

The Impact of Stock, Energy and Foreign Exchange Markets on the Sugar Market

Nikolaos Sariannidis¹

Abstract

This study examines the effect of financial factors on the sugar market by using Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models. The results show that changes in capital and energy markets returns have a positive impact on the mean returns of Sugar futures as opposed to changes in volatility returns of the exchange rate of the U.S. Dollar/ Yen that affect it negatively. Finally, the structural analysis of volatility with the GARCH model has shown that current volatility is more influenced by past volatility rather than by the previous day shocks.

Keywords: GARCH model, Sugar futures, Crude oil, Ethanol, Exchange rates

JEL classification: G15, Q13, Q14

1. Introduction

Sugar is widely produced, traded and consumed around the world. Sugar is produced from either sugar cane or sugar beets in more than 120 countries and consumed in every country. Sugar cane is primarily grown in tropical and sub-tropical climates while sugar beets are grown where the climate is more temperate. Some countries (e.g., the United States) produce significant amounts of both crops while others specialize in the production of either cane (e.g., Brazil) or beets (e.g., European Community (EC)).

Sugar is one of the most heavily traded agricultural commodities in the world markets and has long been characterized by volatile prices and widespread intervention. There are many factors that contribute to these unstable and high volatile prices. Specifically, per capita income, population and economic growth greatly influence the demand for sugar and hence the relative price. Besides, a key factor of sugar price variations is weather conditions, as successful crops yields presuppose an annual minimum of around 600 mm. Apart from adverse weather conditions, another factor that can disturb sugar prices is crop infestation by pests (Koo and Taylor, 2009).

Another crucial factor that affects most sectors of economies and hence sugar market, as a basic cost variable, is oil price fluctuations. Baffes (2007) claimed that crude oil prices affect the price of agricultural commodities on the supply side, as it enters in the aggregate production function through the use of various energy inputs (fertilizer and fuel) and in the transportation process of these goods.

1. Technological Education Institute (TEI) of West Macedonia, Department of Financial Applications, Kila 50100, Kozani, Greece - email: sarn@hol.gr