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Contagion: evidence from international banking industry

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Abstract

This paper tests whether contagion can occur at the industry level, in particular the banking industry. In this paper 'contagion' is defined as significant spillovers of country-specific idiosyncratic shocks during the crisis after economic fundamentals or systematic risks have been accounted for. The economic fundamentals under intertemporal capital asset pricing model (ICAPM) are world market and Fama-French's (FF) size and book-to-market risks, so the evidence of contagion is based on testing whether idiosyncratic risks—the part that cannot be explained by the world market and FF risks, are significant in describing the dynamics of international banking sector returns during the 1997 Asian crisis. Using data from Thailand, Japan, and the US, strong evidence of contagion is found. Specifically, the return shocks originating in Thailand have significant impact on the return dynamics of both Japanese and the US banking sectors. On the other hand, the return shocks generated from the US have also significant impact on Thai and Japanese banking sectors. However, the return shocks emanating from Japan have significant impact on Thailand only. These findings suggest that the contagion can spread from a crisis-country not only to a non-crisis country within the same region, but also to another non-crisis country outside the region.
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1. Introduction

In the wake of the 1997 Asian financial turmoil, the study of the transmission of financial shocks/crisis across markets/countries has emerged as one of the most intensive research topics in international financial literature in recent years. A number of complex factors triggered the 1997 Asian currency crisis, but, fundamentally, unbridled expansion and subsequent contraction of bank lending played a leading role. Theoretically several researchers have pointed out that problems in banking sectors can cause a financial turmoil, in particular in currency markets.[1] However, little empirical work to date has systematically investigated whether banking sectors can be a source of contagion during the crisis period except Tai (2004).[2] This paper tries to fill this gap by examining whether contagion can occur at the industry level using banking sector indices from three countries namely Thailand, Japan, and the US during the 1997 Asian crisis. By examining these three countries, I can test whether the return shocks originating in a crisis country like Thailand have any impact on a non-crisis country within the same region such as Japan, and on another non-crisis country outside the region such as the US. There are a number of reasons why negative events relating to the Asian financial crisis might be expected to have a negative effect on the financial markets of non-crisis countries. Firstly, as financial markets become more integrated, shocks can be transmitted quickly between them. To the extent that financial crises in some countries result in a generalized increase in uncertainty in world financial markets, we should expect increased volatility in financial markets in non-crisis countries. Secondly, some market participants might have factored in some possibility that contagion of the crisis could have spread as far as, for example, the US, perhaps due to financial institutions' debt exposures to the crisis countries. Finally, even if financial market participants do not expect that developed countries will experience financial crisis, they may expect that portfolio rebalancing behavior could result in sharp declines in asset prices in countries with unrelated fundamentals (see Kaminsky and Schmukler, 1999).

Previous studies on contagion have failed to take into account the important distinction between the two concepts of interdependence and contagion except Forbes and Rigobon (2002).[3] Specifically, in this paper I define 'contagion' as significant spillovers of asset-specific idiosyncratic shocks during the crisis after economic fundamental or systematic risk has 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

[1] Please see Velasco (1987), Obstfeld (1994), Gonzalez-Hermosillo (1996), Calvo (1997), and Miller (1999).

[2] Tai (2004) concludes that the banking sector can be a source of contagion within a country, but he does not investigate whether it can be a source of contagion across countries.

[3] Forbes and Rigobon (2002) define contagion as a significant increase in cross-market linkages after a shock to one country or group of countries, and find that there was virtually no increase in unconditional correlation coefficients during the 1997 Asian crisis and thus conclude that there was no contagion but interdependence. However, they also point out that their definition of contagion is not universally accepted, and therefore it warrants another examination of whether contagion did occur during 1997 Asian crisis.

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