

# OPTIMIZATION OF DEBT STRUCTURE BY QUANTILE CRITERION FOR OIL PRODUCING COMPANIES

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## Abstract

Debt structure optimization problem (in application to Oil&Gas companies) became actual again in the second quarter of 2014, when sectorial sanctions against, inter alia, Russian O&G companies and certain state-owned banks were enacted.

This article presents a method to optimize debt portfolio structure of O&G company in case of slightly decreasing Oil prices and describes its application to a mid-size Oil company (based on Russian taxation system). Article employs mathematical apparatus of stochastic processes.

Numerical modeling is used to obtain probability distribution functions of cash-flows and to receive set of optimal portfolio for different criteria.

After making minor modifications the model may be applied to almost any extraction company. It also may be used to solve a broad scope of problems: stress-testing of company's solvency, default probability estimation for a large borrower or project, value modeling for an extraction company, etc.

**Keywords:** risk-management, default, Monte-Carlo, probability estimation, stochastic processes, covenants

**JEL:** C53, D81, G31, G32

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