



# Regime linkages between the Mexican currency market and emerging equity markets

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## Abstract

This paper explores the issue of volatility regime linkages between the Mexican currency market and six emerging equity markets, namely, the markets of Mexico, Brasil, Argentina, Hong Kong, Hungary, and Thailand. We find evidence of regime dependence between the Mexican currency market and each one of these equity markets. On the basis of regime-dependent correlation coefficients, our results are interpreted as evidence of interdependence rather than contagion. For the equity markets of Brasil, Argentina, and Hong Kong, the dependence may be attributed to regime causality from the Mexican currency market. There is no evidence that the domestic currency market in Brasil, Argentina, and Hong Kong exercises a regime causal effect on the corresponding equity market, thereby suggesting that the causal effect to these equity markets does arise from the Mexican currency market and not from the domestic currency market.

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## 1. Introduction

In the aftermath of the Mexican currency crisis of December 1994, several world equity markets fell as investors ‘ran for cover’. Importantly, not only Latin American but also non-Latin American countries were attacked. In a recent study, [Edwards and Susmel](#)

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(2001) found that Latin American and other world equity markets switched to a ‘high’-volatility regime during the period of Mexican currency crisis. This suggests that simultaneous modeling of the Mexican currency market and world equity markets will explicitly reveal the dynamics of the volatility regime linkages between these markets. The aim of this paper is to explore the issue of *regime* interdependence and causality between the Mexican currency market and emerging equity markets.

An extensive body of literature has explored the transmission mechanisms of a currency crisis to international assets markets, including the portfolio diversification effect, and the wake-up call effect. Empirically, Baig and Goldfajn (1998) use a VAR approach to estimate the impulse responses to shocks in currency and equity markets in Asian countries during the Asian currency crisis. Granger et al. (2000) also used a VAR approach to test for causality between exchange rates and equity prices in Asian countries during the Asian flu. Becker et al. (2000) employed event-study regression analysis to examine stock market performance around the Mexican crisis.

We use the recently developed methodology of Markov Switching Vector Autoregression (MS-VAR) to explore whether there are linkages in volatility regimes between the Mexican currency market and six emerging equity markets, namely, Mexico, Brasil, Argentina, Thailand, Hong Kong, and Hungary. The motivation of using the MS-VAR methodology is based on several arguments. First, the MS-VAR approach is a more general formulation than the VAR model used in previous studies. In the MS-VAR model, the dynamic propagation mechanism of impulses to the system consists of the linear autoregression, and the regime shifts generating Markov process representing large, contemporaneously occurring, common shocks. These two sources of fluctuations are not necessarily independent. The regime-generating process may alter the contemporaneous correlation of the innovations, suggesting that regime changes can simultaneously affect the transmission of shocks across markets. Second, the MS-VAR model has several important features that we utilise in this study. One such feature is that it provides the basis for testing for dependence in the volatility regime between the Mexican currency and each of the equity markets. The MS-VAR approach for testing for independence has the advantage of not splitting the sample and then using the correlation coefficient in the arbitrarily partitioned subsamples (Edwards and Susmel, 2001). Another feature is that it allows for testing for volatility regime causality between the Mexican currency and the equity markets. Testing for regime causality is relevant in explaining potential regime dependence. This type of analysis is important in current debates on financial ‘interdependence’ and ‘contagion’ across markets (Forbes and Rigobon, 1999). Furthermore, understanding of these issues has several important policy implications. Indeed, supporters of the imposition of capital controls have based their views on the notion that periods of high financial instability (high volatility) are transmitted across countries and markets.

We find strong evidence of dependence between the volatility regime of the Mexican currency market and the volatility regime of all six equity markets, suggesting that volatility regime dependence may be global rather than regional. During high-volatility periods, correlations between the Mexican currency and the equity markets have not been significantly increased, which is interpreted as evidence of interdependence rather than contagion (Forbes and Rigobon, 1999). With regard to volatility regime causality, we find

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