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Response asymmetries in the Latin American equity markets

José A. Pagán*, Gökçe A. Soydemir

Department of Economics and Finance, College of Business Administration, The University of Texas-Pan American, 1201 West University Drive, Edinburg TX 78539-2999, USA

Abstract

Recent empirical work has found causal relationships with varying degrees of strength from the equity market of Mexico to the markets of Argentina, Brazil, and Chile. In this study, we analyze the possibility of response asymmetries in these causal relationships. In particular, using the 1995–1999 daily data on equity price indices from the International Finance Corporation's (IFC) Emerging Markets Database, we analyze market interconnectedness by explicitly taking into account country-specific response anomalies. We find statistically significant asymmetries in the responses of Argentina, Brazil, and Chile to changes in the Mexican equity market — with responses to downturns much outweighing upturns in the equity market of Mexico. The results are consistent with the view that when investing in emerging equity markets in Latin America, investors react to negative stock market movements originating in the Mexican market more heavily than to positive movements. © 2001 Elsevier Science Inc. All rights reserved.

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1. Introduction

Since the early 1980s, emerging markets in Latin America have gone through an eventful financial liberalization process. International investors began to allocate increasing amounts of funds in the region to take advantage of the benefits of diversification, increasing capitalization, liquidity, and decreasing measures of concentration. Following the Mexican

* Corresponding author. Tel.: +1-956-381-3354; fax: +1-956-384-5020.

E-mail address: jpagan@panam.edu (J.A. Pagán).

financial crisis in December 1994 and the more recent Asian crisis that began July 1997, the process of financial liberalization began to have strong destabilizing effects in emerging markets. Sudden and sometimes unexpected changes in financial flows across countries have attracted increasing research attention on the potential benefits of international diversification and the inherent risks of market contagion.

In particular, earlier research indicates that equity markets in Latin America exhibit interconnectedness in varying degrees of strength as a result of rapid capital flows (Pagán & Soydemir, 2000; Soydemir, 2000) and, more recently, slight reductions in the benefits of international portfolio diversification (De Santis & Gerard, 1997). However, the possibility of asymmetries in market responses to external shocks in these economies has been questioned little (e.g., Eun & Shim, 1989; Hamao, Masulis, & Ng, 1990; Jeon & Von Furstenberg, 1990; Karolyi & Stulz, 1996). Response asymmetry occurs when returns in one stock market react differently in terms of speed and magnitude to upturns than to downturns in another stock market. A parallel situation can be thought of in testing asset pricing models. For example, Downs and Ingram (2000) show that up market “betas” are not equal to down “betas” in absolute values. In this study, however, we focus on stock market returns from Latin American emerging markets and, therefore, examine asymmetric “spillovers and contagion” across national stock market index returns.

Unlike previous studies that adopt a univariate approach, we adopt a different and more informative framework to investigate the possibility of response anomalies in equity market dynamics between a set of Latin American countries by constructing a bivariate vector autoregression (VAR) model. Another advantage of the VAR model is that it does not impose a priori restrictions on the system of equations and allows for artificial shocks to be introduced in the system.

We focus on the most capitalized and developed equity markets in the region — Brazil, Argentina, and Chile — that have proven to be very responsive to movements in the stock market of Mexico. As such, we pay particular attention as to how these markets react to external shocks, and we empirically test whether these responses are symmetric. Specifically, we are interested in analyzing whether Brazil, Argentina, and Chile react differently to positive as opposed to negative shocks in the Mexican market.

Using the 1995–1999 daily data from the International Finance Corporation’s (IFC) Emerging Market Database, we find statistically significant asymmetries in the response of Argentina, Brazil, and Chile to changes in the Mexican equity market. Specifically, we find evidence of impact asymmetries — negative responses outweighing positive responses — and pattern asymmetries — longer time-wise responses to downward as compared to upward shocks.

From a policy perspective, a better understanding of such causal relationships can have important implications at the time of conducting monetary policy to achieve stability in financial markets, or when implementing regulatory reforms. The findings of this study can also prove useful to investors when they attempt to devise more effective diversification strategies to improve portfolio performance and achieve better risk–return tradeoffs.

Conceptually, response asymmetries may arise from various sources. First, investor optimism or pessimism may result in differential responses in timing and magnitude to shocks generating in other equity markets. Asymmetries may also arise from differences in return

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