



EUROPEAN COMMISSION

Brussels,
C(2007)

In the published version of this decision, some information has been omitted, pursuant to articles 24 and 25 of Council Regulation (EC) No 659/1999 of 22 March 1999 laying down detailed rules for the application of Article 93 of the EC Treaty, concerning non-disclosure of information covered by professional secrecy. The omissions are shown thus [...].

PUBLIC VERSION
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Subject: State Aid N 197/2007 - Germany
Method to Calculate the Aid Element in Guarantees

Sir,

1. PROCEDURE

- (1) By letter dated 5 April 2007, registered at the Commission on 10 April 2007, the German authorities notified pursuant to Article 88(3) of the EC Treaty a methodology to calculate the aid element in state guarantees.
- (2) On 22 May 2007, a technical meeting was held between the German authorities and the Commission services. The Commission requested additional information by letters of 25 May 2007 and 24 July 2007.
- (3) The German authorities amended their notification and submitted additional information by letters registered on 4 June 2007 (A/34584) and 9 August 2007 (A/36694).

2. DESCRIPTION OF THE METHOD

2.1. Scope of the method

- (4) The German authorities notified a methodology to calculate the aid element in state guarantees (hereinafter: "*calculation method*" or "*method*") as indicated

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in Recital 5 and Article 2(2) of Commission Regulation (EC) No 1628/2006 of 24 October 2006 on the application of Article 87 and 88 of the Treaty to national regional investment aid.¹

- (5) Following this Regulation, after acceptance of the calculation method by the Commission, aid schemes involving state guarantees, can be considered as transparent in the sense of the above mentioned Commission Regulation No 1628/2006, if the aid element of the state guarantee was calculated on the basis of the approved calculation method.
- (6) The calculation method in its current form and as covered by this decision only addresses guarantees for loans given at market terms financing investment expenses.²
- (7) The German authorities intend to use the calculation method also for guarantees provided under de-minimis. Commission Regulation (EC) No 1998/2006 of 15 December 2006 on the application of Articles 87 and 88 of the Treaty to de minimis aid³ allows Member States to apply a methodology to establish whether a guarantee is within the de-minimis ceiling if this methodology was accepted by the Commission following notification of such methodology on the basis, for example, Commission Regulation (EC) No 1628/2006 and if the approved methodology explicitly addresses the type of guarantees and the type of underlying transactions at stake in the context of the application of Regulation (EC) No 1998/2006. The calculation method in its current form can insofar only be applied to de-minimis aid as the guaranteed loans are intended for investment purposes.

2.2. Basic elements of the calculation method

- (8) The calculation method notified by Germany is based on the second method laid down in section 3.2 of the *Commission Notice on the application of Article 87 and 88 of the EC Treaty to State aid in the form of guarantees*⁴ (here after the "guarantee notice"). This second method, which is considered by the notice as the preferred method for guarantee schemes, establishes that the aid element in a State guarantee is the difference between the risk supported by the State, which depends on the probability of default of the guaranteed loan, and the premium received by the State. In this context, calculating the probability of default of the borrower is one key step of the notified method.

¹ OJ L 302, 1.11.2006, p.29

² The German authorities may at a later stage notify a supplement to the notification and the calculation method aimed at ensuring that the method thus notified is suitable to be applied also to guarantees for loans financing other types of assets (e.g. working capital loans).

³ OJ L 379, 28.12.2006, p.5

⁴ OJ C 71, 11.3.2000, p.14

- (9) The method is based on individual risk assessment of borrowers carried out by the lender (the lending bank). On the basis of this assessment⁵, the borrower is classified into the corresponding rating category.
- (10) Default probabilities empirically established by the German rating agency Creditreform Rating AG⁶, which disposes of the world's largest database on German companies (hereinafter "*Creditreform*") are allocated to each rating category.
- (11) In the notified method, the aid element of the guarantee will be a direct function of the probability of default of the borrower.
- (12) The German authorities have confirmed that the guarantees of which the aid element will be valued on the basis of the notified method will cover at maximum 80% of the underlying loan.

Individual ratings by banks and default probabilities

- (13) In general, prior to the granting of a loan (with or without public guarantees), banks assign ratings to potential borrowers on the basis of a detailed analysis, taking both "hard" financial data as well as "soft" factors such as management quality into account; the ratings are then used in deciding whether or not to issue the loan. As a rule, banks classify borrowers within their own rating systems. In addition, each bank assigns default probabilities to its individual rating categories from own historical data.
- (14) Since the annual default probability varies greatly over the duration of a loan, multi-year default probabilities are used in the notified calculation method as they are of greater informative value than the multiplication of the 1-year default probabilities by the duration of the loan.
- (15) However, the *bank-specific* multi-year default probabilities are normally considered to constitute business secrets; they are neither published nor communicated to the borrower or guarantor. Only the 1-year probability of default is communicated. On this background, the German authorities propose to base the calculation method on the multi-year default probabilities established empirically by Creditreform. Creditreform establishes 1-year and multi-year default probabilities for commercial borrowers in Germany. On the basis of the 1-year default probability communicated by the bank, the multi-year default probabilities are extrapolated on the basis of the Creditreform data.

2.3. Establishment of risk categories for the method

- (16) The structures of the rating categories applied by banks vary in their degrees of precision; for instance, the system used by Deutscher Sparkassen- und Giroverband (DSGV) has 17 rating categories.

⁵ The risk assessment is done through a so-called "corporate rating".

⁶ The Creditreform association (Verband der Vereine Creditreform e.V.) has a decentralised structure and comprises 130 independent companies. The Creditreform Rating AG (a subsidiary) is currently in the certification process of Basel II.

- (17) Due to its wide application in Germany, the German authorities propose to use the DSGV rating categories as a starting point for their calculation method. The 13 first DSGV categories are merged into 5 categories, taking account of their relevance for the issuance of state guarantees. In order to decide which DSGV categories would be merged together into one category, the criteria used by the German authorities were the size of the default-probability differences between the rating categories, i.e. the extent to which default probability increases with the drop into the next worse rating category, and the relevance of the given category in terms of the anticipated distribution of public guarantees across the rating categories. On the basis of these criteria, it was decided to merge DSGV categories 1 to 9 in one single category. Indeed, the difference between the default probabilities of these categories is limited and these categories are less relevant for the notified method since few State guarantees are granted to the firms which have such high ratings.

Ratingsystem Sparkassen- und Giroverband (DSGV)				Ratingsystem Garanties			
DSGV	1-Year-Probability of Default in %			Guarantee Rating Category	1-Year-Probability of Default in %		
	Bottom	Median	Top		Bottom	Median	Top
1	> 0,00	0,04	<= 0,09	1	> 1,50	2,00	<= 2,70
2	> 0,09	0,15	<= 0,23				
3							
4	> 0,23	0,35	<= 0,50				
5							
6							
7	> 0,50	0,80	<= 1,10				
8	> 1,10	1,30	<= 1,50				
9	> 1,50	2,00	<= 2,70				
10	> 2,70	3,00	<= 3,50	2	> 2,70	3,00	<= 3,50
11	> 3,50	4,50	<= 5,50	3	> 3,50	4,50	<= 5,50
12	> 5,50	7,00	<= 8,00	4	> 5,50	7,00	<= 8,00
13	> 8,00	10,00	<= 13,00	5	> 8,00	10,00	<= 13,00
14	15,00						
15	20,00						
16	EWB-Fälle						
17	100,00						

Table 1: Establishment of risk categories

- (18) Table 1 illustrates that the notified method is a simplification of the DSGV rating system.
- (19) For the rating category that results from the merger of the DSGV categories 1-9, the German authorities propose to use a 1-year default probability of 2% per year, which corresponds to the 1-year default probability of DSGV category 9. The purpose of using the highest default probability of the nine merged DSGV categories is to ensure that there is no underestimation of the aid element for this category.

Other rating systems than DSGV

- (20) In order to apply the calculation method to firms, which do not have a DSGV rating but another rating by other banks, the bank (lender) will have to notify

the public guarantor/authority the rating category it has established for the loan beneficiary, citing the maximum and minimum value of 1-year default probabilities for this rating category.

Without undertaking any risk assessment of its own, the public guarantor/authority converts this 1-year default probability into the corresponding rating category of the calculation method. The German authorities confirm that the switch of the bank rating into the relevant guarantee rating category will always be based on the higher (maximum) value of default probability of the rating category notified by the bank. If, for instance, the identified rating category of a bank encompasses 1-year default probabilities between 4.50 % and 5.80 %, the value 5.80 % would automatically be assumed and the conversion will result into guarantee rating category 4 (see table 1). This ensures that the conversion of the rating established by the bank into the calculation method rating does not lead to an underestimation of the aid element. If it is not possible to determine a rating for a company, the state guarantee will be notified individually.

2.4. Establishment of multi-year default probabilities – the data

- (21) The German authorities base their calculation method on data collected by Creditreform. The Creditreform database reflects the structure of commercial borrowers in Germany, where Creditreform has a market share of 70% in the field of commercial credit information.
- (22) Information on around 2.9 million companies from the existing Creditreform database was used⁷ to determine the default probabilities for the calculation method. Table 2 shows the distribution of firms between the 5 established guarantee rating categories. It has to be noted that since category 1 results from merging the DSGVO categories 1-9, this category shows the highest number of firms, albeit representing the firms with the lowest risk (see above Table 1).

Guarantee Rating Category	Number of included companies
1	1.868.811
2	360.490
3	420.316
4	120.689
5	49.969
total	2.820.275

Table 2: Distribution between risk categories of all firms rated by Creditreform

2.4.1. *The Creditreform Index*

- (23) According to Germany, Creditreform developed a data system that provides information on more than 95 % of all sectors represented in the German economy using, inter alia, statistical bankruptcy data, sector-based

⁷ Newly created firms during the first year after establishment for which no history exists were excluded. These firms are only included as soon as Creditreform receives the first annual accounts for these firms.

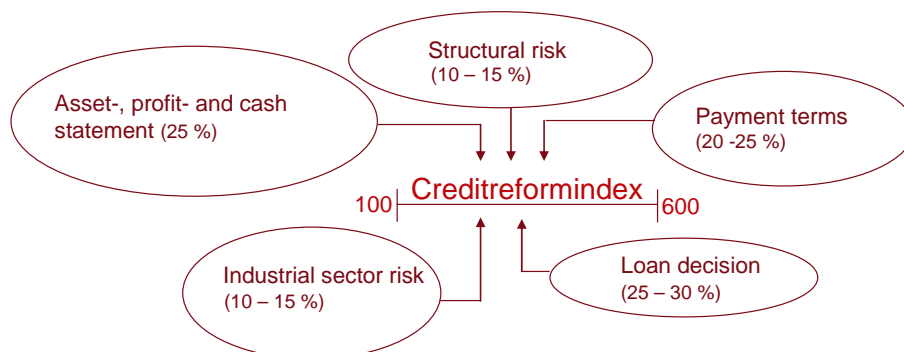
comparisons and the evaluation of numerous balance sheets. The content of this data system is updated on an ongoing basis. Both this information and information on aspects like structural risks and modes of payment are incorporated into a credit rating index, which is based on a metric scale and contains values between 100 (best score) and 600 (worst score) points.

- (24) Essentially, all criteria relevant for a company’s creditworthiness, such as profits and each individual company’s situation in the industry, are assessed and given an individual score; the “individual scores” thus obtained for each criterion⁸ are subsequently combined to form an “overall score” using different weights.

2.4.2. *Calibration of the data and multiple year cumulative probability of default*

- (25) The database of Creditreform was calibrated to the 5 risk/rating categories of the notified method on the basis of the 1-year default probabilities. In other words, Creditreform created five groups of firms, which each have on average the same 1-year default probability as the 1-year default probability of the one of the five risk/rating categories of the calculation method notified by Germany.
- (26) The multi-year cumulative default probabilities of each of the five groups thus created by Creditreform were calculated. In the notified method, the multi-year default probabilities of these five groups are considered as the multi-year default probabilities of the five rating categories.
- (27) The data of Creditreform currently covers only the period 1999-2006. This eight year period allows to calculate multi year default probabilities until year 8. Table 3 shows the multi-year cumulative default probabilities for the

⁸ The graph below illustrates the establishment of the Creditreform index and the different weights applied to each criterion in the construction of the overall index. Creditreform has data concerning the industrial sector risk and the structural risk for every borrower. A structural risk in this context may be the region (for example relative poor regions of East Germany) or the stage of development of an industry (for example coal mining in Germany as an industry in a late stage). In the absence of data concerning the mode of payment or the loan decision Creditreform does not generate a rating. These borrowers are not part of the population/dataset. Loan decision in this context means information given by suppliers, by collection companies or by customers of Creditreform responding to concrete queries. If the annual accounts are missing Creditreform uses an expert system to substitute for the missing data, where possible.



different rating categories. The multi-year cumulative default probabilities are the first data fed in the system to calculate the aid element in a guarantee (see Annex II, line A⁹)

Guarantee Rating Category	1-Jahres PD	Bonitäts-index	2-Jahres PD	3-Jahres PD	4-Jahres PD	5-Jahres PD	6-Jahres PD	7-Jahres PD	8-Jahres PD
1	2,00	100-262	2,2525	3,8087	5,4379	6,6248	7,6130	8,3178	8,8846
2	3,00	263-278	3,4375	5,4387	7,3122	8,8945	10,0594	10,8462	11,4634
3	4,50	279-309	4,9115	7,6106	9,9516	11,8842	13,2666	14,2402	15,0678
4	7,00	310-339	10,4740	15,0189	18,7805	20,6897	22,5151	23,1208	23,7212
5	10,00	340-382	18,0532	24,5023	28,2599	31,4100	33,3173	34,7203	35,3552

Table 3: Multi-year cumulative default probabilities in %¹⁰

(28) In order to apply the calculation method also to guarantees with a longer than eight year duration, the German authorities applied a linear extrapolation of the data of the last available year (currently year 8).¹¹ Germany confirmed that they will update Table 3 every year to include the additional year (i.e. year 9, then year 10, and so on) as real data become available. The updated figures will be applied each year from 1 May onwards.

2.5. Other elements affecting the aid element of a guarantee

2.5.1. Recovery rates

(29) The default probabilities indicate how high the probability is that a certain firm will default and the lender will call the guarantee. However, when such a default occurs and the guarantee is called, the payment by the guarantor to the lender usually does not amount to the full amount of the guarantee. Indeed, in case of default, the loss for the lender and the guarantor is generally reduced due to various elements. For instance creditors will try to recover money by seizing and selling the securities which were given as collateral for the loan. Furthermore, the creditors may recover some amounts from the sale of the other assets of the defaulted firm. It is therefore appropriate to take into account the recovery rate, which indicates to which extent these two elements reduce the loss suffered by the guarantor in case of a default.

(30) There are differences in recovery rates between the two types of guarantee programmes existing in Germany. In a first type of guarantee, the borrower provides collateral for the entire loan, meaning for the part of the loan which is covered by the state guarantee as well as for the part of the loan which lies with the commercial risk of the bank (gross programmes). In a second type of guarantee, the guarantee covers only those parts of a loan which are not secured by collateral (net programmes).

⁹ Annex II of this decision illustrates the different steps of the notified method in the case of a guarantee covering a 10 year loan with linear amortisation to a firm classified in rating category 3.

¹⁰ For rating category 1 the data of firms with Creditreform index 232-262 was used.

¹¹ For the longer time horizon the importance of the extrapolation is not as high since loans are repaid and the data is discounted.

- (31) On the basis of available data (recovery rates of specific guarantee programmes in Germany for 2004 to 2006¹²), the recovery rates are set for the calculation method at 12.5 % for net programs and 20 % for gross programmes.
- (32) The recovery decreases the cost supported by the guarantor in case of default. Therefore, in order to assess the amount at risk for the guarantor, the default probabilities have to be multiplied by 1 minus the recovery rate. (see Annex II, line B).

2.5.2. *Present value of future payments: necessity to use the marginal default probability*

- (33) The design of the German guarantee schemes allows the lender to call the public guarantee subject to certain conditions during the entire duration of the guarantee¹³.
- (34) The indemnifications that the guarantor will have to pay to a lender under the guarantee may therefore take place years after the grant of this guarantee. This is for instance the case if the bankruptcy of the borrower occurs several years after the beginning of the guaranteed loan. Since the present value of a future payment is smaller than its nominal value, it has to be identified precisely when these flows are expected to take place and to discount them accordingly.
- (35) It is therefore important to identify for each year of existence of the guarantee what is the probability that the guarantor will have to indemnify the lender during that year. For that purpose, the marginal default probability is calculated for each year. The marginal default probability is obtained by calculating the difference between the cumulative default probability in year t and the cumulative default probability in year $t-1$ ($PD_t - PD_{t-1}$). The result gives the probability of the default in each year. When multiplied by (1 minus the recovery rate), this gives the probability of payment in each year of existence of the guarantee. (see Annex II, line D)
- (36) In order to calculate the present value of these future payments, the nominal values are discounted (see Annex II, line E).

¹² Example of recovery rates for certain guarantee programmes
[...]*

* *business secrets*

¹³ Calling the guarantee is possible if the lender terminates the loan agreement, generally as part of bankruptcy proceedings. If the borrower does not pay the interest for the loan or lacks behind for the redemption payment the bank is not allowed to call the guarantee.

2.5.3. *Amortisation profile of the guaranteed loan*

- (37) The foregoing analysis supposes that the principal of the loan is reimbursed in full at the end of the loan. However, most of the loans do not follow that reimbursement profile.
- (38) The time profile of the reimbursement of the loan has a significant influence on the risk supported by the guarantor. Indeed, the risk is much more limited in a 10 year loan whose principal is reimbursed in 10 constant annual instalments that in a 10 year loan whose principal is entirely reimbursed at the end of the 10 year period. Indeed, in the later case, the lender runs a risk on the entire amount during the 10 year, whereas in the second case, the amount at risk is progressively reduced and, for instance, is only one tenth of the initial loan amount at the beginning of the last year.
- (39) The reimbursement profile of the loan is therefore one key input of the system planned by Germany (see Annex II, line F), which allow to identify the amount at risk at the beginning of each year of the loan.
- (40) The amount at risk at the beginning of each year¹⁴ is then multiplied by the marginal probability of default in that year. The recovery rate has to be taken into account and the figure obtained, which represents the probability of payment in a given year, has then to be discounted to obtain its present value. (see Annex II, line H).

2.5.4. *Discounting rate used*

- (41) The discounting rate used for all the calculations above will be the EU reference rate at the time of issuing the guarantee.

Guarantee Rating Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1	1,5293	0,1661	0,8698	0,7616	0,4546	0,3015	0,1644	0,0948	0,0601	0,0285
2	2,2940	0,2878	1,1185	0,8758	0,6060	0,3554	0,1835	0,1032	0,0654	0,0310
3	3,4410	0,2707	1,5085	1,0943	0,7401	0,4217	0,2271	0,1384	0,0875	0,0415
4	5,3527	2,2852	2,5402	1,7583	0,7312	0,5568	0,1413	0,1004	0,0636	0,0302
5	7,6467	5,2975	3,6044	1,7565	1,2064	0,5818	0,3273	0,1062	0,0672	0,0319

Table 4: Present value of the expected payments of the guarantor to the lender in the case of a 10 year loan with reimbursement of the principal in 10 constant annual instalments (in % of the initial guaranteed amount).

2.5.5. *Guarantee fees*

- (42) The notified method takes into account the guarantee fees that the State will receive when granting a guarantee.
- (43) In the system planned by the German authorities, the guarantee fees will be paid annually. The fee to be paid will be a given percentage of the actual

¹⁴ For simplification, it is assumed that repayments of the loan only take place at the end of the year.

(remaining) guaranteed amount at the beginning of the year concerned. This percentage will be fixed over the whole duration of the loan.¹⁵

- (44) The calculation model takes into account that for the guarantees that will be called because of default of the borrower, no guarantee fees will be paid, starting from the event of default, for the rest of the planned duration of the loan concerned.
- (45) The present value of the future guarantee fees that can be expected is then calculated (see Annex II, line I)

Discounting

- (46) The future guarantee fees will be discounted using the EU reference rate.¹⁶

2.5.6. Conclusion

- (47) In the calculation method notified by the German authorities, the aid element of a guarantee is thus equal to the sum of the present values of the indemnification payments expected to be made by guarantor to the lender diminished by the sum of the present value of the guarantee fees expected to be received over the entire duration of the guarantee.

2.5.7. *Risk-adjusted guarantee fees*

- (48) Since in the notified method the calculation of the aid element is adjusted according to the guarantee fee actually charged by the State, the calculation method allows for both the use of a fixed uniform guarantee fee (i.e. 1%) for all the rating categories or, as alternative, a guarantee fee which is different for the different risk/rating categories. The German authorities underlined that normally a uniform guarantee fee will be applied but reserved the possibility to apply risk-adjusted fees.¹⁷

2.5.8. *Administrative costs*

- (49) The beneficiaries of state guarantees have to pay in addition to the guarantee fee a one-time application fee varying between 0.25% and 2.50% of the guarantee amount. These amounts are not taken into account in the calculation model described.

¹⁵ The payment of guarantees fees can take place on an annual or half-annual basis at the beginning of the period (year/half-year). For the calculation model it was assumed that the payment is made at the beginning of the year.

¹⁶ Since the expected future guarantee fees have already been reduced to take into account the risk that some borrowers will default and not pay the fees, the risk is thereby already taken into account and the expected future guarantee fees can be discounted using the reference rate, i.e. no additional risk premium needs to be added to the latter rate.

¹⁷ For example, guarantee fees could vary between 0.75% or 2.50% annually depending of the rating category.

2.6. Application of the calculation method and adjustments

- (50) Annex II to this decision gives an example of a guarantee covering a 10 year loan with linear amortisation to a firm in rating category 3. This example explains in detail the successive steps to establish the aid element. In practice, however, an Excel spreadsheet will be created, which allows an easy application of the calculation method. The spreadsheet will be made publicly available on the internet.¹⁸
- (51) Annex III gives an example of the planned user interface. The Excel programming will be carried out in such a way that the multi-year default probabilities including the exchange of the initially linearly extrapolated years (currently year 9 to year 15) are constantly updated by empirical data. Furthermore, the Commission's reference interest rate will also be adjusted as and when changes occur.¹⁹
- (52) The German authorities will publish explanatory notes on how the bank-specific rating categories are converted into rating categories for the calculation method. In addition, conversion tables will be provided for the most commonly used rating systems.
- (53) The calculation method is based on ratings for companies to establish the probabilities of default. The German authorities confirmed that the method will not be applied to firms for which no corporate ratings exist – this includes in particular start-up companies in their early development and special purpose vehicles relying on non-recourse / limited-recourse project financing. Guarantees for companies without rating cannot be block exempted.

2.7. Monitoring

- (54) The German authorities agreed to submit a yearly report to the Commission on the application of the calculation method.
- (55) In addition, the German authorities keep detailed statistics that allow to evaluate the calculation method and the applied values in each rating category. In particular, the following data is collected separately for each rating category: (a) the total amount and the number of guarantees issued; (b) the level of the ex-ante aid value calculated on the basis of the notified method; (c) the amount supported by the state from the potential deficit of a guarantee scheme²⁰; (d) the default rate; (e) the loss rate; and (f) the recovery rate.

¹⁸ Internet address: www.pwc.de

¹⁹ In this context, the German authorities confirm that the allocation of the latest Creditreform data and/or any changes in the Commission's reference interest rate will be indicated within the framework of monitoring (see below).

²⁰ The monitoring will include all guarantee schemes (separately), which make use of this calculation method.

- (56) The German authorities will provide for large investment projects, for which according to Article 8(2) of Commission Regulation (EC) No1628/2006 transparency information has to be submitted and for which a guarantee is foreseen, in addition information regarding the rating of the company and the application of the calculation method.

3. ASSESSMENT OF THE CALCULATION METHOD

- (57) Following Recital 5 of Regulation No 1628/2006 the assessment of the calculation method by the Commission will be carried out according to the guarantee notice .

- (58) Since the calculation method will only be applied for aid schemes, section 3. of the guarantee notice is relevant for the assessment of the method.

3.1. General structure of the notified method

- (59) The guarantee notice outlines in sub-section 3.2. how the aid element should be calculated in the case of guarantees scheme. It indicates that the cash grant equivalent of a loan guarantee in a given year should be considered as "*[...] the difference between (a) the outstanding sum guaranteed, multiplied by the risk factor (the probability of default) and (b) any premium paid, i.e. (guaranteed sum x risk)-premium.*"

- (60) The Commission observes that the notified method follows this structure. Indeed, as described in section 2.2 to 2.5 of the present decision, the risk associated with a guarantee in a given year is calculated on the basis of the risk of default of the borrower. The risk factor is then multiplied by the guaranteed amount, and finally the premium paid is subtracted. The result is the aid element in the year concerned.

- (61) The Commission concludes that the notified method follows the general structure recommended by the guarantee notice.

3.2. Calculation of the risk factor

- (62) The guarantee notice further indicates in sub-section 3.2. that "*the risk factor should be based on past experience of defaults of loans given in similar circumstances*".

- (63) The Commission observes that, in the notified calculation method, the risk factor attributed to a given loan is based on an individual risk assessment of the borrower by the lender (the lending bank). On the basis of this individual risk assessment, each borrower is classified into one of the five rating categories. For each rating category, multi-year default probabilities were calculated by Creditreform from its historical database of German firms. In this calculation, Creditreform created groups of firms which had a similar risk profile as the ones in the rating category concerned. These historical default probabilities are used in the notified method to calculate the risk factor.

- (64) The Commission concludes that the risks factor is indeed based on past experience of defaults of loans given in similar circumstances.

3.3. Discounting

- (65) The guarantee notice further indicates in sub-section 3.2. that "*The yearly grant equivalents should be discounted to their present value using the reference rate, then added up to obtain the total grant equivalent.*"
- (66) The Commission observes that in the notified method all the futures flows (i.e. expected indemnity payments to the banks and expected guarantee fees) are discounted to their present value using the reference rate, and then added up to obtain the total grant equivalent.
- (67) This requirement of the guarantee notice is therefore fulfilled.

3.4. Security and recovery rate

- (68) Besides the elements already analysed, sub-section 3.5. of the guarantee notice also request to take into account "*the security required from the borrowers*" when calculating the aid element.
- (69) The Commission observes that the calculation method takes into account that in case a default occurs and the guarantee is called, the payment by the guarantor to the lender usually does not amount to the full amount of the guarantee but a certain share can normally be recovered through the securities given as collateral for the loan. The notified method uses a recovery rate of 20% for gross programmes and 12.5% for net programmes.
- (70) The Commission considers that these rates, which were derived from historical data, correctly reflect the reduction of the indemnity payments of the guarantor to the lending bank resulting from the activation of the securities associated with the loan. In particular, the low recovery rate used for net programmes is coherent with the fact that the guarantor does not benefit from securities in these cases.

3.5. Share of underlying loans covered by guarantees

- (71) As indicated in sub-section 3.3 and 3.4 of the guarantee notice, the Commission in general "*examine critically any guarantees covering the entirety [...] of a financial transaction*" because in such case "*the lender has less incentive to assess properly, secure and minimise the risk arising from the lending operation, and in particular to assess properly the borrower's creditworthiness.*"
- (72) In this case, the calculation method will be only applied to guarantee schemes that necessarily require that at least 20% of the underlying loan is not covered by a State guarantee. The lender will therefore have a sufficient incentive to properly assess creditworthiness and minimise risk. This safeguard ensures that the risk outlined in the provisions of sub-sections 3.3. and 3.4 of the guarantee notice can excluded in this case, which can be considered positively.

3.6. Firms in difficulty

- (73) Sub section 3.2 of the guarantee notice indicates that "*Where, at the time the loan is granted, there is a strong probability that the borrower will default, e.g. because he is in financial difficulty, the value of the guarantee may be as high as the amount effectively covered by that guarantee.*" If a guarantee would be granted to a firm in difficulty, the notified method would therefore underestimate the aid element in the guarantee.
- (74) The Commission notes that the German authorities have confirmed that the calculation method will not be applied for guarantees to firms in difficulty according to the Community guidelines on State aid for rescuing and restructuring firms in difficulty²¹.
- (75) In addition, the Commission considers positively the fact that guarantees for firms in a rating category having a 1-year probability of default higher than 13% are excluded from this method. Indeed, this limitation already automatically reduces substantially the possibility of applying erroneously the method for guarantees to firms in difficulty.

3.7. Conclusion

- (76) The Commission concludes that the calculation method allows a appropriate calculation of the risk supported by the State and the aid element in guarantees in line with the guarantee notice.

4. DECISION

- (77) The Commission has decided on the basis of the foregoing assessment that the calculation method as notified and amended by the German authorities is in line with the guarantee notice.
- (78) The Commission therefore accepts that the methodology is used by the German authorities for guarantee schemes to establish the aid element of a loan guarantee granted before 31 December 2013 where the underlying loan is intended for investment purposes. These guarantee schemes can therefore be considered as transparent in the meaning of Article 2(1) together with Article 2(2) of Commission Regulation (EC) No1628/2006.
- (79) The Commission reminds the German authorities of their commitment to submit to the Commission annual reports with all details described under 2.7.

If this letter contains confidential information which should not be disclosed to third parties, please inform the Commission within fifteen working days of the date of receipt. If the Commission does not receive a reasoned request by that deadline, you will be deemed to agree to the disclosure to third parties and to the publication of the full text of the letter in the authentic language on the Internet site:

http://ec.europa.eu/community_law/state_aids/index.htm

²¹ OJ C 244, 1.10.2004, p. 2

Your request should be sent by registered letter or fax to:

European Commission
Directorate-General for Competition
State Aid Greffe
B-1049 Brussels
Fax No: 32 2 296 12 42

Yours faithfully,
For the Commission

Neelie KROES
Member of the Commission

ANNEX I

Multi-year default probabilities in % extrapolated until year 10

Probability of Default relating to duration										
Guarantee Rating Category	1	2	3	4	5	6	7	8	9	10
1	2,0000	2,2525	3,8087	5,4379	6,6248	7,6130	8,3178	8,8846	9,4482	10,0086
2	3,0000	3,4375	5,4387	7,3122	8,8945	10,0594	10,8462	11,4634	12,0768	12,6864
3	4,5000	4,9115	7,6106	9,9516	11,8842	13,2666	14,2402	15,0678	15,8886	16,7026
4	7,0000	10,4740	15,0189	18,7805	20,6897	22,5151	23,1208	23,7212	24,3180	24,9112
5	10,0000	18,0532	24,5023	28,2599	31,4100	33,3173	34,7203	35,3552	35,9861	36,6130

ANNEX II - Example of calculation of the aid element in a guarantee

(all figures in percentage of the initial guaranteed amount)

10 year repayment

(r) Recovery rate = 20 % (d) discounting rate = 4,62 % (g) guarantee premium = 1 %

	Rating category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
A) Default probability according to Creditreform	3	4,5000	4,9115	7,6106	9,9516	11,8842	13,2666	14,2402	15,0678	15,8886	16,7026
B)=A)*(1-r) Default probability minus recovery rate	3	3,6000	3,9292	6,0885	7,9613	9,5074	10,6133	11,3922	12,0542	12,7108	13,3621
C)=1/(1+d)^t) Discount factor (1)		0,9558	0,9136	0,8733	0,8347	0,7979	0,7626	0,7289	0,6968	0,6660	0,6366
D)= B _{tn+1} -B _{tn}) Marginal default probability	3	3,6000	0,3292	2,1593	1,8728	1,5461	1,1059	0,7789	0,6621	0,6566	0,6512
E)=D)*C) Present value of the marginal default probability	3	3,4410	0,3008	1,8857	1,5633	1,2336	0,8434	0,5678	0,4613	0,4373	0,4145
F) Guarantee loan values at the beginning of the year	at beginning	1,0000	0,9000	0,8000	0,7000	0,6000	0,5000	0,4000	0,3000	0,2000	0,1000
H)=F)*E) Present value of computed defaults per year	3	3,4410	0,2707	1,5085	1,0943	0,7401	0,4217	0,2271	0,1384	0,0875	0,0415
I) =F)*g*C)*(1-A) _{tn-1} /100) Present value of the guarantee fee	3	-1	0,82154	-0,695	-0,5648	-0,451	-0,3515	0,26458	-0,1875	0,11835	-0,056
Z)= H) - I) Present value of the annual aid value in % of the guarantee fee	3	2,4410	-0,5509	0,8135	0,5295	0,2891	0,0702	-0,0375	-0,0492	-0,0309	-0,0146

Sum total = aid value = 3,4604 %

Annex III – User Interface

Guarantee Rating:	<input type="text"/>	Guarantee Premium:	<input type="text"/>
Guarantee Quote:	<input type="text"/>	Recovery Rate:	<input type="text"/>

Credit amount in € at the date of payout respectively at the beginning of the following year:

Payout/Year 1

Year 2	0,00	Year 9	0,00
Year 3	0,00	Year 10	0,00
Year 4	0,00	Year 11	0,00
Year 5	0,00	Year 12	0,00
Year 6	0,00	Year 13	0,00
Year 7	0,00	Year 14	0,00
Year 8	0,00	Year 15	0,00

Aid element: