

Measuring Banks' Antifragility via Fuzzy Logic

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Abstract : Analysing the world banking sector, we realize that traditional risk measurement methodologies no longer reflect the actual scenario with uncertainty and leave out events that can change the dynamics of markets. Considering this, regulators and financial institutions began to search more realistic models. The aim is to include external influences and interdependencies between agents, to describe and measure the operationalization of these complex systems and their risks in a more coherent and credible way. Within this context, X-Events are more frequent than assumed and, with uncertainties and constant changes, the concept of antifragility starts to gain great prominence in comparison to others methodologies of risk management. It is very useful to analyse whether a system succumbs (fragile), resists (robust) or gets benefits (antifragile) from disorder and stress. Thus, this work proposes the creation of the Banking Antifragility Index (BAI), which is based on the calculation of a triangular fuzzy number – to "quantify" qualitative criteria linked to antifragility.

Keywords : adaptive complex systems, X-Events, risk management, antifragility, banking antifragility index, triangular fuzzy number

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