

Bond Ratings
Let's Take the Hype out of Hypothetical

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AAA *Fully tested in both normal and stressful financial environments.*

AAA-H *Hypothetical AAA rating based on theoretical models but not fully tested
in both normal and stressful financial environments.*

In the midst of the recent financial catastrophes, we are desperate to find some culprits or, even better, some conspirators. Looking backward, it seems crystal clear that the bond rating agencies contributed to the market turmoil we have been experiencing by assigning AAA ratings to securities that now seem completely undeserving of that status. Exhibit A in the case against the agencies is the fact that they marked down AAA residential mortgage securities to CCC junk, not slowly over time, but all at once. To make the indictment complete, we can add some conspiracy stories about the cozy relationship between the sellers of the bonds and the management of the rating agencies.

If this is the judgment, then the remedy is a spanking for the rating agencies and a firewall between them and the bond sellers. I doubt this will prevent problems from arising again. The real problem is that the agencies are hobbled by an inappropriate but completely traditional logical structure within which to do the ratings.

Traditional logic is two-valued – a proposition is either true or false; a bond rating is either AAA or one of the other ratings. Three-valued logic admits another possibility – a proposition is true, false or unknown; a bond rating is AAA or CCC or undecidable.

While two-valued logic is a useful foundation for the study of stable and easily-observable phenomenon, two-valued logic creates a false sense of knowledge and an impossible and counter-productive goal in settings of constant change with limited observability. While it may be wise to adopt two-valued logic for the study of mechanical systems, organic self-innovating systems like financial markets and the economy require three-valued logic to give analysts some much-needed humility about the limits of their knowledge and also a way to communicate the true state of their knowledge to the rest of us.

Even engineers working with mechanical systems recognize the limits of their knowledge. Although the reliability of the wings and the stabilizer and the electrical system may all have been fully established in laboratory conditions or actual flying time on other aircraft, the FAA does not certify a new aircraft until extensive flight testing of the whole system has been conducted. The aircraft before the first flight gets the AAA-H rating. It takes testing in normal and stressful conditions to achieve the AAA status.

I wonder how much of Wall Street turmoil would have occurred if those innovative AAA residential mortgage securities had been rated AAA-H, reserving AAA status until stress testing in a housing downturn were complete. I am thinking most of this mess would have been avoided. Much less money would have found its way into those H securities to finance subprime and alt-A mortgages. Risk premia for these loans would have been greater and lending standards more sensible. There surely would have been a housing boom, but home ownership would not have been pushed to the very limit of eligibility, and beyond. The subsequent bust would have been ever so much more mild than the one we are experiencing. And, faced with the specter of the H rating, the mathematicians and statisticians who devised the complex financial instruments that no one understands would have found gainful employment in some genuinely productive activity.

Epilogue: I am the author of “Let’s Take the Con out of Econometrics” published in the *American Economic Review* in 1983. My call for three-valued logic in economics has been largely ignored in a formal sense, but wise economists routinely carry out sensitivity analyses that reveal the limits of their knowledge, which, by the way, are very severe.