standards. Consequently, data published by central banks obeying to these statistical standards lend itself to comparison across countries. The statistics collects interest data for three rate fixation periods:

- Floating rate and up to one year initial rate fixation,
- Above one year and up to five years initial rate fixation,
- Above five years initial rate fixation.

These categories are reported for loans up to EUR 1 mill. and above EUR 1 mill.

Unfortunately, not all central banks disclose their interest rates in form of the MFI interest rate statistics, so that the evaluation of some countries' statistics remains subject to interpretation. Therefore, comparisons across individual national statistics are quite difficult for countries that do not disclose the required information. Moreover, a validation of the survey results based on interest rate statistics is possible only for those countries for which the necessary data is available. Accordingly, the value of a comparison of interest rates between individual States as well as of a comparison of statistical interest rate data and the results of the survey is limited a priori.

The following review of European interest rate statistics will concentrate on the interest rates for new loan contracts closed between MFIs and non-financial corporations rather than on rates for outstanding loans. The reason for this focus is that for certain countries with a higher volume of long-term loans the interest rates for outstanding loans might be distorted thanks to the mixture of fixed and variable debt and thus are unsuitable for a comparison of rates across countries. In the statistics at hand, corporate loans are classified under the category new business according to their initial rate fixation, while under outstanding business they are categorised according to their original term to maturity. Thus, corporate loans with an initial rate fixation that is shorter than the original term to maturity are grouped differently for the new business and the outstanding business category.

According to the Deutsche Bundesbank (**Error! Reference source not found.**), especially floating rate loans, which tend to have lower interest rates due to their lower exposure to interest rate changes, are recorded as short-term loans for new business and according to their term to maturity as medium- or long-term loans for outstanding business. For instance, in Germany the proportion of fixed rate long-term loans is relatively high compared to most other EU States (Deutsche Bundesbank, **Error! Reference source not found.**).

Consequently, the above described categorisation might lead to an overstatement of German interest rates for outstanding business. In addition, by emphasising new loans all effects

arising in the course of the history of the loans, like redemptions or changes of interest, can be excluded.

As expected, for the old EU Member States, especially for those belonging to the euro zone, the available statistics show that national interest rates for the respective notional amounts and rate fixation periods are quite close together. However, some deviations for certain interest rates between individual countries could be observed throughout the last year. The highest interest rates in comparison to the individual interest rate levels of other EMU States as well as to the euro area MFI interest rate statistics are reported by Germany. For instance, in the period between March 2003 and March 2004 German medium-term rates for loans up to EUR 1 mill. were nearly always reported to be above 5% (Deutsche Bundesbank, 2004) while the respective average euro zone MFI rates were virtually always quoted below 5% (ECB, **Error! Reference source not found.**). Another country with comparably high interest rates is Ireland, where the interest rates with initial rate fixation up to one year and over one and up to five years consistently lie above the euro zone MFI average for the period March 2003 to March 2004 (Central Bank of Ireland, 2004). At the lower end of the spectrum, Luxembourg and France can be found with short-term interest rates below 4% and 3% respectively since June 2003 (Banque de France, 2004; Banque centrale du Luxembourg, 2004). Independently from the individual deviations among countries, interest rates in all EMU States have declined during the time period at hand (ECB, **Error! Reference source not found.**).

For Eastern European countries, especially for the new Member States, the analysis renders a different picture. Even though the evaluation has to be limited to those countries that publish adequate statistics it is possible to roughly classify the new Member States into three groups in terms of interest rates. The first group comprises countries like the Czech Republic and Lithuania where interest rates are relatively low (Czech National Bank, 2004; Bank of Lithuania, 2004). Particularly, the Czech Republic is quite close to the average euro zone interest rate level. The second group consists of the States Estonia, Latvia, Poland and Slovakia with interest rates significantly above the EMU level (between 5% and 7% for short- and medium-term loans and up to 8% for long-term loans) (Bank of Estonia, 2004; Bank of Latvia, 2004; National Bank of Poland, 2004; National Bank of Slovakia, 2004).

Hungary and Romania fall into the third group where interest rates at the double-digit level have been common over the course of the period observed, whereas the Hungarian medium-term rates have been found to be between 8% and 15% while Romanian banks have demanded and still demand rates above 20% (Hungarian National Bank, 2004; National Bank of Romania, 2004). Interestingly, the yield curves for Estonia, Lithuania and Hungary have tended to be inverse over some months.

With respect to rate fixation periods and aggregated loan volumes granted by MFIs, the euro zone MFI interest rate statistics shows that short-term loans above EUR 1 mill. exhibit the largest volume. Medium- and long-term loans are of significantly smaller volume, whereas the medium-term volume slightly exceeds the long-term one. The volume of loans up to EUR 1 mill. is considerably lower than that above EUR 1 mill. (ECB, **Error! Reference source not found.**). Since the number of granted loans is not disclosed, it is not possible to deduct which rate fixation periods and notional amounts have been agreed on most frequently. A similar pattern can be observed for almost all euro zone States. However, there is again some variation among countries. Most notably, in Germany, due to the long-term orientation typical for the country, the long-term loan volume exceeds the medium-term volume (Deutsche Bundesbank, 2004). This difference is especially pronounced for loans above EUR 1 mill. In

contrast to this, long-term loans seem to be virtually irrelevant in Greece (Bank of Greece, 2004).

Regarding Eastern Europe useful statistical data on loan volumes is quite rare. Yet, the available data show that, similar to the EMU States, in Hungary, Slovakia and the Czech Republic short-term loan volumes exceed medium- and long-term loan volumes (Hungarian National Bank, 2004; National Bank of Slovakia, 2004; Czech National Bank, 2004). Though, for Hungary the difference between loans up to EUR 1 mill. and loans in excess of EUR 1 mill. is less distinctive than the one disclosed in the euro zone MFI statistics. For Latvia the statistics include about three times higher long-term loan volumes than short-term volumes (Bank of Latvia, 2004).

1.2.1 Minimum margins

Emanating from the survey and the MFI statistics loan margin profiles are quite diverse for the countries included in this study thereby reflecting individual national characteristics and differences among States in terms of economic environment, average debtor's credit quality, cost structures and certainly competition. Therefore, a differentiation among countries might be advisable. However, it has to be noted that these margin differences, even if they are caused by several factors, have to be projected to differences in creditworthiness because this is the only factor from those mentioned-above reflected in the margin matrix in chapter **Error! Reference source not found. Error! Reference source not found.** Other factors such as competition are not covered by the matrix in order to limit complexity.

In order to examine the margin level in the individual countries it proved to be useful to analyse average minimum margins per country. Such figures indicate a basic level of margins demanded by MFIs in individual countries and thus are suitable for comparison among each other. The minimum margins were constructed by subtracting the maximum IBOR rate (from rates with maturity below or equal to one year) from the respective MFI rate for floating rate loans and loans with initial rate fixation up to 1 year. The averages for the different countries are based on the minimum margins of the time period January 2003 to April 2004².

² Data sources: ECB for the euro area, EUROSTAT for new Member and Candidate States and Central Banks of Denmark, Sweden and the UK.

Average minimum margins (old Members notional > EUR 1 mill.)

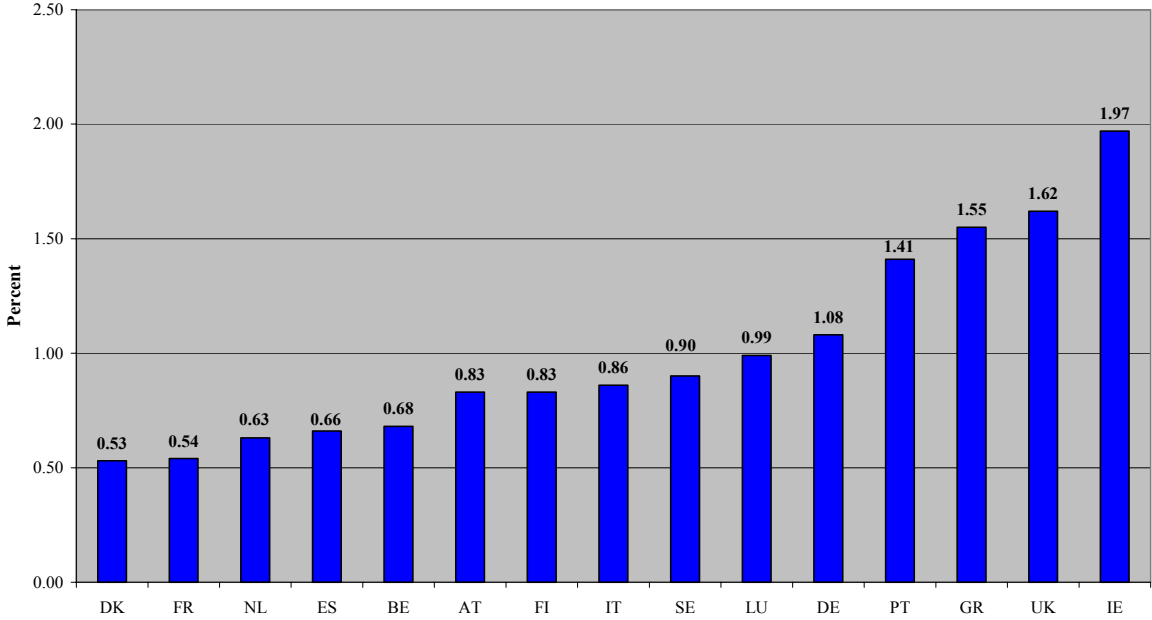


Figure Error! No text of specified style in document.-18

Average minimum margins new Members and Candidates (all notionals)

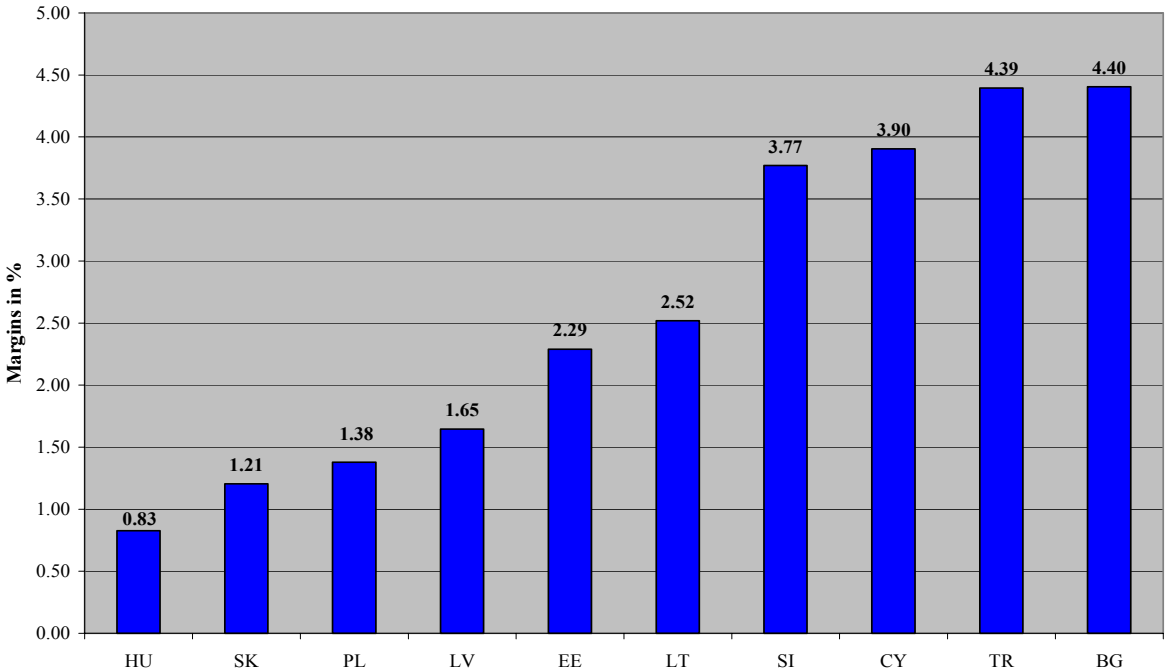


Figure Error! No text of specified style in document.-19

Basically, the minimum margins derived through the procedure above can be divided into two categories: the margins prevailing in the old EU Member States and those of the new Member States and the Candidate States (figures **Error! No text of specified style in document.-18**, **Error! No text of specified style in document.-19**). However, this classification is not consistently reasonable because some of the new countries exhibit margins quite close to those of the old EU States. Consequently, a more sensible approach would be to group the different countries according to their margin levels. Considering the figures at hand the most obvious grouping would yield four broad classes.

Low margin countries (old Member States, notional > EUR 1 mill.)



Figure Error! No text of specified style in document.-20

The first category comprises countries with comparably low average minimum margins reaching from 0.53% to 0.68% and includes Denmark, France, the Netherlands, Spain and Belgium. Despite outliers, these margins moved within a range between 0.4% and 0.85% from January 2003 to April 2004. The margins of Spain, Belgium and the Netherlands moved quite stable around their average values, while the margins exhibited by France and Denmark are quite volatile (figure **Error! No text of specified style in document.-20**).

Medium margin countries (old Member States, notional > EUR 1 mill.)

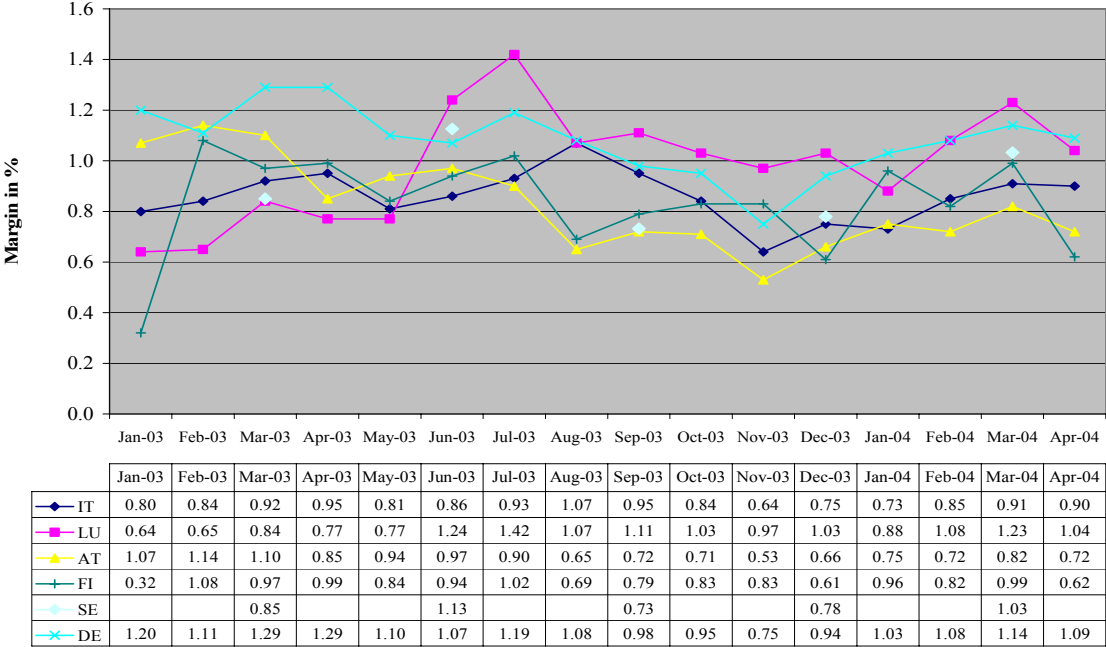


Figure Error! No text of specified style in document.-21

Medium margin countries (new Member States and Candidates, all notionals)

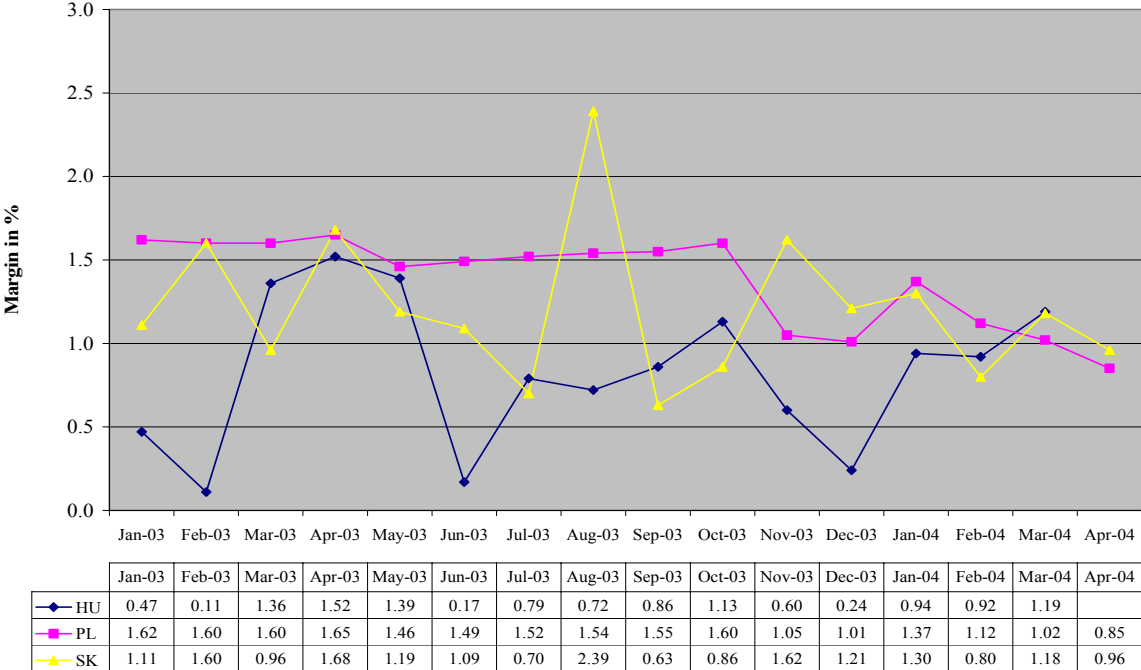


Figure Error! No text of specified style in document.-22

The second group consists of countries with medium-sized average minimum margins between 0.83% and 1.38%. This group includes Austria, Finland, Hungary, Italy, Sweden,

Luxembourg, Germany, Slovakia and Poland. Throughout the observation period, volatility seems to be relatively moderate for the old Member States, while the new Member States' margins were more volatile (figures **Error! No text of specified style in document.-21**, **Error! No text of specified style in document.-22**).

Medium to high margin countries (old Member States, notional > EUR 1 mill.)

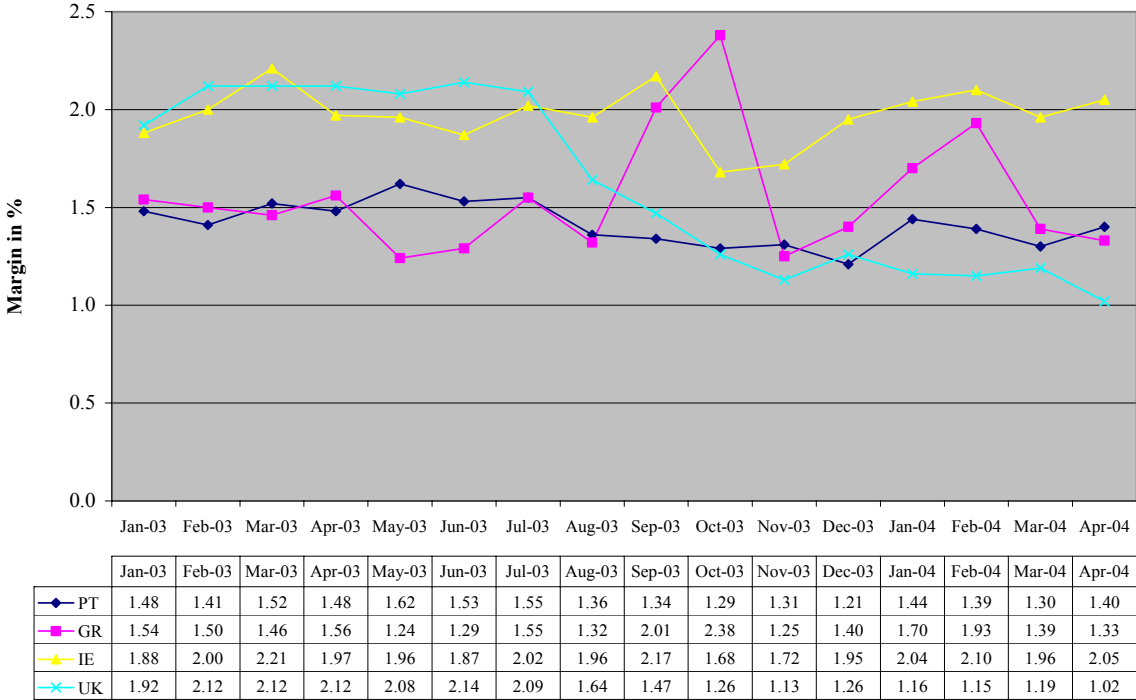


Figure **Error! No text of specified style in document.-23**

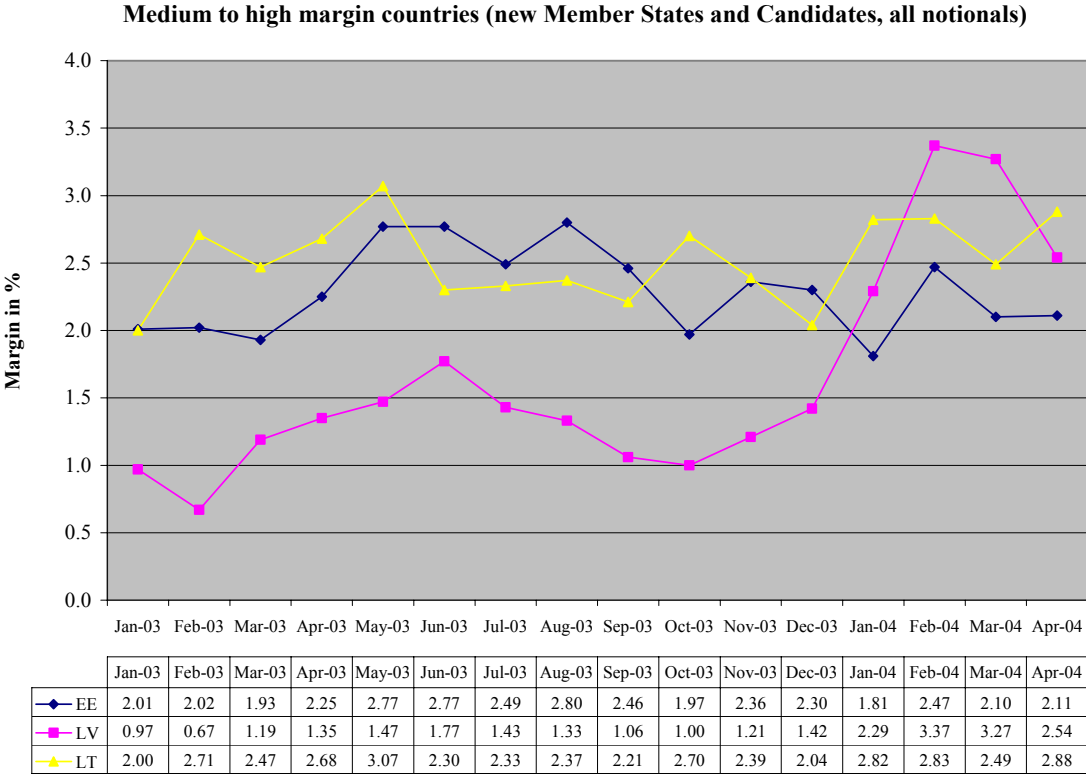


Figure Error! No text of specified style in document.-24

In the third group, average margins are between medium and high ranging from 1.41% to 2.52%. This group is made up of the three Baltic States Latvia, Estonia and Lithuania (figure Error! No text of specified style in document.-24), and of Portugal, Greece, the UK and Ireland (figure Error! No text of specified style in document.-23). The movement of margins over time is quite stable for these countries. Only Latvia and Greece show a somewhat higher volatility. The British minimum margin is constantly decreasing over the course of the observation period.

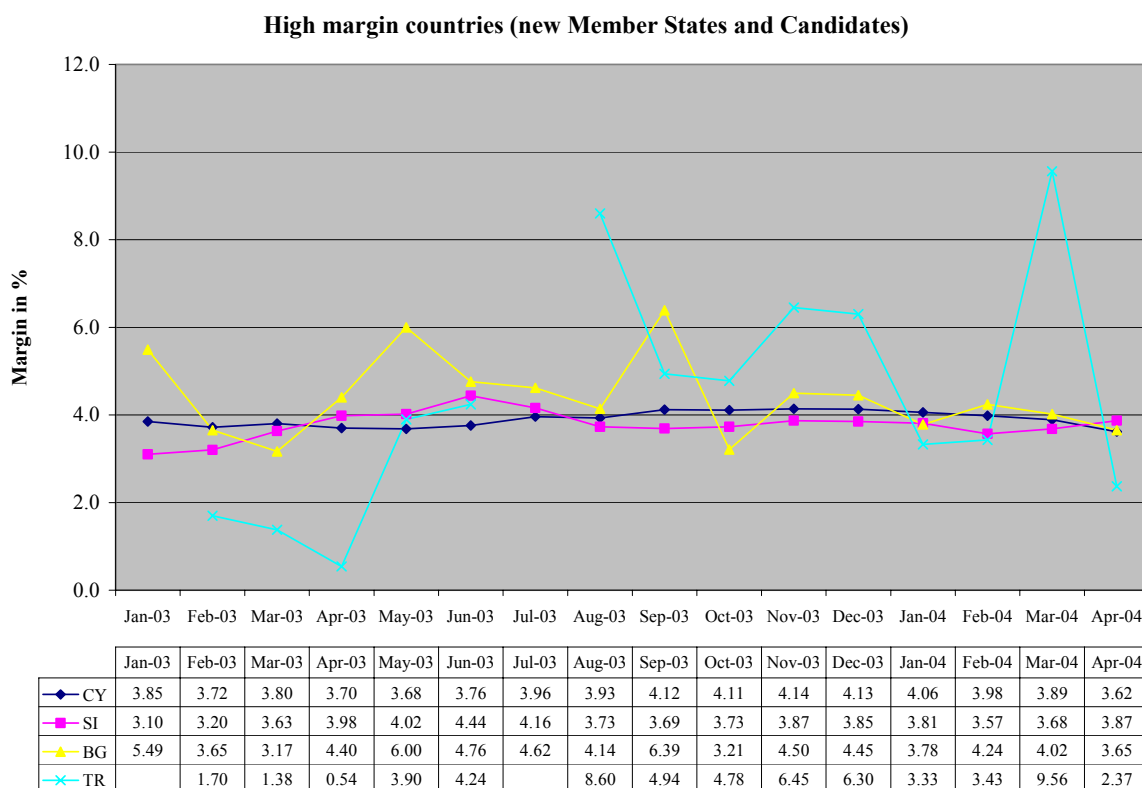


Figure Error! No text of specified style in document.-25

The last group embraces countries with extraordinary high average margins above 3%. Slovenia, Cyprus, Turkey and Bulgaria fall within this category (figure Error! No text of specified style in document.-25). The highest margin observed is 4.4%. For Cyprus and Slovenia the margins are quite constant over the observation period in contrast to the margins reported by Turkey and Bulgaria, which showed to be more unstable.

Furthermore, for all old Member States but Sweden and the UK average minimum margins can be derived for notional amounts below and above EUR 1 mill. For the new Members as well as for the Candidate States and the two old Member States this is not possible because the national central banks do not disclose the necessary data. The comparison of the two notional categories unfolds that the average margins for loans in excess of EUR 1 mill. are considerably lower for most of the old EU countries. The average difference between loans with notional amounts below and above EUR 1 mill. equals about 1% (figure Error! No text of specified style in document.-26). This means that the analysis above is somewhat distorted or inaccurate because data based on loans exceeding EUR 1 mill. are compared and categorised together with data that does not differentiate for notional amounts. Since there is no data available for the new EU States, the Candidates, Sweden and the UK that differentiates between notional amounts, the distortion has to be accepted.

However, this distortion can be assumed to be smaller than 1% because in the majority of the EU States loan volumes above EUR 1 mill. are dominant in terms of volume and disclosed rates are weighted according to volume. In addition, the increasing economic integration within the EU has led to a strong convergence of national loan market characteristics and will

continue so in the future. As a consequence, differences in loan granting practice as well as in loan demand will possibly diminish and so the distortion should do, too.

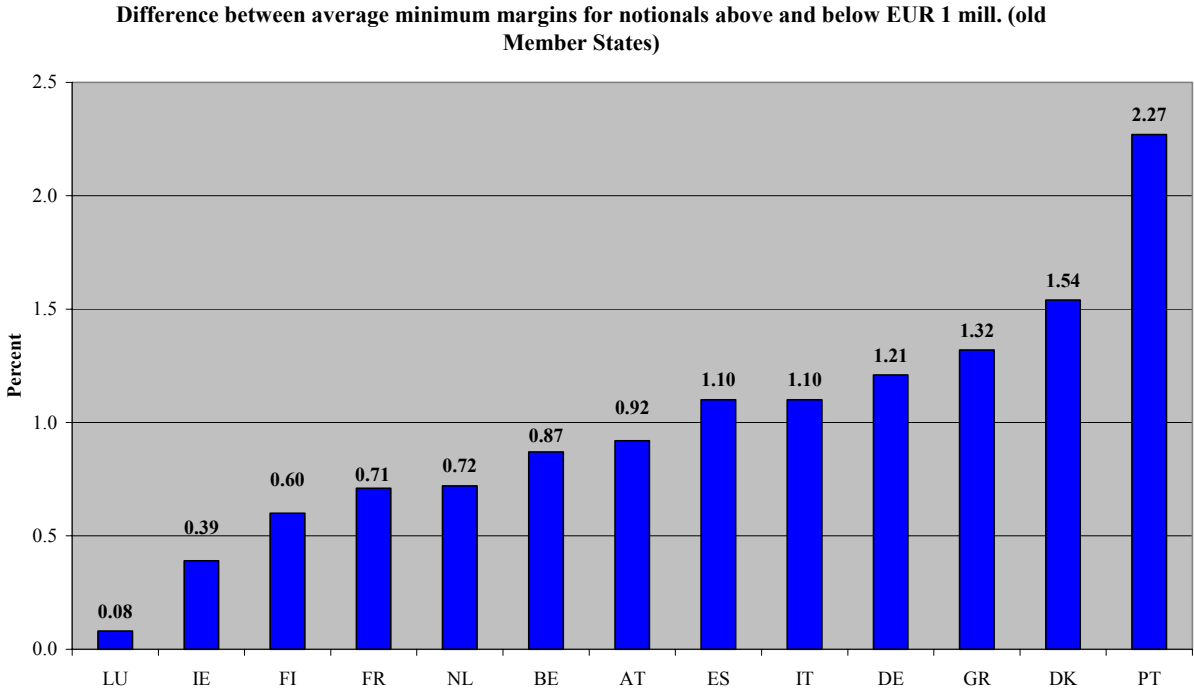


Figure Error! No text of specified style in document.-26

1.2.2 Reasons for the difference in margins between loans up to EUR 1 mill. and above

Basically, three reasons should be mentioned that are primarily responsible for the margin differential between loans up to EUR 1 million and loans exceeding this amount. These reasons comprise cost margin, expected loss and competition.

As it became clear through the survey results, the average cost margin decreases with increasing notional. This phenomenon is quite common for bank loans and can be explained through economies of scale in the loan granting process. The height of the cost margin is indicated in percent of the notional amount. However, the costs of granting a loan do not depend on the notional in absolute terms because granting a EUR 1 mill. loan causes roughly the same costs as granting a EUR 10 mill. loan. Therefore, the cost margin's percentage value decreases for higher loan amounts. Thus, the absolute costs of granting a loan are relatively constant over rising notional amounts, leading to lower percentage cost margins for larger loans.

A second factor driving up loan margins for smaller loans is the expected loss, which is an important aspect in loan pricing. Here the assumption is that smaller firms, i.e. SMEs, demand smaller loans than large corporations. Especially the loan segment up to EUR 1 mill. typically includes a very high fraction of creditors from the SME sector. Since default risk is expected to be higher for SMEs on average, the margin for the expected loss is higher as well, thereby leading to a higher overall loan margin.

Competition, the last factor, leading to lower margins for large loans is especially pronounced for this category of loans. Here two types of competition have to be distinguished. Firstly, competition among banks: because large firms searching for funds are more flexible in terms of international fund raising, the market for large notional amounts is more international and competitive. Secondly, as of a certain amount raising funds through corporate bonds is more attractive than to take up a loan because of a more favourable cost structure that becomes operational for large amounts. Thus, competition among banks for the attractive large loans and competition between bank lending and the corporate bond market lead to lower margins for larger notional amounts.

1.2.3 Differentiated approach for the normal case

As alternative to the assumption about the “normal” case under the standard approach provided in chapter **Error! Reference source not found. Error! Reference source not found.** a more precise procedure would be to rely on the above described country groups, which are based on common loan margin profiles. In the following this procedure will be described and entrusted to the reader for consideration.

The four categories as introduced above include the following country groups separated among each other by the following boundaries: (1) Low margin countries, for which the margins range from 0.5% to 0.7%; (2) Medium margin countries, for which the margins range from 0.71% to 1.4%; (3) Medium to high margin countries, for which the margins range from 1.41% to 3%; and (4) High margin countries, with margins exceeding 3%. Based on these margins, each of these four groups can be assigned to an accordant average rating category.

Thus, lending in low margin countries corresponds to the “strong” rating category *on average* under the “normal” case. The medium margin group belongs to the “good” rating category under the “normal” case. Loans in medium to high margin countries are rated “satisfactory” and lending in high

margin countries falls into the “weak” category on average under the “normal” case³. However, it has to be taken into account that the above classification is based on loans with notional in excess of EUR 1 mill. Therefore, only loans granted in those States providing data for both, loans up to and above EUR 1 mill., can be classified properly into the rating categories. For the remaining States the categorisation has to rely on the undifferentiated data that include loans below EUR 1 mill. and above. These countries include the new Member and the Candidate States as well as Sweden and the UK. Based on the average margins for all notionals, the lending business in the new Member and the Candidate States falls into the rating categories “satisfactory” and “weak”. Taking into account the economic gap between the old Member States on one hand, whose lending business is rated from strong to “satisfactory”, and the new Members and the Candidate countries on the other hand, this categorisation seems to be reasonable. In the case of the UK, which exhibits a relatively high average margin for all notional amounts and whose average loans should therefore be classified as “satisfactory”, it is appropriate to be grouped together with similar countries. Thus, the UK’s lending business would be rated as “good” especially considering large loan amounts and an apparently decreasing margin over time (see Figure **Error! No text of specified style in document.-23**). Sweden, whose average margin merits to be grouped under “good”, does not require any adjustments. The grouping into margin categories is summarised in table **Error! No text of specified style in document.-1**.

Margin Categories for Normal Case (notional > EUR 1 mill.)			
Rating category	Margin category	Margin ranges in basis points	States
Strong	Low	< 70	DK, FR, NL, ES, BE
Good	Medium	71 - 140	AT, FI, IT, SE, UK, LU, DE, HU, SK, PL
Satisfactory	Medium/high	141 - 300	PT, GR, IE, LV,EE, LT
Weak	High	> 300	SI, CY, TR, BG
Bad			

Table **Error! No text of specified style in document.-1**

Concerning the higher margins for loans up to EUR 1 mill., two approaches might be viable. Firstly, it is proposed to divide again the different countries and build three categories based on similarity. The first group comprises countries for which the difference between margins for loans up to EUR 1 mill. and loans above EUR 1 mill. is negligible. This is the case for

³ It should be mentioned again that the “normal” case is just a starting point and can be altered according to the particular creditworthiness of the debtor.

Luxembourg and Ireland, where the average margin difference is 0.25%. For these countries a migration into a higher rating category is not advisable because the step to the next higher category would amount to about 0.5% for Luxembourg and about 2% for Ireland (see margin table in chapter **Error! Reference source not found. Error! Reference source not found.**).

In the second group, the average difference in margins between the two notional classes is about 1%. The majority of the old EU countries falls in this group. Here a migration to the next higher rating category would be reasonable. A move to the next higher category could mean a margin increase of at least 0.5% for all States in this group.

The last group contains States with a very high difference in margins between the two loan amount classes. The average difference lies at 2%. This high difference would demand a migration over two rating categories, which is quite appropriate for Denmark, where the difference is about 1.5%. This corresponds well to a migration from “strong” to “satisfactory”. However, for the second member of this group, Portugal, a move from “satisfactory” to “bad” would exaggerate the necessary adjustment because the margin difference of about 2.3% does not fit the transfer from “satisfactory” to “bad”, which comprises about 8%. Therefore, for Portugal an exemption is suggested, which would allow a migration into the next higher category leading to a margin increase of about 2.4%.

Since for the new EU Members and the Candidate States as well as for Sweden and the UK the available margins are not differentiated for notional amounts, it is suggested that loans below EUR 1 million are migrated into the next higher category for countries falling into the rating categories “good” and “satisfactory” (none of the new Member and Candidate States fall into “strong”). The high margin countries, which are exclusively new EU and Candidate States, stay in the “weak” category for both loans below EUR 1 mill. and loans exceeding this amount, because their margins are already quite high and it cannot be justified to generally classify all loans up to EUR 1 mill. in these countries as “bad”. Furthermore, even though there is no indication of a potential margin difference between the two notional categories for these countries it is very unlikely that this difference would be as large as the difference between the rating categories “weak” and “bad” in terms of margin difference (5.5%). The first approach to categorising countries for loans up to EUR 1 mill. is summarised in table **Error!**

No text of specified style in document.-2.

Margin Categories for Normal Case (notional < EUR 1 mill. Alt.1)			
Rating category	Margin category	Margin ranges in basis points	States
Strong	Low	< 70	
Good	Medium	71 - 140	FR, NL, ES, BE, LU
Satisfactory	Medium/high	141 - 300	AT, FI, IT, SE, DE, HU, SK, PL, IE, UK, DK
Weak	High	> 300	SI, CY, TR, BG, PT, GR, LV, EE, LT
Bad			

Table Error! No text of specified style in document.-2

The second approach with respect to the margin difference between the two notional classes is less complicated because it simply puts loans with notional up to EUR 1 mill. into the next higher rating category (table Error! No text of specified style in document.-3). Based on the average margin, groups described above this behaviour can be observed for seven of the thirteen countries that provide data for both notional categories. Most States would move from category “strong” to “good” or from “good” to “satisfactory” implying an increase of average margins of about 0.5% and 1%, respectively. Since the majority also exhibits average margin differences between 0.6% and 1.30%, the fit is quite good. Therefore, it would be reasonable to generalise this approach and apply it to all States with the exception of the high margin countries. This procedure is quite close to the alternative introduced above. Only three States, Luxembourg, Ireland and Denmark, are treated differently in the first approach, which is, however, somewhat more accurate.

Margin Categories for Normal Case (notional < EUR 1 mill. Alt.2)			
Rating category	Margin category	Margin ranges in basis points	States
Strong	Low	< 70	
Good	Medium	71 - 140	DK, FR, NL, ES, BE
Satisfactory	Medium/high	141 - 300	AT, FI, IT, SE, DE, HU, SK, PL, UK, LU
Weak	High	> 300	SI, CY, TR, BG, PT, GR, LV, EE, LT, IE
Bad			

Table Error! No text of specified style in document.-3

Since loan markets develop over time, the grouping of national lending businesses according to margin profiles as well as the subsequent classification into rating categories have to be validated in regular intervals of say one year. Such a validation is easy to perform because it simply requires the current MFI- and IBO-rates, which are readily available from most national central banks and the ECB at least for the countries included in the analysis above.

1.3 Reference basis rates

This paragraph discusses the availability of inter-banking offered rates, swap rates and government yields as well as the spread between swap rates and government yields if the latter is taken as a substitute for swap rates. The last subsection summarises some important commands for Bloomberg, which turned out to be useful for the analysis.

1.3.1 Availability of rates

The reference basis rate coincides with the inter-banking offered rate or with the swap rate depending on the maturity and availability of data. If the swap rate is not available, the corresponding government yield is taken instead.

Bloomberg Information System has been utilised in July and August 2004 in order to research for the availability of data for the new Member States and the Candidate States.

Unfortunately, the answers to the respective question of the survey regarding the basis rate were not as informative as hoped for. It must be stressed that some information providers, who channel their data through Bloomberg but are not available without prior approval, and other information systems like REUTERS and TELERATE may provide more detailed information than Bloomberg.⁴ In other words, the forth following conclusions reflect only the availability of data from the common resources of Bloomberg.

⁴ A few cross-checks through the internet and questioning a trader did not indicate additional resources, which can, however, not be taken for sure. A rigorous investigation has not been conducted, because Bloomberg is supposed to provide such basic information as money market and swap rates as well as government yields if they were available in principle.

The following table provides an overview about the availability of interest rates:

	Inter-banking offer rate	Swap rates	Government bonds as list ⁵	Government yields as table
<i>New Members</i>				
Cyprus	NO	NO	YES	NO
Czech Republic	PRIBOR	YES	YES	YES
Estonia	TALIBOR	NO	NO	NO
Hungary	BUBOR	YES	YES	YES
Latvia	RIGIBOR	NO	YES	NO
Lithuania	VILIBOR	NO	YES	NO
Malta	YES	NO	YES	YES
Poland	WIBOR	YES	YES	YES
Slovakia	BRIBOR	YES	YES	YES
Slovenia	YES	NO	NO	NO
<i>Candidates</i>				
Bulgaria	SOFIBOR	NO	NO	NO
Croatia	ZIBOR	NO	YES	YES
Romania	BUCBOR	NO	YES	YES
Turkey	TRLIBOR	NO	YES	YES

Table Error! No text of specified style in document.-4

Additional to the currencies of the new Member States, the basis rate possibly needs also to be disclosed for the main hard currencies: USD, CHF, and YPN, if aid is granted in these currencies as it is the case for the lending behaviour in these countries. However, the availability of interest rates for these currencies is assured.

It turned out that the money markets are well developed in most countries (Germany and the UK for comparison) in terms of available maturities for borrowing up to and including one year as the following table shows:

⁵ From a list of bonds the yield-to-maturities are not readily available.

Number of Money Market-IBOR or Government T-Bill-Rates from 1 to 12 Months
Bloomberg Information Services

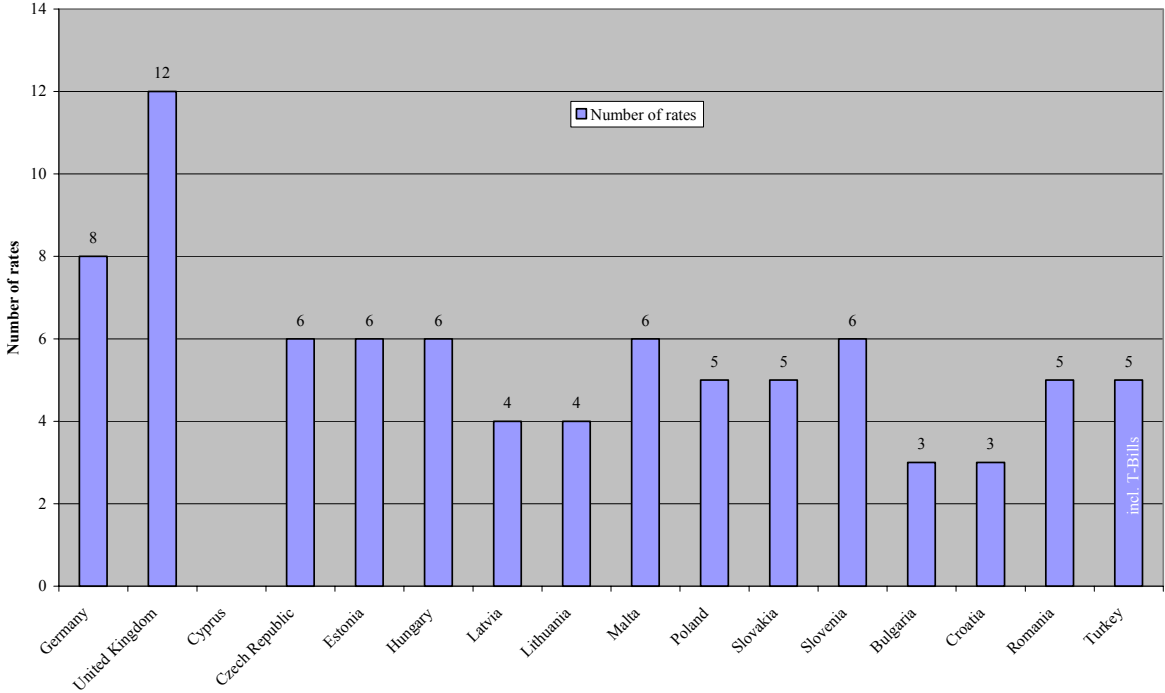


Figure Error! No text of specified style in document.-27

The 3-months money market rates are available for all countries except Cyprus and Turkey, for which the 3-months government Treasury bill yield is available instead. The 1-year rates are not available for Bulgaria, Croatia, and Turkey while for the latter two the corresponding T-bill rates can be obtained. Turkey admits high inflation why the inter-banking market is very narrowly concentrated to the very short end of the yield curve. It should be observed that the T-bill rates are in most instances results from auctions, which may take place irregularly and affects the timeliness. For Cyprus a money market could not been identified. The picture is different for swap markets which are scarcer for the new Member States.⁶ In essence, only four new Member States show to have a functioning swap market as the next chart shows:

⁶ It is noteworthy that even the EMU-countries admit their own swap markets each.

Maximal Maturity and Number of Swap Rates or Government Yields over 1 Year
Bloomberg Information Services

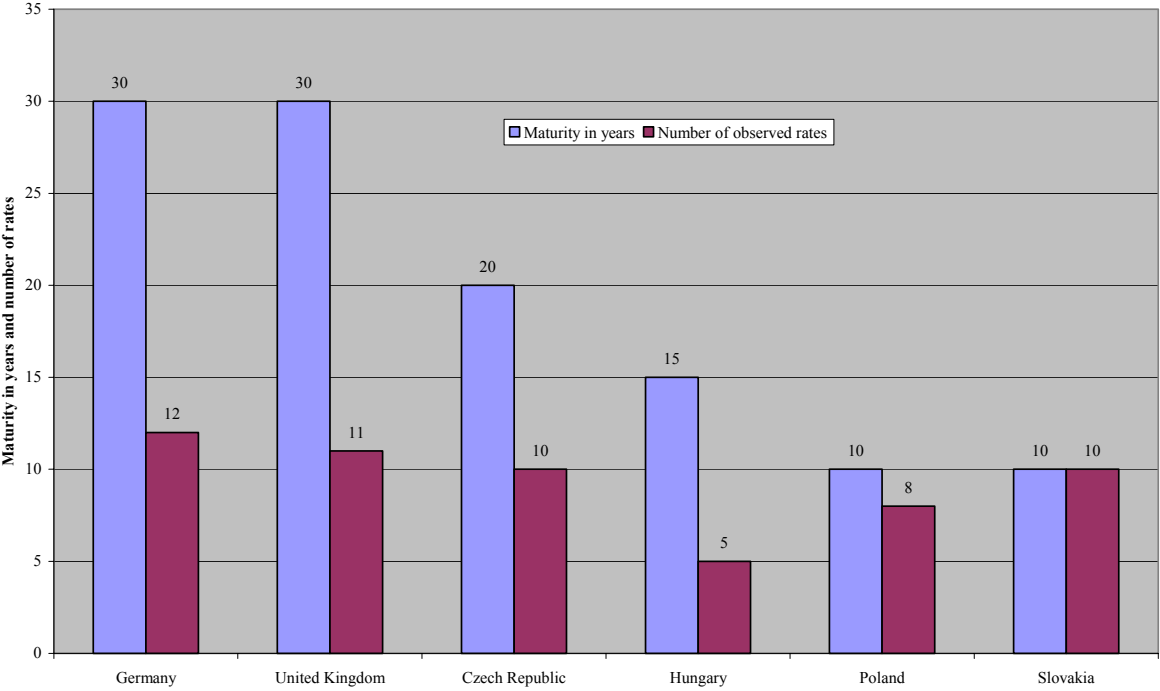


Figure Error! No text of specified style in document.-28

Only for Hungary the 10-year swap rate has to be derived by the corresponding government yield while for the other three new Member States the swap rate curve has a long end itself. Unfortunately, only for these four countries yields-to-maturity for government bonds in local currency were available as tables. Though there exists government bonds in local currency for some other countries (see table above), their yields-to-maturity were not disclosed. The yield needs to be derived by the price, the coupon and the interest conventions of the particular bond if at all the bond is traded in a liquid market. For this calculation attention should be paid to the tax treatment of government bonds since some bonds could be exempted from tax.

Summarising, for the above designated maturities of three months, one year, five years and ten years the rates are not readily observable for all new Member States and for the Candidate States as the following table shows:

	3 months	1 year	5 years	10 years
<i>New Members</i>				
Cyprus	NO	NO	NO	NO
Czech Republic	OK	OK	OK	OK
Estonia	OK	OK	NO	NO
Hungary	OK	OK	OK	GOV
Latvia	OK	OK	NO	NO
Lithuania	OK	OK	NO	NO
Malta	OK	OK	NO	NO
Poland	OK	OK	OK	OK
Slovakia	OK	OK	OK	OK
Slovenia	OK	OK	NO	NO
<i>Candidates</i>				
Bulgaria	OK	NO	NO	NO
Croatia	OK	GOV	NO	NO
Romania	OK	OK	NO	NO
Turkey	GOV	GOV	NO	NO

Table Error! No text of specified style in document.-5

The uniform maturities for all countries were proposed in favour of standardisation and practicability. However, for those States listed in the table which do not admit swap or government rates for five and ten years it should be considered either to derive the yield of traded government bonds of the respective maturities or to adduct rates of shorter maturities. The latter is inevitably necessary for countries where short-term lending is predominant, e.g. for Turkey and Bulgaria. For Cyprus the data was not found in Bloomberg. However, the Central Bank of Cyprus remarks on its web pages that regular auctions of T-bills and government bonds take place, which span the required maturities.

1.3.2 Efficient system for collection of data

For the new Member States not all necessary basis rates are readily available as it is the case for the old Member States. It appears most efficient if the EC mandates banks to perform the derivation of all reference basis rates according to a uniform approach. This task could be, for example, performed by (supra-) national central banks or the European Investment Bank as a European Union’s institution. These banks exhibit the appropriate knowledge to derive yield curves.

Regarding the old Member States and to a large extent the money market rates of new Member States the required interest rates are readily available from Bloomberg, also for past periods.

The rates can usually be downloaded to Excel, which would be an efficient way to collect the data. These rates may comprise “last”, “mid”, “bid”, “ask”, “offer”, “closing”, “open”, “high”, “low”, etc. quotes. The EC may choose from those rates whichever are available but according to the following priority:

- “Composite” rates, otherwise single quotes,
- “Offer” or “ask” rates, otherwise “mid” and then “bid” rates,
- Either “closing” or “open” rates, otherwise “last” at a specific day time (including “last auction” rates).

As it is pointed out in chapter 1.3.1 *Availability of rates* not all of the required rates are readily available from Bloomberg and supposedly from other information providers as REUTERS and TELERATE. For some currencies and maturities it is even necessary to derive the implied yield-to-maturity for government bonds (e.g. for Cyprus). Regarding these particular challenges it appears necessary to inquire at the national central bank or at a domestic commercial bank to provide the respective rates on a daily basis through electronic mail or channelled through information systems (e.g. pages in REUTERS).⁷

According to the research conducted, by and large the officially disclosed rates of central banks did not turn out to comprise more information than those provided by Bloomberg. Nevertheless, central banks (or national finance agencies to some extent) usually conduct tenders, open market interventions, the management of government debt, and market tendence of government bonds, which necessarily requires the knowledge of the yield curves they are involved in. This knowledge can be utilised for those currencies for which the information is not readily available by information providers. The national central banks are expected to cooperate on this issue as it is an official duty due to the Union’s common law.

1.3.3 Spread between basis rates and government yields

The spread between basis rates (IBOR and swap rates) and government yields is by far not uniform across countries and over time. While there seems to be some stability for western Member States, the picture is quite different for the few eastern Member States. The markets of the Czech Republic, Hungary, and Poland and of Germany and the UK have been analysed since for these new Members the data was quite complete and for these old Members the markets are very established and liquid.

Apart from specific risk considerations⁸ the instability of spreads may arise through the different timing of measurement of yields. The yields of Government T-bills and bonds are derived from auctions and market prices while quotes of money market rates and swap rates arise from average announcements of major market participant or from actual trades both not necessarily occurring at the same time.

Moreover, money market rates usually admit the day counting convention “act/360” in contrast to bonds for which “30/360” is more common. This leads to an adjustment of the money market rate for one year of approximately “365/360” (or plus 1.4%) in order to compare it to the one year yield. To compare money market rates for maturities less than one year to annualised yields also the payment frequency, i.e. the compounding of intermediate

⁷ It is a common procedure for the EC to request quotes from market participants, e.g. prices of ship fares for the purpose of determining custom duties.

⁸ Every State admits its own specific creditworthiness and market peculiarities. For instance, following the German auction of UMTS-licences the spread between government yields and swap rates widened considerably since it was thought that Germany shortened the supply of fresh debt.

interest payments, needs to be taken into account. These adjustments were not specifically addressed because the EC may also rely on readily available data without further adjusting them.

The following analysis is based on closing prices of the respective transactions. The next chart shows the spreads for money market and swap maturities for the respective countries.

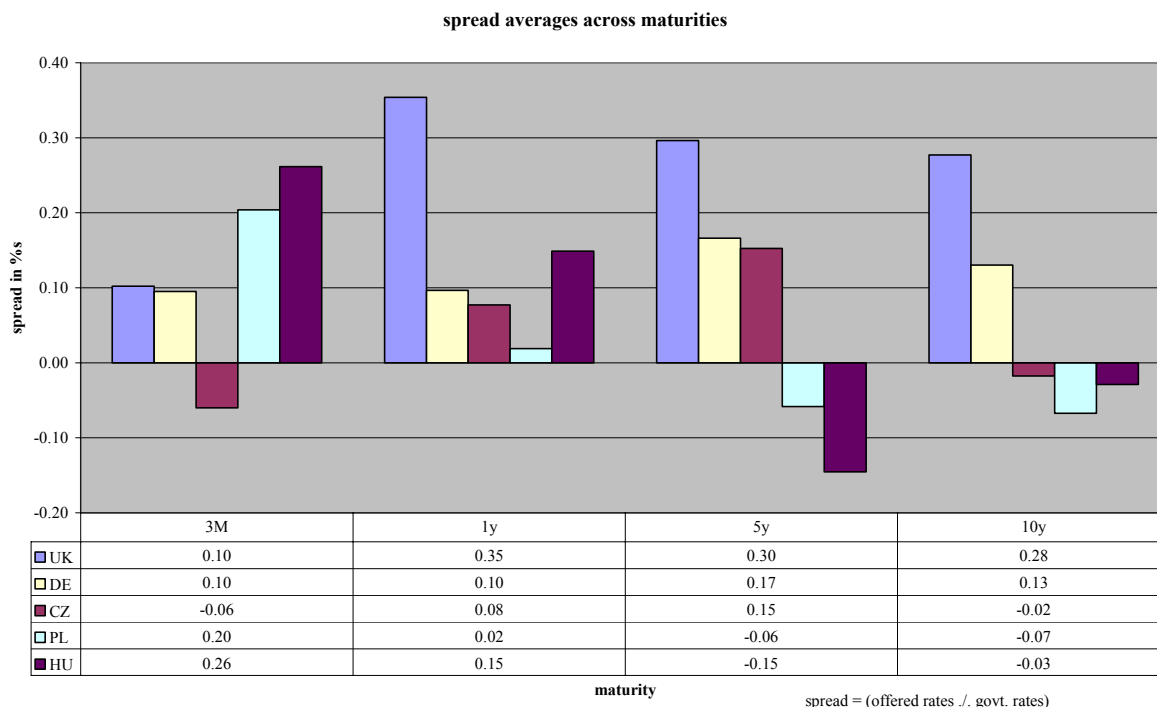


Figure Error! No text of specified style in document.-29

For Germany and the UK the picture is more stable. However, for the new Member States the spread is volatile over maturities and time and can even become negative.⁹ The forth following charts show the development of spreads between government debt and the basis rates. The bold black line represents the moving average (option of MS Excel-charts). For Germany, the UK and the Czech Republic a screen shot of the Bloomberg pages for the swap rates is provided, which also contains the spread of swaps over government yields (see red arrow).

A clear cut answer to the appropriateness of a unique add-on for government yields in order to derive a surrogate for swap rates does not exist. The convergence of markets between old and new Member States is not a reliable argument since the spread should be applicable to markets *which have not been converged yet* in terms of States' creditworthiness, liquidity and coverage of maturities. Hence, the spread of the less developed markets of the new Member States should have more weight. Moreover, money markets are less decisive since the coverage is quite good in comparison to longer maturities.

A spread of 15 basis points can be observed for the Czech Republic and a maturity of five years and otherwise negative spreads appear for the new Member States and maturities of five and ten years. The current development of spreads does not indicate an obvious trend either.

⁹ The reason might be that the risk exposure of government bonds is much larger than that of swaps regarding credit risk. This would mean for the new Member States that government yields could exceed swap rates as their credit standing is less advanced. Moreover, bonds bind more liquidity than swaps which is also costly to generate.

Only for Hungary the ten years spread became positive at the beginning of 2004 but not significantly.

Taking the above line of reasoning into account, the following conclusion is admittedly based more on a guess than on a proper estimation as the data does not draw a consistent picture. It is recommended to adjust government rates of T-bills to maturities of the money market by +15 basis points and not to adjust government yields of bonds to the maturities of five and ten years.

Results for Germany

<HELP> for explanation, <MENU> for similar functions.
Cancel: Screen not saved

N185 Govt IRSB

282 - Save a copy to your NV list									
Show P 1					Show P 2				
Ticker	TIME	Bid	Ask	Change	Open	High	Low	Prev	Cls
GERMANY									
Swap Rates									
1 YR	10:43	2.3810	2.3930	-	2.4110	2.4110	2.3780	2.3870	
2 YR	10:43	2.8040	2.8180	-0005	2.8055	2.8175	2.8050	2.8115	
3 YR	10:43	3.1500	3.1680	+0020	3.1580	3.1750	3.1560	3.1570	
4 YR	10:43	3.4350	3.4490	+0005	3.4375	3.4553	3.4360	3.4400	
5 YR	10:43	3.6600	3.6770	-0040	3.6640	3.6775	3.6640	3.6725	
6 YR	10:43	3.8490	3.8670	-0045	3.8580	3.8690	3.8550	3.8625	
7 YR	10:43	4.0130	4.0310	-0005	4.0165	4.0315	4.0165	4.0230	
8 YR	10:43	4.1500	4.1650	-0015	4.1570	4.1683	4.1540	4.1590	
9 YR	10:43	4.2650	4.2830	+0005	4.2710	4.2825	4.2668	4.2730	
10 YR	10:43	4.3590	4.3780	+0010	4.3615	4.3773	4.3615	4.3675	
12 YR	10:43	4.5130	4.5330	+0015	4.5200	4.5308	4.5170	4.5215	
15 YR	10:43	4.6820	4.6970	+0010	4.6870	4.6980	4.6830	4.6885	
20 YR	10:43	4.8510	4.8710	+0070	4.8590	4.8698	4.8530	4.8540	
30 YR	10:43	4.9540	4.9740	+0010	4.9610	4.9685	4.9560	4.9630	
Swap Spreads									
1 YR	7/15	11.20	17.90		13.90	13.90	10.60	11.2000	
2 YR	7/15	15.5000	19.5000		14.2000	16.1000	14.2000	15.5000	
3 YR	7/15	9.2000	12.3000		8.2000	9.8000	8.2000	9.2000	
4 YR	7/15	19.2000	22.0000		18.4000	20.1000	18.1000	19.2000	
5 YR	7/15	17.5000	19.9000		16.3000	17.8000	15.9000	17.5000	
6 YR	7/15	11.9000	14.2000		11.3000	12.4000	11.0500	11.9000	
7 YR	7/15	10.5000	13.0000		10.0000	11.0000	9.8000	10.5000	
8 YR	7/15	9.6000	12.0000		8.8000	10.0000	8.8000	9.6000	
9 YR	7/15	8.8000	11.1000		8.2000	9.2000	8.1000	8.8000	
10 YR	7/15	10.2000	12.4000		9.5000	10.9000	9.5000	10.2000	
15 YR	7/15	11.2000	13.4000		10.5000	11.9000	10.5000	11.2000	
30 YR	7/15	6.5000	8.4000		5.7000	7.1000	5.7000	6.5000	
For Germany G									
For DEM Swap C line, Type: (NYC1 IS1 =GO=)									
For DEM Swap C1									

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 920410
Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2004 Bloomberg L.P.
6705-213-0 16-Jul-04 10:43:51

Figure Error! No text of specified style in document.-30

EURIBOR ./ BUBL, GER, 3M

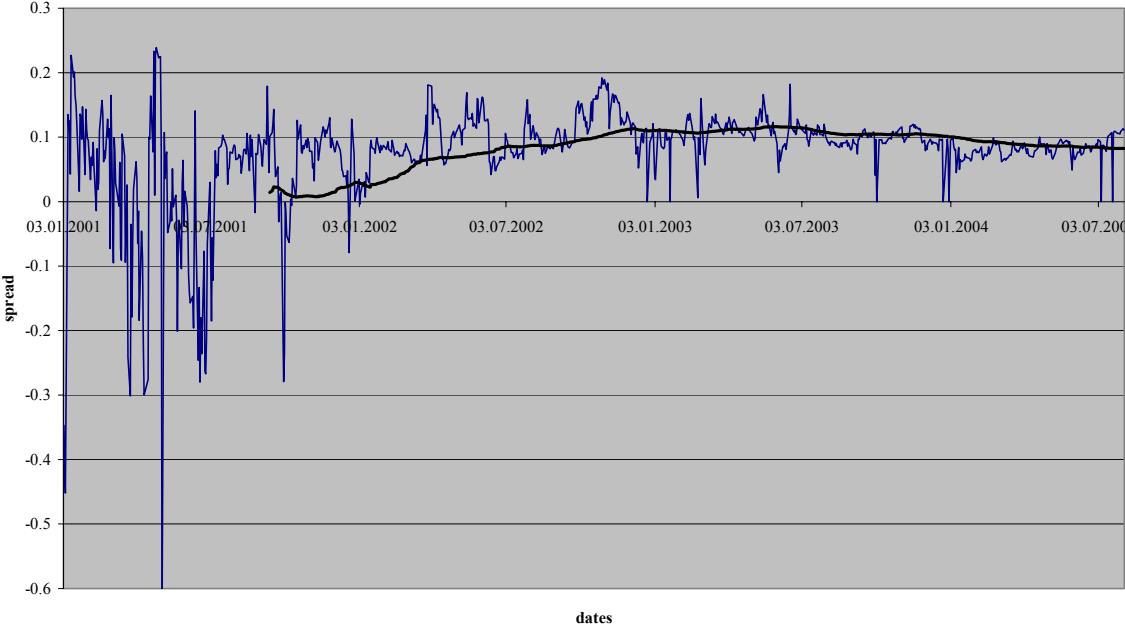


Figure Error! No text of specified style in document.-31

Swap ./ Govt, GER, 1y

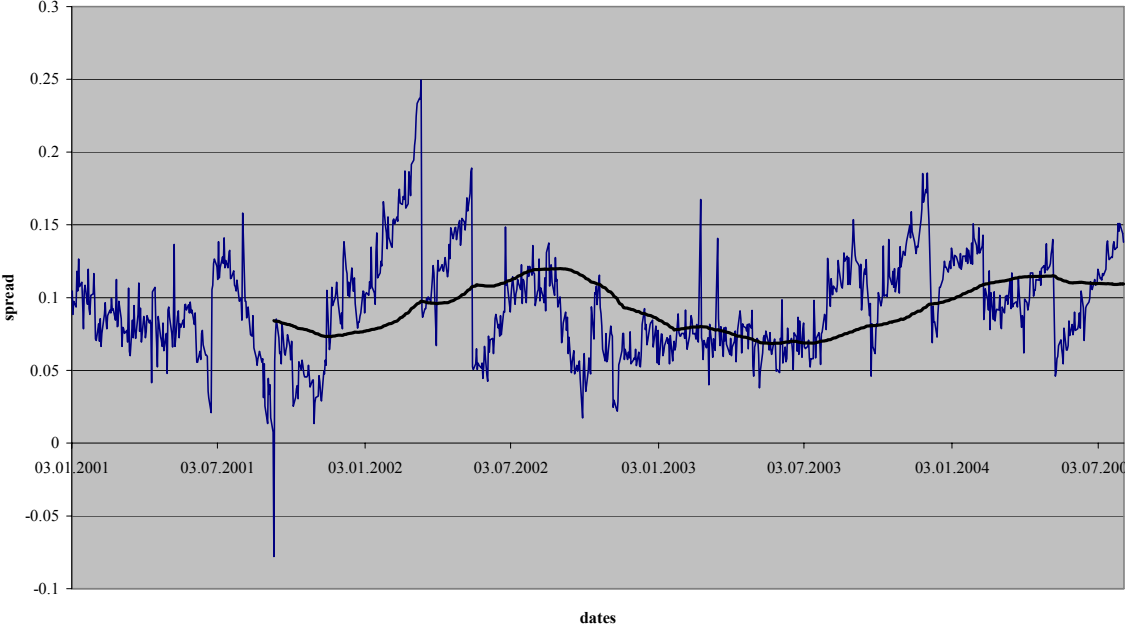


Figure Error! No text of specified style in document.-32

Swap ./ Govt, GER, 5y

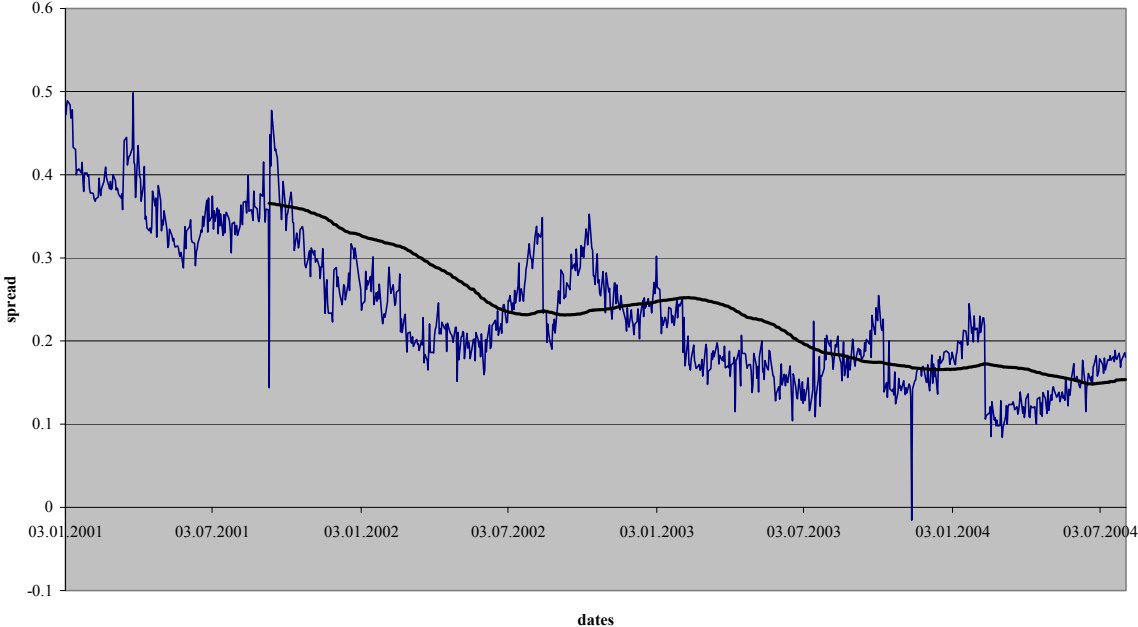


Figure Error! No text of specified style in document.-33

Swap ./ Govt, GER, 10y



Figure Error! No text of specified style in document.-34