Looking for risk premium and contagion in Asia-Pacific foreign exchange markets[☆]

Chu-Sheng Tai*

*Department of Economics and Finance, College of Business Administration,
Texas A&M University-Kingsville, MSC 186, 700 University Boulevard, Kingsville,
TX 78363-8203, USA*

Abstract

This article tests pure contagion effects among four Asian foreign exchange markets, namely, Japan, Hong Kong, Singapore, and Taiwan during the 1997 Asian crisis. A conditional version of international capital asset pricing model (ICAPM) in the absence of purchasing power parity (PPP) is used to control for economic fundamentals or systematic risks. The empirical results show strong contagion effects in both conditional means and volatilities of those markets after systematic risks have been accounted for. Specifically, the contagion-in-mean effects are mainly driven by the past return shocks in Hong Kong, Singapore, and Taiwan. As for contagion in volatility, the lead/lag relationships appear to be multidirectional among Japan, Singapore, and Taiwan, but between Hong Kong and Singapore, and between Hong Kong and Taiwan, they are unidirectional, with Hong Kong playing the dominant role in generating negative volatility shocks. In addition, the conditional ICAPM with asymmetric multivariate general autoregressive conditional heteroscedastic in mean (MGARCH(1,1)-M) structure is able to explain/predict on average 17.28% of the return variations in those markets. Therefore, this study provide a further evidence that the time-varying risk premium is a very strong candidate in explaining the predictable excess return puzzle [Lewis, K. K. (1994). Puzzles in international financial markets. NBER Working Paper No. 4951] since the risk

premia founded in this article are not only statistically significant but also economically significant.

1. Introduction

Due to a series of financial crises in 1990s, the study of the transmission of financial shocks/crisis across markets/countries has become one of the most intensive research topics in international financial literature in recent years. Previous articles on this topic have failed to take into account an important distinction between the two concepts of *interdependence* and *contagion*. Masson (1998) argues that there are three main channels that financial markets turbulence can spread from one country to another. They are monsoonal effects, spillovers, and pure contagion effects. "Monsoonal" effects, or "contagions from common causes," tend to occur when affected countries have similar economic fundamentals or face common external shocks. The second type of financial market interlinkages arises from spillover effects, which may be due to trade linkages or financial interdependence. The first two channels of financial crises can be categorized as fundamental-driven crises since the affected countries share some macroeconomic fundamentals, which implies that the transmission of financial crises is due to the interdependence among those countries and not necessarily due to contagion. The third transmission channel is the pure contagion effect. Contagion here refers to the cases where crisis in one country triggers a crisis elsewhere for reasons unexplained by macroeconomic fundamentals. For instance, a crisis in one country may lead creditors and investors to pull out from other countries over which they have a poor understanding resulting from information asymmetries.

The goal of this article is to test the pure contagion effects among four Asian foreign exchange markets, namely, Japan, Hong Kong, Singapore, and Taiwan during the 1997 Asian crisis. Specifically, in this article, I define "contagion" as significant spillovers of country-specific idiosyncratic shocks during the crisis after economic fundamentals or systematic risks have been accounted for. In testing for contagion, its existence depends on the economic fundamentals used. Unfortunately, there is disagreement on the definitions of the fundamentals. To control for the economic fundamentals, most empirical studies tend to choose those fundamentals arbitrarily, such as by using macroeconomic variables, dummies for important events, and time trends. The problem with these control variables is that contagion is not well defined without reference to a theory. To overcome this problem, I rely on an international capital asset pricing model (ICAPM) in the absence of purchasing power parity (PPP), which provides a theoretical basis in selecting economic fundamentals. The economic fundamentals under ICAPM are the world market and foreign exchange risks, so the evidence of contagion is based on testing whether idiosyncratic risks—the part that cannot be explained by the world market and foreign exchange risks—are significant in describing the dynamics of