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Dynamic information spillovers in intraregionally-focused spot and forward currency markets



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ABSTRACT

This paper proposes an intraregionally-focused tri-currency modeling framework to investigate dynamic information spillovers across spot and forward exchange rate markets in frontier and emerging country currencies, for both price levels and volatilities. Empirical estimates of structural parameters were obtained using an MGARCH–MSKST model that incorporated the term structure of non-deliverable forward (NDF) and deliverable forward (DF) markets, the dominance of regional currencies, and the influence of differing forward contract maturities (1-, 3-, 6- and 12-months). The currencies for nine countries were grouped into three regions: Northeast Asia (China, Korea and Taiwan); South/Southeast Asia (India, Indonesia and Philippines); and Latin America (Brazil, Chile and Columbia). The currency for each selected country was evaluated within the regionally determined tri-currency system. We found that NDF markets play a dominant role over DF markets with regard to price discovery during periods of tranquility. During periods of crisis, both NDF and DF markets exhibit a more balanced impact on currency market price discovery mechanisms. In addition, distinct differences were observed across regions: currencies in Northeast Asia were shown to be affected by the Chinese renminbi during periods of crisis and the Indian rupee could be regarded as the dominant currency in South/Southeast Asia. No robust results were obtained with regard to the dominance of currencies in Latin America. Finally,

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our results also suggest important distinctions between the effect of various instrument maturities on NDF and DF market returns – with DF returns being more responsive to longer maturities (6-months and 12-months). During tranquil periods NDF returns are more responsive to shorter maturities, but during crisis periods this effect is diminished.

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1. Introduction

For many of the frontier and emerging country currencies, non-deliverable forward (hereinafter referred to as “NDF”) markets arise when the onshore forward market (hereinafter referred to as “DF”) is under-developed or access to the market is restricted by regulatory fiat. Under such conditions, regulatory controls affecting on-shore currency markets push trading offshore into NDF markets (Mihaljek and Packer, 2010). NDF markets attract investors who need to hedge their currency exposure or take speculative currency positions but are hindered by restrictions and/or illiquidity of the local forward exchange rate market (Park, 2001). Hence, since the early 1990s, international banks have been offering NDF contracts to clients who need to hedge their exposure in the currencies of frontier and emerging market economies (FMEs and EMEs). Despite targeting the same currency, considerable differences can be observed between these two forward markets in terms of transaction motive, margin payment, manner of delivery, and market regulation. For example, DF transactions primarily cater to domestic traders seeking to hedge currency risk from international trade activities. In DF markets, parties to the trade contract expect the currency to be fully delivered at contract maturity. In contrast, estimates indicate that 60–80 percent of NDF volume is generated by speculative interests, reflecting growing participation from international hedge funds (Misra and Behera, 2006).

Another characteristic of NDF markets, which differentiates them from DF markets, is virtual immunity from the direct jurisdiction of local monetary authorities due to the fact that contracts are not settled in the local currency at maturity but instead in a convertible currency such as U.S. dollars. NDF markets have experienced an overwhelming increase in transactions for the currencies of countries with large cross-border flows of capital and restrictions related to currency convertibility. Recent research suggests that price movements in NDF markets could be a useful tool for monitoring market expectations and uncovering information related to pressure on an exchange rate regime that may not be fully manifest through the traditional tools available to monetary policy makers in countries with capital controls (Wang et al., 2014). To date, most research has been focused on the interaction between DF and NDF markets (see Misra and Behera, 2006; Guru, 2009; Wang and Yang, 2012; Wang et al., 2014) and interrelationships among various cross-currency NDFs (e.g. see Ma et al., 2004; Colavecchio and Funke, 2008). Few studies have broadly explored the dynamic entanglement of both DF and NDF markets in the dynamic price discovery mechanism that governs the currencies of FMEs and EMEs within their specific regional context.

Another feature pertinent to the forward markets is the term structure of forward exchange rates covering a range of maturities. Maturity structure is important to investors because it exposes them to intertemporal variation in returns that arise from region-specific and country-specific economic, social and institutional conditions (see Chin et al., 2006). Flannery (1986) claimed that the maturity of a firm's risky debt may serve as an indicator of the firm's credit quality. However, a substantial body of evidence on exchange rates (see, for example, Clarida and Taylor, 1997; Clarida et al., 2003; Nucci, 2003; Van Tol and Wolff, 2005; Colavecchio and Funke, 2009) has suggested that the price discovery of a single-maturity forward exchange rate is limited. Nevertheless, Clarida and Taylor (1997) and subsequent studies (Clarida et al., 2003; Nucci, 2003; Van Tol and Wolff, 2005) in this field demonstrate that when the complete range of term structures of forward currency markets is taken into consideration, information useful to understanding the intertemporal dynamics that govern evolution in spot exchange rates can be extracted. By identifying a slow mean-reverting tendency in interest rates – which is more apparent over longer horizons – Fama and Bliss (1987) confirmed that forward rate

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