

Key Theme :

How can CADES agency optimize the refinancing of social security debt, with the help of an asset and liability management tool.

Title :

Asset and liability management by CADES, a manager of public debt

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The method chosen by CADES (*Caisse d'Amortissement de la Dette Sociale*) to steer the process of paying down the social security debt it has assumed is related to our particular asset and liability management policy. The economy is ruled by three factors, the dynamics of which govern the principal classes of negotiable debt instrument and our asset, which is the CRDS (*Contribution au Remboursement de la Dette Sociale*) and, partly, CSG (*Cotisation Sociale Généralisée*) joint taxes revenue, generated via a levy on nearly all forms and sources of income in France.

Risk is defined as the probability that we will not achieve an acceptable performance level in terms of debt repayment capacity, while our aversion to risk is reflected in the convexity of the relationship between performance and the redemption horizon.

We build projections of our balance sheet through the implementation of its components dynamics. As we analyze the amortizing process, we introduce the notion of amortizing capacity at the core of the expression which is the objective function we seek to maximize. We are therefore able to formalize our time-dependent optimization problem, and to provide an expression of our risk aversion.

Afterwards we show the practical method chosen to solve for the optimization problem : we exhibit different subsets of portfolios, subject to a pre-defined rule of re-balancing, in a two-axis space representing performance and risk respectively. Then we define a direction of performance and risk optimization, as well as a direction of no-arbitrage.

We finally describe the decision support tools which we have rolled out based on the results of the modeling, and which were designed to provide guidance for debt allocation optimization.

Keywords : refinancing, amortizing capacity, redemption horizon, direction of performance and risk optimization.