Foreign exchange market efficiency under recent crises: Asia-Pacific focus[☆]

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ABSTRACT

The Asia-Pacific region's currency markets are generally efficient *within-country* when tested using the Johansen (1991, 1995) cointegration technique whereas market efficiency fails to hold when tested using Fama's (1984) conventional regression. Using the Pilbeam and Olmo (2011) model, we reconcile these conflicting findings. The Pilbeam and Olmo (2011) model confirms *within-country* market efficiency. It further confirms that free-float currency markets are more resilient than managed-float currency markets among 12 Asia-Pacific economies. From the *across-country* perspective, the foreign exchange markets are mostly efficient and the results show that the 1997–1998 Asian financial crisis was a more disturbing event than the 2008–2009 global financial crisis in the region.

1. Introduction

In a period of slightly over one decade, the global financial community has witnessed two of the most devastating financial crises in modern history. Shortly after recovering from the 1997–1998 Asian financial crisis (AFC), the U.S. subprime mortgage sector collapsed. The world was struck by the

unprecedented losses disclosed by the U.S. banking sector in 2008 and 2009 and, as a result, numerous U.S. and European financial institutions were adversely impacted by the 2008–2009 global financial crisis (GFC).

We investigate the Asia-Pacific foreign currency markets because they were greatly impacted by the AFC and the volatility of these currencies increased tremendously during the GFC. Melvin and Taylor (2009) provide detailed accounts of GFC to illustrate its unforeseen impact on volatility and liquidity in the global currency market. The Asia-Pacific currencies are generally perceived to be more susceptible to financial crisis and speculative attacks. The main objective of this paper is to examine market efficiency of these currencies during the periods surrounding the crises, with the focus on both AFC and GFC as the key events.

A few studies have examined market efficiency of Asian currencies (Jeon and Seo, 2003; Kan and Andreosso-O'Callaghan, 2007). However, these studies focus on the impact of AFC (not GFC) in the region's currency markets given their study periods. Our overall conclusion is that the AFC was a more disturbing event than the GFC in the Asia-Pacific region as stronger evidence of inefficiency is observed during the AFC than the GFC.

To draw this conclusion, we have examined foreign currency market efficiency from *within-* and *across-country* perspectives. The Asia-Pacific foreign currency markets are generally efficient *within-country* when tested using the Johansen (1991, 1995) cointegration technique whereas market efficiency fails to hold when tested using Fama's (1984) conventional regression built on the forward unbiasedness hypothesis. The presence of the forward premium puzzle is not unique to the Asia-Pacific region under this conventional approach. Rather, global currency markets (both developed and developing) show that the forward premium is not only biased but also wrong (Bilson, 1981; Fama, 1984; Froot and Thaler, 1990; Baillie and Bollerslev, 1989, 2000; Bansal and Dahlquist, 2000; Sarno, 2005; Gilmore and Hayashi, 2008; Frankel and Poonawala, 2010). The failure of Fama's regression results in supporting market efficiency is not unexpected in view of a number of more recent alternative explanations for the inadequacy of forward unbiasedness in assessing market efficiency [the adverse selection problem by traders (Burnside et al., 2009); improper treatment of different volatilities between forward and spot rates (Pilbeam and Olmo, 2011); perpetual learning by agents (Chakraborty and Evans, 2008); the different orders of integration of the variables in Fama's regressions (Baillie and Bollerslev, 2000); volatility regimes (Clarida et al., 2009); more easily identifiable trends of depreciation of emerging market currencies (Frankel and Poonawala, 2010)].

While various alternative explanations have merits in understanding the forward premium puzzle, our study is limited in scope to using the Pilbeam and Olmo (2011) model when we reconcile the conflicting findings for *within-country* market efficiency under the two different approaches. Pilbeam and Olmo (2011) conclude that the forward discount puzzle is a statistical phenomenon after they examine four major currencies (Swiss franc; Japanese yen; Euro; and Pound sterling) in their model framework.[1] The availability of Asia-Pacific currency data allows us to apply the Pilbeam and Olmo model to the Asia-Pacific currency markets to generalize their findings. Our study is the first which confirms Pilbeam and Olmo's (2011) findings in the Asia-Pacific currency markets. We find that Asia-Pacific currency markets are consistent with *within-country* market efficiency when re-examined using the Pilbeam and Olmo model. We further confirm that free-float currency markets are more resilient than the managed-float currency markets among 12 Asia-Pacific countries.

The availability of Asia-Pacific currency data allows us to make an additional major contribution to the literature. In an insightful study, Bansal and Dahlquist (2000) observe that the forward premium puzzle characterized by the negative correlation between expected exchange rates and interest-rate differentials is not a pervasive phenomenon. It is rather confined to high GNP per capita economies. They report that country attributes, such as income level, inflation rates, and inflation uncertainty, are important in explaining the cross-sectional dispersion in the risk premium. In this study, we introduce

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[1] Interested readers may refer to Pilbeam and Olmo (2011) for a technical discussion on the superiority of their suggested models over the conventional Fama regression.