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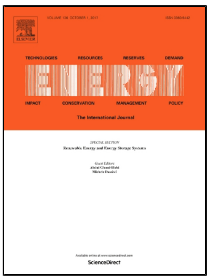

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# DETECTING THE IMPACT OF FUNDAMENTALS AND REGULATORY REFORMS ON THE GREEK WHOLESALE ELECTRICITY MARKET USING A SARMAX/GARCH MODEL

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## Abstract:

This work aims to detect the impact of fundamentals and regulatory reforms on the Greek Wholesale Electricity Market, applying SARMAX/GARCH models. The System Marginal Price (SMP) is considered a stochastic, nonlinear process, reflecting not only the effects of endogenous/fundamental market factors but also the effects of exogenous variables including regulatory reforms, which also affect the market dynamics. To capture the dynamics of the conditional mean and volatility of SMP, a number of SARMAX/GARCH models have been estimated using as regressors an extensive set of fundamental factors in the Greek Electricity Market (GEM), as well as dummy variables that mimic the history of Regulator's interventions. The best-found model captures adequately the dependency of the spot price to the regulatory reforms. The findings reassure the typical sign and the magnitude of the effect of fundamentals, and detects successfully the impacts of the reforms. The most interesting finding is that the GEM does not exhibit asymmetries or leverage effect, in the volatility of its wholesale price, as the most European markets do. The outcome of this paper can be useful to a wide variety of GEM's participants and specifically to the decision makers in GEM.

Keywords: Electricity Markets; SARMAX/GARCH; Volatility; regulatory reforms; simulation