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Reply form for the Discussion Paper on the validation and review of Credit Rating Agencies' methodologies



Date: 17 November 2015

Responding to this paper

The European Securities and Markets Authority (ESMA) invites responses to the specific questions listed in the ESMA Discussion Paper on the validation and review of Credit Rating Agencies' methodologies, published on the ESMA website.

Instructions

Please note that, in order to facilitate the analysis of the large number of responses expected, you are requested to use this file to send your response to ESMA so as to allow us to process it properly. Therefore, ESMA will only be able to consider responses which follow the instructions described below:

- use this form and send your responses in Word format (pdf documents will not be considered except for annexes);
- do not remove the tags of type <ESMA_ QUESTION_VR_CRA_1> i.e. the response to one question has to be framed by the 2 tags corresponding to the question; and
- if you do not have a response to a question, do not delete it and leave the text "TYPE YOUR TEXT HERE" between the tags.

Responses are most helpful:

- if they respond to the question stated;
- contain a clear rationale, including on any related costs and benefits; and
- describe any alternatives that ESMA should consider

Naming protocol

In order to facilitate the handling of stakeholders responses please save your document using the following format:

ESMA_VR_CRA_NAMEOFCOMPANY_NAMEOFDOCUMENT.

E.g. if the respondent were ESMA, the name of the reply form would be:

ESMA_VR_CRA_ESMA_REPLYFORM or

ESMA_VR_CRA_ESMA_ANNEX1

To help you navigate this document more easily, bookmarks are available in "Navigation Pane" for Word 2010 and in "Document Map" for Word 2007.

Deadline

Responses must reach us by 19 February 2016.

All contributions should be submitted online at <u>www.esma.europa.eu</u> under the heading 'Your input/Consultations'.



Publication of responses

All contributions received will be published following the end of the consultation period, unless otherwise requested. Please clearly indicate by ticking the appropriate checkbox in the website submission form if you do not wish your contribution to be publicly disclosed. A standard confidentiality statement in an email message will not be treated as a request for non-disclosure. Note also that a confidential response may be requested from us in accordance with ESMA's rules on access to documents. We may consult you if we receive such a request. Any decision we make is reviewable by ESMA's Board of Appeal and the European Ombudsman.

Data protection

Information on data protection can be found at <u>www.esma.europa.eu</u> under the headings 'Legal notice' and 'Data protection'.



Introduction

Please make your introductory comments below, if any: < ESMA_COMMENT_VR_CRA_1>

Herewith Euler Hermes Rating GmbH submits the responses to the questions raised by ESMA in the Discussion Paper on the validation and review of Credit Rating Agencies' methodologies. Please find our comments below.

< ESMA_COMMENT_VR_CRA_1>



1. Do you agree with ESMA's view regarding the discriminatory power of methodologies?

<ESMA_QUESTION_VR_CRA_1>

We basically agree that the discriminatory power is one of the key statistical measures for validating and reviewing CRA rating methodologies. We would like to emphasise that it is highly crucial to decide on the application of such measures with respect to their explanatory power and the relevant and available amount of data.

<ESMA_QUESTION_VR_CRA_1>

2. Do you agree that the Accuracy Ratio, as derived from the CAP curve, is the minimum statistical measure that a CRA should use as part of its validation processes for demonstrating the discriminatory power of its methodologies?

<ESMA_QUESTION_VR_CRA_2>

We basically agree with the use of the AR as the minimum test of discriminatory power. However, if a times-series of ratings contains gaps (e.g., there was no contract with the CRA for a certain period of time), these gaps might result in the under- or overestimation of the AR (depending on the rating level and its marginal discriminatory power) as the missing ratings will not count in the AR calculation. <ESMA_QUESTION_VR_CRA_2>

3. Do you agree that complementary measures such as the Kolmogorov-Smirnov statistic and the ROC curve (along with a confusion matrix) add further information to the discriminatory power of methodologies? If not, please explain why.

<ESMA_QUESTION_VR_CRA_3>

As Accuracy Ratio (AR) and Area Under ROC (AUROC) are mathematically equivalent (using affine linear transformation), the ROC curve and the derived AUROC value do not add any material information to the discriminatory power. Additionally, AR and ROC themselves are random variables dependent on the sample, especially on the number of defaults and non-defaults in a certain period. We expect confidence intervals for AR/AUROC to add further information on discriminatory power. Moreover, using Kolmogorov-Smirnov statistics add further information as they deliver statistically sound results on discriminatory power.

<ESMA_QUESTION_VR_CRA_3>

4. Are there additional quantitative measures that CRAs should use and which would add further insight into the discriminatory power of methodologies? If yes, please explain the measures and your rationale.

<ESMA_QUESTION_VR_CRA_4> No. <ESMA_QUESTION_VR_CRA_4>

5. Are there qualitative measures that are appropriate for demonstrating the discriminatory power of methodologies? If yes, please explain the measures and your rationale.

<ESMA_QUESTION_VR_CRA_5>

The level of discriminatory power should already be included in the aforementioned statistical tests. We do not consider any qualitative measure to be superior in terms of accuracy or reliability. <ESMA_QUESTION_VR_CRA_5>

6. Do you agree with ESMA's view regarding the predictive power of methodologies?

<ESMA_QUESTION_VR_CRA_6>



We basically consider the application of predictive power measures as systematically contradictory to the rank-order system underlying credit ratings as those are not supposed to provide fixed default probabilities. This might also result in a change of credit ratings as a through-the-cycle measure to a point-in-time measure (equiv. to bank-internal ratings), which might lead to higher rating transitions over time. <ESMA_QUESTION_VR_CRA_6>

7. Do you agree that statistical measures of predictive power increase the quality of validation of CRAs methodologies and should be performed by the CRAs?

<ESMA_QUESTION_VR_CRA_7> No; see explanation under 6. <ESMA_QUESTION_VR_CRA_7>

8. Do you agree that the binomial and the chi-square tests are the minimum statistical measures that a CRA (when its ratings refer to default probabilities) should use as part of its validation processes for demonstrating the predictive power of its methodologies?

<ESMA_QUESTION_VR_CRA_8>

Both the binomial and chi-square test assume the independence of default events. This assumption will not fully hold in practice. In particular, the binomial test may result in biased outputs if correlations between default events are neglected. Additionally, the chi-square test only works for large portfolios as it uses the results of the central limit theorem, which only delivers an asymptotic distribution of the test statistic. If the portfolio is small, the test results may not be statistically sound.

9. Do you agree that complementary measures such as the Brier score and the Vasicek onefactor model test add further information to the predictive power of methodologies (when the CRAs' ratings refer to default probabilities)? If not, please explain why.

<ESMA_QUESTION_VR_CRA_9>

The Brier score might add further information to predictive power of methodologies if the score is adjusted properly. The Brier score itself does not contain significant information on predictive power as it can easily be influenced by low default probabilities. Ceteris paribus, the lower the default probability, the lower the Brier score. Therefore, the Brier score should be divided by the Brier score calculated on the overall default probability. The Vasicek one-factor model delivers a confidence interval for the default probability but it simplifies the correlation analysis to just one correlation factor. Additionally, it only works for large portfolios as the confidence interval is only asymptotically correct. Given these restrictions, the Vasicek one-factor model does not add any materially suitable insight into the predictive power.

10. Are there additional measures that CRAs should use and which would add further insight into the predictive power of methodologies when the CRAs' ratings refer to default probabilities? If yes, please explain the measures and your rationale.

<ESMA_QUESTION_VR_CRA_10> No. <ESMA_QUESTION_VR_CRA_10>

11. Are there qualitative measures that are appropriate for demonstrating the predictive power of methodologies when the CRAs' ratings refer to default probabilities? If yes, please explain the measures and your rationale.

<ESMA_QUESTION_VR_CRA_11>



No. <ESMA_QUESTION_VR_CRA_11>

12. Do you agree that CRAs using methodologies related to creditworthiness measures other than default probabilities should use statistical measures to demonstrate the predictive power of their methodologies? If yes, please state the potential creditworthiness measures that methodologies could relate to and the corresponding statistical measures as well as any appropriate qualitative measures.

<ESMA_QUESTION_VR_CRA_12>

Additional measures might be relevant for Expected Loss ratings. Tests may be performed by comparing the assumed loss given default with the actual (realised) LGD (independent of the related default probability). However, it is questionable whether CRAs receive full information on specific losses across all asset classes. We would therefore expect serious issues in collecting the relevant data. <ESMA_QUESTION_VR_CRA_12>

13. If ESMA establishes that there is a need for further guidance to the industry, should this guidance also cover the demonstration of predictive power of methodologies related to creditworthiness measures other than default probabilities?

<ESMA_QUESTION_VR_CRA_13> No; see explanation under 6. <ESMA_QUESTION_VR_CRA_13>

14. Do you agree with ESMA's view regarding the historical robustness of methodologies?

<ESMA_QUESTION_VR_CRA_14>

We basically agree with the view that historical robustness measures should be included in validation processes as a key criterion for rating stability and quality.

<ESMA_QUESTION_VR_CRA_14>

15. Do you agree that stability statistical measures and the transition (migration) matrices are the minimum measures that a CRA should use as part of its validation processes for demonstrating the historical robustness of its methodologies?

<ESMA_QUESTION_VR_CRA_15>

We basically agree with the calculation of transition matrices to measure rating stability over time. Additional statistical measures such as the Population / System Stability Index might only add information if they are calculated based on conditional rating distributions from time t to t+x (i.e., distribution at time t+x only includes ratings of companies, which were included in the distribution at time t), as the rating universe (i.e., the composition of rated entities) of a CRA may change over time. <ESMA_QUESTION_VR_CRA_15>

16. Do you agree that complementary measures such as distribution analysis, the univariate analysis of rating determinants and benchmarking add further information to the historical robustness of methodologies? If not, please explain why.

<ESMA_QUESTION_VR_CRA_16>

The rating distribution would already be covered by the Population / System Stability Index measure, therefore no complementary test would be needed. As CRA ratings are not only based on mathematical models but expressed as a credit opinion performed by a rating committee, any univariate analysis of rating determinants might be biased and may not provide a transparent picture, esp. if relevant determinants are omitted in such analysis (the same holds if the rating methodology is adjusted and rating factors are changed). Benchmarking might result in biased conclusions if the underlying benchmark itself does not



represent an appropriate measure of creditworthiness, e.g., market-related measures might be sensitive to market-wide trends or overreactions, or if does not represent the structure of the CRA's rating portfolio. <ESMA_QUESTION_VR_CRA_16>

17. Are there additional measures (qualitative or quantitative) that CRAs should use and which would add further insight into the historical robustness of methodologies? If yes, please explain the measures and your rationale.

<ESMA_QUESTION_VR_CRA_17>

A heat map as derived from a bivariate density estimation may help to visualise the patterns within a transition matrix. This captures most of the information (stability weighted by number of ratings) contained in such matrices. It might also be possible to define thresholds, which should not be exceeded by the heat map.

<ESMA_QUESTION_VR_CRA_17>

18. Do you agree with ESMA's view regarding the validation of methodologies with limited quantitative evidence?

<ESMA_QUESTION_VR_CRA_18>

We basically agree with the view that validation and review processes might take into account additional data or additional performance tests based on subsamples or combined samples, if available and appropriate.

<ESMA_QUESTION_VR_CRA_18>

19. Do you agree that CRAs should, as a first step, investigate data enhancement in validating methodologies with limited quantitative evidence?

<ESMA_QUESTION_VR_CRA_19>

We basically consider data enhancement (for corporate ratings only) as an efficient and reliable way for refining validation processes. However, it is noteworthy that most CRA rating methodologies are not only based on mathematical models but rather analyst-driven. It is therefore crucial to apply models to these data, which are designed to replicate – on average – analyst-driven rating opinions. The outcome of such models based on larger data sets might then be used to calculate additional statistics (esp. for discriminatory power and historical robustness).

<ESMA_QUESTION_VR_CRA_19>

20. Do you agree that CRAs should, as a second step, investigate measures that may enable them to perform statistical tests to demonstrate the discriminatory power of their methodologies?

<ESMA_QUESTION_VR_CRA_20> We basically agree with this view in case the additional data are reliable and the outcome has a high correlation with actual CRA ratings. <ESMA_QUESTION_VR_CRA_20>

21. Do you agree that historical robustness measures should be performed when validating methodologies with limited quantitative evidence?

<ESMA_QUESTION_VR_CRA_21> Yes. <ESMA_QUESTION_VR_CRA_21>



22. Do you agree that the transition (migration) matrices and benchmarking are the minimum measures that a CRA should use as part of its validation processes for methodologies with limited quantitative evidence?

<ESMA_QUESTION_VR_CRA_22> See explanations under 15. and 16. <ESMA_QUESTION_VR_CRA_22>

23. Do you agree that complementary historical robustness measures add further information to the validation processes for methodologies with limited quantitative evidence? If not, please explain why.

<ESMA_QUESTION_VR_CRA_23> See explanation under 15. <ESMA_QUESTION_VR_CRA_23>

24. Are there additional measures that CRAs should use when validating methodologies with limited quantitative evidence? If yes, please explain the measures and your rationale.

<ESMA_QUESTION_VR_CRA_24> See explanation under 17. <ESMA_QUESTION_VR_CRA_24>

25. Do you agree that thresholds should be set for the quantitative validation techniques?

<ESMA_QUESTION_VR_CRA_25>

We basically agree with the set-up of thresholds. However, in case these thresholds are met, there shall be no mechanistic or prudential requirement for updating rating methodologies or similar but this should rather present the starting point for further investigations within the CRA. In addition, thresholds and related subsequent measures should be consistent across CRAs, while also taking into account the CRA-specific business case, asset classes covered, product range and rating methodologies. <ESMA_QUESTION_VR_CRA_25>

26. Do you agree that the Internal Review Function should decide on these values?

<ESMA_QUESTION_VR_CRA_26> Yes. <ESMA_QUESTION_VR_CRA_26>

27. Do you agree that predefined actions should be defined by the CRAs when the thresholds are met?

<ESMA_QUESTION_VR_CRA_27> Yes; see explanation under 25. <ESMA_QUESTION_VR_CRA_27>