Journal of International Money and Finance 27 (2008) 958–970

Contents lists available at ScienceDirect

Journal of International Money and Finance

journal homepage: www.elsevier.com/locate/jimf

Is there a connection between monetary unification and real economic integration? Evidence from regime-switching stationarity tests

Mark J. Holmes [a,*], Nabil Maghrebi [b]

[a] Department of Economics, Waikato University Management School, Private Bag 3105, Hamilton 3240, New Zealand
[b] Faculty of Economics, Wakayama University, Sakaedani 930, Wakayama 640-8510, Japan

JEL classification:
E4
F3
G1

Keywords:
Real interest parity
Stationarity
Markov regime-switching

A B S T R A C T

We investigate the extent of real convergence among G7 economies in terms of long-run real interest parity. A novel approach is applied where unit-root tests of real interest differentials are embedded within a Markov regime-switching framework. Whereas standard univariate unit-root tests provide little support for parity, we find real convergence is present after allowing for regime switches in real interest misalignments. However, differentials across members of the euro zone are likely to exhibit greater persistence despite nominal convergence. It is non-sequitur to infer from monetary unification that nominal convergence is necessarily conducive to real interest realignments or preventive of misalignments.

1. Introduction

The issue of real interest equalization across the European Union economies has gained greater importance following the adoption of the single currency. The drive towards the adoption of the euro has certainly brought about a significant degree of capital market integration and the convergence in nominal interest rates. However, nominal convergence does not bear so much economic significance in itself. The question remains as to whether, and to what extent, such nominal convergence is conducive to real convergence, in terms of real interest parity. The focus on long-run equilibrium in terms of RIP,

* Corresponding author. Tel.: +64 7 838 4454; fax: +64 7 838 4331.
E-mail address: holmesmj@waikato.ac.nz (M.J. Holmes).

0261-5606/$ – see front matter
doi:10.1016/j.jimonfin.2008.06.001

rather than nominal convergence, is warranted by the fact that RIP is also reflective of the purchasing power parity relationship and as such it can be regarded as a more complete measure of economic integration.

The empirical tests on the convergence process towards RIP are, however, impeded not only by difficulties in ascertaining expected inflation, and thus expected real interest rates, but also by difficulties in modeling the dynamics of deviations from parity and nonlinearities in the adjustment process. There is mixed evidence indeed as to whether RIP holds with several studies suggesting that the absence of uncovered interest parity, or prefect asset substitutability, can significantly impede the attainment of RIP.

The purpose of this paper is to investigate long-run RIP among the G7 economies. However, a key contribution of our research is with respect to an investigation that is based on testing for a unit-root in real interest rates differentials within a Markov regime-switching framework. In a recent study, Kanas and Genius (2005) use a Markov-switching extension of the augmented Dickey–Fuller regression and find evidence of the US–UK real exchange rate switching between stationary and non-stationary regimes. However, the present study provides an investigation that examines the possibility that economies fluctuate between regimes involving different real interest rate relationships, namely between regimes where RIP does and does not hold but also where RIP holds albeit with varying degrees of persistence across different regimes. This approach is in contrast to most existing studies of RIP that compute a single test statistic for testing the non-stationarity of real interest differentials across the entire study period. This approach can be conducive to a bias towards accepting the non-stationary null hypothesis thereby rejecting RIP, or inaccurate estimate of the speed of adjustment towards long-run equilibrium, because there is no distinction between alternative regimes.

A second key contribution is that this investigation of RIP is made with respect to participants in the European single currency. In contrast to many existing studies that focus on relationships involving the US, we also consider relationships involving Germany and consider important institutional changes that have taken place since 1999, namely, the elimination of exchange rates and the creation of an independent central bank that conducts a common monetary policy. Hein and Truger (2005) argue that the structural characteristics of the countries that have formed the European Monetary Union did not meet the criteria of an optimum currency area when the euro was introduced in 1999. The OCA approach suggests that the exchange rate can be surrendered as an adjustment instrument if shocks are symmetric, or if there are adequate adjustment mechanisms in labor, goods and financial markets to accommodate asymmetric shocks.

Studies by Arestis et al. (2001, 2002) argue that the economies of the potential member countries showed little signs of convergence for real variables such as GDP growth, labor productivity and unemployment rates despite significant convergence of nominal variables such as inflation rates, interest rates and budget deficit-GDP-ratios across potential EMU member countries during the 1990s. Furthermore, while nominal short-term interest rates have converged, as these are set by the European Central Bank for all euro countries, there has been no further convergence since 1999 with respect to inflation rates. This is indicative of a degree of non-convergence with respect to real interest rates. By analyzing the stationarity of real interest rate differentials within a Markov regime-switching framework, it is possible to assess the extent to which real convergence has been present since 1999.

A third contribution to the literature is that we reexamine the assessment by Chung and Crowder (2004) and Ferreira (2004) that the violation of UIP is the key explanation behind the failure of long-run RIP. By examining real interest rate differentials with respect to Germany, RIP can be tested for against the background of the single currency which rules out disparate nominal interest rate fluctuations and exchange rate fluctuations across member states. While allowing for the speed of adjustment to be regime-dependent, we also explicitly account for regime-switching intercepts which are indicative of goods and financial market impediments. In the absence of risk premia between euro members, however, significant intercepts would be rather reflective of PPP impediments such as transport costs. This analysis is also useful in addressing the question of whether the creation of a single market for goods and labor, free from legal impediments in 1992, has facilitated increased economic integration.

The paper is structured as follows. The Section 2 discusses the recent literature on RIP which is largely inconclusive with respect to confirming long-run parity. The brief review considers the factors