Of Moody's and Merton : a structural model of bond rating transitions

Discussion of Michael Gordy and Erik Heitfield's paper by

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Objectives of the study :

-to elaborate a general model of stochastic rating transitions

-Statistically parsimonious to estimate

- and consistent with the stylised facts

-From which economic inferences could be extracted

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Baseline structural transition model :

-Default model : Merton style distance to default stochastic model conditional to a normally distributed systematic factor

-Rating assignment model : maps default distance into ratings using a partition of the distribution calibrated on empirical data

- Iteration of the migration process over the sample period

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Generalisation of the baseline model :

-Thick tailed distribution of distances to default (alpha stable distribution)

-Thick tailed distribution of distances to default with constant measurement error

- Thick tailed distribution of distances to default with grade varying measurement error (AR(1))

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Results obtained :

-Structural models produce good estimates of one year rating stability (same or adjacent rating)

-But give poor predictions of larger rating transition probabilities

-Best results are obtained with a grade varying error measurement model

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Comments :

-Structural models while easier to implement need stronger assumptions

-The idea of autocorrelated errors in the rating process is appealling

-But these models do not seem to capture all the expected features of the rating process

-WHY ? Focus on the assumptions

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Comments :

-Liabilities are fixed in the Merton stochastic model

- But the issuer 's credit quality should also impact the net present value of its liabilities which means that liabilities are expected to vary over time

-estimated distances to default with fixed liabilities may be biaised

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Comments :

- Why use symmetric distributions ?

-transitions thresholds should be sensitive to the skewness of the distribution

- Symmetric distributions are likely to overestimate upgrade probabilities and underestimate downgrade probabilities if the actual distribution is left skewed

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Comments :

- More clarification or investigation on the insensitivity to the distribution 's skewness

- transition thresholds should be allowed some dynamics to account for the fact that rating changes may not be driven only by distance to default

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Comments :

-Some evidence suggest that rating criteria may vary with cycles

- Rating criteria may also vary with the grade (more scrutiny for lower grades than for investment grades)

- => further AR(CH)

- => relax Markov assumption

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Conclusions :

-Encouraging results and promising area of research

- refine model specification

-=> relax fixed liabilities assumption

-=> check/relax symmetry assumption

- => relax Markov assumption

-=> emphasise error modelling