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Journal of Policy Modeling 27 (2005) 961–970

Journal of  
Policy  
Modeling

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# The effects of exchange rate volatility on price competitiveness and trade volumes in the UK: A disaggregated approach

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Received 1 September 2004; received in revised form 1 February 2005; accepted 1 June 2005

Available online 30 August 2005

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## Abstract

This paper investigates dynamic interrelations between exchange rate uncertainty, trade volumes, and price competitiveness, using sectoral data on UK manufacturing exports. The results suggest that when there is an unexpected fluctuation in exchange rates, exporters adjust to the change in the level of risk by increasing export prices and by decreasing trade volumes, but prefer to directly reduce trade volumes rather than to increase prices. The extent of each response depends, however, on the nature of the market in which the goods are traded. This evidence implies that if the UK adopts the euro, there will be a positive impact on the country's export trade and economic performance.

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*JEL classification:* F14; F31; F41

*Keywords:* Exchange rate volatility; Commodity prices; Trade volumes; Sectoral data

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doi:10.1016/j.jpolmod.2005.06.013

## 1. Introduction

The adoption of the floating exchange rate system in 1973 has led to an extensive debate about how and whether exchange rate volatility affects international trade. In general, the theoretical literature is divided into two groups. One maintains a positive effect of exchange rate uncertainty on trade. [Sercu and Vanhulle \(1992\)](#) argue that the capacity to export is tantamount to holding an option and that when exchange rate volatility increases, the value of that option also increases, just as it would for any conventional option, and so encourages trade. [De Grauwe \(1988\)](#) supports this view by showing that even within a framework of risk-aversion, the dominance of income effects over substitution effects may boost external trade. On the other hand, [Hooper and Kohlhagen \(1978\)](#) propose a contrasting view, i.e. that exchange rate volatility discourages trade flows. Since the additional uncertainty increases risk in foreign trade, risk-averse traders tend to reduce trade volumes, particularly where appropriate hedging facilities do not exist or are costly.

A number of studies have investigated this issue across a range of countries, with mixed conclusions – see, for example, [Bailey, Tavlas, and Ulan \(1987\)](#), [Assery and Peel \(1991\)](#), [Chowdhury \(1993\)](#), [Kroner and Lastrapes \(1993\)](#), [Holly \(1995\)](#), [Arize, Osang, and Slottje \(2000\)](#), and [De Grauwe and Skudelny \(2000\)](#). While most of the previous studies use aggregate bilateral or multilateral data, [Klein \(1990\)](#) and [McKenzie \(1998\)](#) use commodity specific data since the potential loss of effective estimation and testing power incurred through data aggregation may be large. The studies mentioned above mainly focus on whether the direct quantitative effect of exchange rate volatility on trade volumes is positive or negative, using single equation-based partial equilibrium models. However, it is reasonable to expect that when there is additional uncertainty in exchange rates, export/import traders try to avoid the increased risk by adjusting both prices and quantity simultaneously (see [Hooper and Kohlhagen, 1978](#)). Thus, in investigating the effect of exchange rate volatility on trade, it is necessary to pay attention also to the response of price levels. In this way, it may be possible to estimate how differently prices and quantity variables respond to the volatility in exchange rates, and to gauge which response is stronger.

In this paper we investigate dynamic interrelations between exchange rate volatility, export competitiveness in prices, and trade volumes, using system-based vector autoregressive (VAR) models. In the study, disaggregated time series of UK manufacturing sectors are used. Any systematic patterns in the effects of exchange rate volatility on prices and quantity across disaggregated sectors may in this way be used to assess the stylized behavior of export traders in response to uncertainty in exchange rates. This motivation is further rationalized since all the current economic theories related to the issue are strongly rooted in microeconomic foundations based on specific commodities and industries. The empirical results in this study show that increased volatility in the exchange rate significantly reduces trade volumes, and increases price levels, thus reducing overall competitiveness. In general, the impact sizes on the former are greater than on the latter. Interestingly, this pattern is systematic across all the sectors considered, but the magnitudes are different, depending on the nature of the market in which the goods are traded. This evidence is compared to those of [Klein \(1990\)](#) and [McKenzie \(1998\)](#), who use single equation-based partial equilibrium models and find that in the case of sectoral data, the direction as well as the magnitude of the impact of volatility differs across sectors, and seems to be positive in the case of exports.

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