

Risk profiles: how do they change when stock markets collapse?

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Abstract

This paper has two main objectives: the first is to unveil the relative importance of global versus local risk factors in influencing excess returns in the emerging country stock markets; the second is to analyse how the observed risk profiles change when markets undergo a major crisis. Our main country of focus is Mexico, but we also analyse six Asian countries which went through the 1997 Asian crisis. Our findings indicate that during stable periods investors are mainly concerned about global risk factors, whereas close to a crisis they also include local factors in their information sets in forming expectations about future excess returns. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

Asset valuation models such as the Capital Asset Pricing Model (CAPM) and the Asset Pricing Theory (APT) have received considerable attention in both the theoretical as well as the empirical finance literature, and have been widely applied to try to explain the risk-return behaviour of stock markets. In the late 80s international versions of these models, such as the International CAPM and APT were developed. The main idea underlying these models is the 'law of one price': if

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markets are globally integrated then risk should be priced equally across all markets. For this reason, international models have been primarily used to test the degree of integration of international stock markets.¹ Generally, the literature has focused mainly on developed markets, trying to appraise the validity of the postulated models; only recently has the interest shifted towards emerging markets.

Following the liberalisation of capital controls in the late eighties, emerging country equity markets have seen their market capitalisation rise from US \$740 billion in 1990 to 2200 billion in 1996, as investors have recognised a profitable diversification opportunity in these markets. Due to their low correlation with developed stock markets, emerging stock markets allow investors to shift favorably their risk-return efficient frontier.² This observation induced massive capital inflows into these countries and at the same time moved academic interest from developed to emerging markets. Yet, the literature remained surprisingly single-angled with most studies using an international pricing model to assess the degree of integration of these markets into world capital markets.

An important problem with this approach is that full market integration must be assumed in order to conduct the analysis. However, results for emerging markets are mixed and are far from confirming their perfect integration with world markets. This raises doubts about the adequacy of such frameworks for emerging markets. Pushing this argument further, we would like to ask the question: how helpful can these models be in explaining asset prices in the face of a local crisis, such as the 1997 Asian crisis. Probably not very helpful. In these models only global sources of risk are considered, and hence these are unlikely to account for a local crisis. This is the starting point of our study. This paper takes a distinct approach and tries to understand these markets on a country basis first. Building on previous work we estimate a domestic APT model for each country (i.e. excess returns are expressed in local currency), including both global (proxied by an aggregate for the G7 countries) and local (country-specific) risk factors. Unlike previous studies, this approach is new as global and local factors co-exist in the same model allowing us to assess their relative importance as relevant sources of systematic risk. The results also provide some insights about the degree of integration of these markets, but in a more flexible way than when using an international asset pricing framework, as risk premia are not restricted to be equal across markets.

Another innovative aspect of this paper is that it considers how the results are altered when the market goes through a crisis. A crisis is defined in terms of an abnormal fall in excess return.³ We investigate whether we can observe any

¹ See Harvey (1991), Brown and Otsuki (1993), Ferson and Harvey (1993, 1994), Harvey (1995a,b) among others.

² Harvey (1995a) shows that the inclusion of emerging markets into the portfolio decision significantly shifts the mean-variance efficient frontier.

³ Note that the first abnormal fall in excess returns does not necessarily coincide with the initial drop in stock prices. For example in the case of Thailand, stock prices started falling in early 1996, but the first substantial decrease in excess returns arose in July 1997. Note further, that in the case of a financial crisis, excess returns may be driven down either by a collapse in stock prices, or by a rise in the risk free rate following an intervention of the monetary authority.

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