ELSEVIER

Journal of International Financial Markets, Institutions and Money 9 (1999) 183–193

Journal of INTERNATIONAL FINANCIAL MARKETS, INSTITUTIONS & MONEY

A test of purchasing power parity for emerging economies

Mehdi Salehizadeh [a,*], Robert Taylor [b]

[a] *Department of Finance, San Diego State University, San Diego, CA 92182-8236, USA*
[b] *Brodshatzer, Wallace, Spoon and Yip, San Diego, CA 92101-8236, USA*

Received 1 June 1996; accepted 1 October 1998

Abstract

The concept of purchasing power parity (PPP) is examined here for its applicability to the soft currencies of a large group of emerging/developing economies. PPP is tested through the use of the technique of cointegration. Based on data covering the period of 1975–1997, cointegration tests of price indices and exchange rates are conducted for 27 countries (against the U. S.). The results provide relatively strong evidence (for 14 countries) in favor of the long-term applicability of PPP as a cointegration concept. Further tests on real exchange rates indicate that the symmetry and proportionality conditions implied by PPP are rejected in all but one case. The latter tests also show that departures from long-term exchange values can last for several years and that a priori restrictions imposed on the cointegrating vector can lead to a false rejection of the PPP concept.

Keywords: Cointegration tests; Emerging economies; Purchasing power parity

JEL classification: F4; F3

1. Introduction

During the 1990s, an increasing number of countries have adopted market-oriented economic and financial policies, thus presenting overseas investors with vast business opportunities. As these countries' political and market structures change

* Corresponding author. Tel.: +1-619-5944305; fax: +1-619-5943272.
E-mail address: mehdi.salehizadeh@sdsu.edu (M. Salehizadeh)

1042-4431/99/$ - see front matter
PII: S1042-4431(99)00006-2

rapidly, foreign firms face a variety of risks, including that related to the volatility of each country's currency (with recent examples including Mexico, 1994–1995, and South-East Asia, 1997–1998).

In the short-run, interest rate differentials and capital flows are among the key factors influencing currency values, with custom-made derivatives[1] helping overseas investors manage (i.e. partly hedge against) currency fluctuations. However, for business/investment decisions reflecting longer horizons, long-term-based currency forecasts become necessary. The concept of purchasing power parity (PPP) is often employed to represent the long-term equilibrium condition for the major currencies. The purpose of this paper is to examine, via the use of the cointegration technique, PPP applicability to the soft currencies of a large sample of emerging/developing economies. Our results provide relatively strong evidence in support of the long-run validity of PPP as a cointegration concept. Additional results, however, confirm that symmetry and proportionality conditions implied by PPP are rejected, that departures from long-term exchange values can last for several years, and that a priori restrictions imposed on the cointegrating vector can lead to a false rejection of the PPP.

The paper is organized as follows. Section II contains a review of the literature on PPP, followed by the methodology and data in Section III. Section IV presents an analysis of the results, with Section V stating some concluding remarks.

2. PPP: Theory and evidence

The relative version of PPP, using price indices such as the consumer price index (CPI) or the GNP deflator, can be stated as:

$$E(t+T)/E(t) = P^*(t+T)/P(t+T), \tag{1}$$

where $E(t)$ is the current exchange rate (the foreign price of a unit of domestic currency), P and P^* (which are pure numbers each containing only a subset of all goods) denote price indices in the domestic and foreign economies, respectively, t is the common base period, and $t+T$ is a later date. Relative PPP says that the percentage change of the exchange rate between period t and $t+T$ is equal to the ratio of the two respective price indices (each of which represents the percentage change of the respective country's price level)[2]. We will use the log form of this version of PPP.

[1] Included are forward contracts, options, interest rate and currency swaps, and other derivatives. In the interbank system, financial institutions offer private clients long-dated derivative instruments.

[2] In its simplest form, PPP can be expressed as the 'law of one price', reflecting a number of key assumptions most of which do not hold in today's international economic environment. Also, there is the 'absolute' version of PPP which uses price levels. This version of PPP may not hold either since the weights used by various governments, in arriving at both price levels as well as price indices, vary across countries (see Chriszt (1993), for details on this latter point). It should be noted that using Eq. (1) for computing the relative PPP exchange rate (for $t+T$) requires an initial PPP exchange value (at time t) to be designated as the base period. Obviously, selecting such an initial value is rather difficult, especially for emerging economies. Moreover, choosing a different base period leads to a different PPP value. As these countries face the effects of real economic shocks, such as changes in tastes, capital flows, or productivity, further complications will influence the applicability of relative PPP.