



ELSEVIER

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

SCIENCE @ DIRECT®

Journal of Asian Economics 15 (2004) 217–235

JOURNAL  
OF  
ASIAN ECONOMICS

# Identifying terms of trade effects in real exchange rate movements: evidence from Asia<sup>☆</sup>

Mardi Dungey<sup>\*</sup>

*Economics Division, Research School of Pacific and Asian Studies,  
Australian National University, Canberra 0200, Australia*

Received 26 May 2002; received in revised form 9 September 2003; accepted 1 January 2004

---

## Abstract

Empirical examinations of the relationship between the real exchange rate and the terms of trade are hampered by the need to control for other factors. In some studies these controls are not considered, and in others they are imposed in an ad hoc manner. The use of a latent factor model for real exchange rate changes overcomes this obstacle. However, latent factor models have the disadvantage that it is not possible to identify the role of a particular observed variable in the model. This paper proposes a method of incorporating observed information on changes in the terms of trade into a latent factor model of real exchange rate changes, relying on the observed covariance structure of the data to identify and calibrate some of the parameters. The method is applied to annual real exchange rate data for six Asian economies and shows that the contribution of terms of trade volatility ranges up to 24% of real exchange rate volatility. These terms of trade effects are offset in a number of countries by the covariation between the latent factors and the terms of trade.

© 2004 Elsevier Inc. All rights reserved.

*JEL classification:* F31; C39

*Keywords:* Latent factor models; Exchange rate volatility; Terms of trade; GMM

---

## 1. Introduction

Two important sources of relative price change in any economy are the real exchange rate and the terms of trade. There are many theoretical linkages between these two prices,

---

<sup>☆</sup> Paper presented at the 24th International Conference on Asian Economic Studies Asian Economic Cooperation in the New Millennium: China's Economic Presence Beijing University, 26–29 May 2002.

<sup>\*</sup> Tel.: +61-2-6125-0304; fax: +61-2-6125-3700.

*E-mail address:* [mardi.dungey@anu.edu.au](mailto:mardi.dungey@anu.edu.au) (M. Dungey). *URL:* <http://rspas.anu.edu.au/economics/staff/dungey>.

although the direction of the relationship is not theoretically established in all models. In addition there is an observed empirical regularity between changes in the terms of trade and changes in the real exchange rate for many small open economies. However, the empirical literature produces very mixed results on the relationship between the two variables, ranging from little empirical relationship to strong and significant correlations; see [Devereux and Connolloy \(1996\)](#) and [Broda \(2002\)](#), for example.

The theoretical relationship between the terms of trade and the real exchange rate is complicated by potential endogeneity. Consider assuming the terms of trade as exogenously determined, which is a frequently made and often not unreasonable assumption. For a commodity producing country, an increase in the terms of trade, driven by an increase in export prices, results in an increased demand for and subsequent appreciation of the domestic currency. An increase in the terms of trade driven by import price falls may similarly result in a depreciation of the international currency. This is [Edwards and van Wijnbergen \(1987\)](#) 'Proposition 2' linkage between terms of trade shocks and the real exchange rate ('Proposition 1' deals with the terms of trade and tariffs). [Broda \(2002\)](#) illustrates a formal model of these linkages, and [Lane \(1999\)](#) claims a similar relationship as 'mechanical' in the presence of home bias in consumption. Both [Edwards and van Wijnbergen \(1987\)](#) and [Long and Pitchford \(1992\)](#) detail the importance of the source of the terms of trade shock in assessing its subsequent impact, and whether in fact 'Proposition 2' will hold in general. The introduction of other complexities in theoretical models often provides less clear-cut relationships between terms of trade shifts and the direction of real exchange rate movements. [Edwards and Ostry \(1992\)](#) analyse the case of capital controls, and find that the direction of the relationship depends on the relative size of the elasticities of intertemporal substitution for consumption and between importables versus non-tradeable goods. With an increasing degree of endogeneity in the model between terms of trade and real exchange rates the correlation between the direction of terms of trade and real exchange rates becomes less clear, as illustrated in the three cases examined in [Benigno and Thoenissen \(2003\)](#).

For particular countries, such as Australia and Canada, the relationship between the terms of trade and the real exchange rate is generally observed to be very strong; for example, [Karfakis and Phipps \(1999\)](#) and the literature reviewed in [Aruman and Dungey \(2003\)](#) for Australia, and [Amano and van-Norden \(1995\)](#) for Canada. Wider evidence of significant relationships between these variables is found in [Habermeier and Mesquita \(1999\)](#), [Mendoza \(1995\)](#) and [Broda \(2002\)](#) who examine the relationship in developing countries. The results are not always consistent. [Habermeier and Mesquita \(1999\)](#) using a panel of 51 countries, including 26 developing countries, find that developing countries have smaller exchange rate effects from the terms of trade than developed markets, however, [Mendoza \(1995\)](#) using 30 countries, of which 23 are developing, finds that the terms of trade effects are slightly larger in developing economies than in developed markets. Further, [Broda \(2002\)](#) splits a panel of 75 developing economies into fixed and flexible exchange rate regimes and finds that terms of trade contributions to real exchange rate volatility are larger in developing countries with a more flexible exchange rate regime.

The relative size of the contribution of terms of trade volatility to real exchange rate volatility in developing countries varies enormously. [Mendoza \(1995\)](#) finds up to 49% of total real exchange rate volatility due to terms of trade volatility; [Broda \(2002\)](#) reports an

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات