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## Parity conditions and the efficiency of the Australian 90- and 180-day forward markets

### Bruce Felmingham\*, SuSan Leong

School of Economics, University of Tasmania, Private Bag 85, Hobart Tasmania 7001, Australia

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#### Abstract

Covered Interest Parity (CIP) holds in the 90 and 180 forward market for the AUD/USD spot exchange rate provided fully modified least absolute deviation model (FM-LAD) procedures are applied to daily data for the period from December 2, 1985 to December 29, 2000. CIP fails if corrected ordinary least squares (OLS) and fully modified OLS (FM-OLS) procedures are applied. However, UIP fails in both markets on early data: December 2, 1985 to December 31, 1991, but holds in the 90-day market in a later subperiod: January 2, 1992 to December 29, 2000 FM. UIP is modified (M) to accommodate a potential risk premium. The MUIP model does not provide strong evidence suggesting the presence of a time-varying risk premium (TRP). © 2004 Elsevier Inc. All rights reserved.

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#### 1. Introduction

The research outcomes presented in this paper involve a detailed examination of two interest parity conditions using daily data for the Australian and US economies over the period from December 2, 1985 to December 29, 2000. Both covered (CIP) and uncovered interest parity (UIP) are tested in the 90 and 180 forward markets for the Australian/US dollar exchange rate.

<sup>\*</sup> Corresponding author. Tel.: +61 3 6226 2312; fax: + 61 3 6226 7587.

E-mail address: bruce.felmingham@utas.edu.au (B. Felmingham).

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The motivation for an analysis of this kind is to be found in the significance of these two conditions for the efficiency of forward and spot markets for the Australian dollar (AUD) and consequently as a reliable guide to international investors and for the orderly conduct of Australia's monetary policy. In selecting these two equilibrium conditions, the emphasis is placed on the behaviour of the USD/AUD exchange rate in the very short run when it is only capital movements which explain exchange rate movements. The two parity conditions are the cornerstones on which forward market efficiency is founded. CIP asserts that the forward premium on foreign exchange must equal the difference between domestic and foreign interest rates on securities of the same term to maturity provided that domestic and foreign bonds are both free of default risk. A second requirement for CIP is that speculative trading should bring the forward premium (discount) into equality with expected depreciation (appreciation) of the domestic currency.

Tests of these hypotheses have a practical significance in addition to their relevance for economic theory. The interest parity/market efficiency nexus provides insights about market participants risk attitudes and the extent of capital market integration. In particular, the failure of either parity or market efficiency may indicate that foreign securities are imperfect substitutes for domestic ones of equivalent maturity and that market participants require compensation in the form of a risk premium if they are to hold the domestic currency. The CIP condition in particular can be viewed as a test of whether risk-free arbitrage profit opportunities exist for potential investors. Finally, these two equilibrium conditions carry significant policy implications, in particular, they concern the capacity of the domestic monetary authorities to control interest rates and to intervene in foreign exchange markets. These capacities are extremely important in small open economies such as the Australian economy.

UIP underpins a number of models of the balance of payments and the exchange rate and in terms of policy implication if the UIP condition holds sterilised foreign exchange market intervention is ineffective. The failure of UIP does mean that sterilised intervention can have real effects and that the portfolio balance model of exchange rate intervention may be preferred to the monetary models of the balance of payments. Little wonder that Taylor, (1995, p.14) views UIP as the cornerstone condition for foreign exchange market efficiency.

The two interest parity conditions also have important implications for international capital mobility. Following Feldstein and Horioka (FH, 1980) changes in a country's savings rate affects its rate of investment and provides evidence of low capital mobility. If capital is perfectly mobile, a shortfall in savings in one country should be easily made up by borrowing from abroad and need not drive up the domestic rate of interest and crowd out domestic investment. The relevance of this international capital mobility issue in the present context is that CIP and UIP are two of four definitions of perfect capital mobility. These also include the FH hypothesis and the real interest parity condition. It follows that the failure of either or both CIP and UIP implies imperfect capital mobility, a matter of immediate importance for agents in this market.

The initial analyses of CIP and UIP are conducted in the absence of any risk premium effects. This initial stage is attended by data problems and econometric issues and requires a battery of formal tests, including West (1988) corrected OLS, Phillip and Hansen (1990) fully modified ordinary least squares (FM-OLS) and Phillips (1995) fully modified least absolute deviation model (FM-LAD). The results of this initial phase are of interest: CIP holds for the entire sample period (December 2, 1985–December 29, 2000), and no further tests of CIP are conducted given the general applicability of CIP. In particular, CIP and FME are empirically equivalent, and no further test of market efficiency is required beyond the CIP condition.

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