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## **METHOD DEVELOPMENT ASPECTS OF LIQUIDITY-ADJUSTED VALUE-AT-RISK (LVAR) TECHNIQUE FOR COMMODITIES PORTFOLIOS**

### **Abstract:**

This paper reviews and examines the method development aspects of Al Janabi (2012) theoretical foundations and optimization algorithms for the assessment of Liquidity-Adjusted Value at Risk (LVaR) technique under adverse market conditions. This paper focuses on the development of robust theoretical foundation and modeling framework that attempt to tackle the issue of market/liquidity risk and economic-capital estimation at a portfolio level and within a multivariate context. The proposed optimization algorithm demonstrates that better investable commodities portfolios can be obtained than using the traditional Markowitz's (1952) portfolio theory. In addition, the optimization algorithm has shown that portfolio managers can obtain financially meaningful investable portfolios and demonstrated interesting market-microstructures' patterns which cannot be attained by using the classical Markowitz's mean-variance approach. Advantages of the method include:

- Developed algorithms can aid in advancing portfolio management in financial and commodities markets by testing for investable portfolios subject to meaningful financial constraints.
- Investable commodities portfolios cannot be achieved via Markowitz's (1952) classical portfolio approach as the empirical results indicate that investable commodities portfolios lie off the efficient frontier.
- The proposed modeling technique can be used by risk managers and portfolio managers for the assessment of appropriate asset allocations of different investable commodities portfolios under crisis market outlooks.

### **Keywords:**

Commodity; Financial Engineering; Liquidity-Adjusted Value-at-Risk; Optimization; Portfolio Management

**JEL Classification:** C10, C13, G20