What objective function does rating issuance follow? Implications for financial market stability and regulation

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Since the inception of the financial crisis in the summer of 2007, rating agencies have been in the cross-hairs of public criticism. They have been accused of “rating inflation” resulting from inherent conflicts of interest, and fears have been raised that the dominant market position of the three major rating agencies – Standard and Poor’s, Moody’s and Fitch – has distorted competition (cf. Bolton/Freixas/Shapiro 2011; Mählmann, 2011; Becker/Milbourn, 2011). Beyond this, their credit assessments, in particular for government bonds, have been announced as sudden changes in published ratings which, in a time of nervous capital markets, have served to trigger massive (and generally negative) market reactions (cf. Bannier 2010).

Regardless of one’s view as to whether these accusations are justified, the nature of the public debate makes it abundantly clear just how little is actually understood about credit ratings and their issuance. It is for this reason that the FIRM-sponsored project “What objective function does rating issuance follow? Implications for financial market stability and regulation” attempts to break the rating process into its core components, thus making it more comprehensible.

At the very centre of this research project is the question of the extent to which rating assessments are based on “hard” (publicly available) data, as opposed to “soft” (non-public) information which the rating agencies may have at their disposal. That the agencies do indeed have privileged access to company information is not in doubt; in the U.S., they are even granted a specific exemption from Regulation Fair Disclosure (“Reg FD”), which prescribes that companies must otherwise disclose relevant information to all investors at the same time. Beyond this privileged access, the rating agencies have a particularly broad base of experience and specialised expertise in assessing credit quality. The question of when and to what extent this information is used is of great importance because of the considerable market influence which ratings announcements may have, in some cases with enormous impact on the capital markets.

Few research studies have to date addressed the question of how, in concrete terms, rating agencies produce their credit assessments. This analysis is somewhat complicated by the fact that credit ratings are not explicitly tied to absolute default probabilities but rather are published as relative rankings of obligor credit quality, expressed as letter combinations ranging from the top rating of AAA/Aaa to BBB-/Ba3 at the lower end of “investment grade”, then continuing with BB+/Ba1 all the way down to D (default). These ratings, furthermore, may differ between rating agencies, even for the exact same obligor. In an earlier paper, the authors were able to demonstrate that even in their short-term “watchlists” for potential rating changes, as well as in their longer-term “outlooks”, the rating agencies disclose relevant additional information about the credit quality of the subject obligor (cf. Bannier/Hirsch, 2010). The differing expressions of credit assessment, along with lack of uniformity of the credit ratings themselves, would seem to be reflective of the vast range of information which determines the rating process.

Data and analysis
The methodology of this project was, firstly, to examine the effect of information upon credit rating issuance by rating agencies and to bifurcate this information between publicly available (hard) and non-public (soft) information. The contribution of soft information, inferentially measured using this approach, was then further examined as a determinant of ratings. The analysis used a data set consisting of the S&P ratings of U.S. companies over the period 1995 to 2010 along with the concurrent annual financial statement data and annual market performance of these same companies. The data set consisted of a total of 21,754 company-years. Because soft information, by its very definition, cannot be directly measured, this troublesome absence of direct data was overcome by assuming soft information to account for the difference between published ratings and available hard information – and thus derivable as the difference. This approach, however, requires that inadequacies of the rating models used by agencies first be ruled out as a potential source of this difference. This possibility can, in fact, be excluded by applying specialised statistical correction models (cf. Mundlak 1978). It should be noted here that the analytical method used (ordered probit model) does specifically take into account the non-linearity of company default probabilities as a function of rating.

The analysis was conducted by using a statistical model to predict rating distributions based on publicly available information, whereby the ordered probit-based model determines not simply a “most likely”
What objective function does rating issuance follow? Implications for financial market stability and regulation

Rating but rather a distribution of probabilities, based on the data publicly available about the company, across the entire spectrum of rating categories. This provides valuable additional information about the precision of publicly available information: The smaller the standard deviation of the ordered probit-based prediction, the greater is the determining effect on the rating of publicly available information. Finally, differences were calculated between the predicted rating and the actual rating issued by S&P for each respective company and rating date.

The research project then went on, in its main part, to analyse the causes of the difference between actual and predicted ratings determined in this way. Where this difference was positive (actual rating higher than predicted rating), it would suggest that rating agencies possess soft information which is optimistic or favourable regarding the company; where it is negative, it would suggest the presence of soft information which is predominantly pessimistic or unfavourable. The project’s principal objective was to find out why, and in what way, agencies incorporate soft information into their credit rating assessments.

Findings

It was found, first of all, that a relatively small number of issuer-related variables suffice to replicate published credit ratings with a reasonable degree of reliability. These variables were drawn partly from annual financial statement data, namely interest coverage, return on sales, and financial leverage; and partly from market data, namely the market value of the company and its market beta. The inclusion of additional variables, for example macroeconomic data, improved neither the point estimates of ratings nor the confidence levels of the estimates.

Analysis of the differences between actual and predicted credit ratings revealed that soft information played a greater explanatory role for investment-grade issuers (BBB-/Baa3 or higher) compared to issuers of lower credit quality. This relationship may be observed in Figure 1.

The study focused particularly on the question of what objectives drive the incorporation of soft information into the credit rating process. To answer this question, various hypotheses were tested. One of these, for instance, could be the existence of those conflicts of interest which have been the subject of so much popular criticism of late; this being the case, one would expect to see a correlation to the length of the client relationship with the issuer. Interestingly, however, this variable was found to have a slightly negative effect: It would seem that the longer an issuer has already been rated, the more conservative are the ratings issued by the agencies. Thus, contrary to the conflict of interest hypothesis, it would seem that where a relationship to an issuer has existed for a long time, the agencies would be less hesitant to factor in soft information which is unfavourable.

Another hypothesis to be tested was whether the low level of competition among the three major agencies has any specific effect on the utilisation of soft information. There was, in fact, no evidence of this. There thus seems to be little hazard that agencies would, in order to gain market share, use soft information to justify better ratings than suggested by hard information alone.

There were, however, two other causal mechanisms which were found to play a far greater role in credit rating issuance. Firstly, it would seem that companies which meet high transparency standards are rewarded through the incorporation into their rating of favourable soft information. Specifically, those companies with asset structures which could be readily valued, as well as those issuers with financial disclosure more strongly in line with transparency criteria, generally received better ratings. Secondly, rating agencies would seem to place greater reliance upon soft information where hard information is considered uncertain or too imprecise. In these situations, it was
found that agencies tend to issue somewhat better ratings than would be predicted by hard information alone. Interestingly, this was particularly the case for companies facing large debt refinancings in the near future. A worsening of credit rating, of course, would have had very direct consequences to these issues, as their refinancing costs would have gone up significantly. The resulting increase in financing costs, in turn, would pose a further drag on future credit quality, leading in the worst case to a “death spiral” of ever-increasing interest expense. With this finding, the study provides an initial indication that rating agencies might, in fact, anticipate the effects of their rating actions on the capital markets and, in turn, factor this mechanism into their rating decisions. That is to say, the market feedback effect upon issuer credit quality would indeed seem to play a significant role in rating issuance.

Conclusions
Rating changes which are induced by non-public information have an influence not only on the bond market, and thus on bond interest expenses, but also far broader repercussions to the companies being rated. Bannier and Wiemann [cf. Bannier/Wiemann 2011] showed that, for many companies, their bank loan facilities are also coupled to credit ratings from agencies. Such provisions, for example, may empower banks to immediately impose an additional loan spread upon the event of a rating downgrade. Along with regulatory considerations – in particular, that certain institutional investors can only hold bonds with a certain minimum rating – this mechanism provides yet another potential explanation of why rating agencies might factor in the expected effects of their ratings at the time they are issued. The research project described herein suggests that this feedback mechanism does indeed have an influence on the observed ratings.

A negative consequence of these feedback effects, however, is that rating agencies have a propensity to delay rating downgrades until they have become inevitable. Particularly in the case of government bonds, this may have the effect of greatly exacerbating distortions in market values, which could even lead to contagion effects. To avoid this, not only should the role of credit ratings in regulatory requirements be reduced, as already put into practice in the Dodd-Frank Act; undesirable market feedback mechanisms must also be mitigated to the greatest extent possible. This could be achieved, first and foremost, by encouraging market participants not just to rely on external ratings but to perform their own analysis. Independent decision-making by market participants where most needed could be fostered by encouraging the agencies, in addition to their credit ratings as proxies for point estimates of expected default probabilities, to publish the standard deviation of the relevant default probability distribution. Where this suggests a high level of rating uncertainty, investors would surely take a great interest in performing their own, more in-depth analysis of credit quality.

References


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