



Political crises and the stock market integration of emerging markets

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ABSTRACT

This paper investigates the role of political crises in explaining the degree of stock market integration in emerging markets over the period 1991–2006. Using the International Crisis Behavior database, which contains detailed information on political crises around the world, and employing data on more than 15,500 firms, we assess whether political crises affect stock market integration in 19 emerging markets in South and East Asia, Latin America, and Central and Eastern Europe. We conclude that crises with certain characteristics generally reduce the level of stock market integration in these regions. In particular, the beginning of a political crisis, its severity, the involvement of the US in the conflict, and the number of parties involved in a crisis all have impacts on the level of stock market integration in these markets.

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1. Introduction

Political crises, such as wars, terrorist attacks, and other threats to a nation, affect stock markets and their volatility. [Chen and Siems \(2004\)](#) investigate the effect of terrorism on capital markets around the world and find that terrorist attacks led to considerable negative abnormal returns. [Rigobon and Sack \(2005\)](#) show that an increase in risks associated with the war in Iraq led to a decline in the US treasury yields and equity prices. [Amihud and Wohl \(2004\)](#) explore the connection between stock prices, oil prices and exchange rates and the expectation of Saddam Hussein's fall from power. They report that the increased likelihood of Saddam's fall from power positively affected stock prices. [Straetmans et al. \(2008\)](#) investigate the impact of the 9/11 attack on the linkages between industrial sectors in the US and observe that the tail dependence in most sectors increased after 9/11. [Berkman et al. \(forthcoming\)](#) show that an increase in rare disaster risk has a significant impact on both the mean and volatility of world stock market returns.

While the impact of political crises on stock prices and volatility has been investigated in the literature, a link between political crises and stock market integration has not yet been made. However, several arguments suggest that such a link may exist. First, political crises have been shown to affect the economic linkages between countries, such as the level of Foreign Direct Investment (FDI).

For example, [Enders and Sandler \(1996\)](#) and [Enders et al. \(2006\)](#) show that acts of terrorism have a significant negative impact on the FDI flows of the countries involved. If political crises negatively affect economic linkages, then they may also have a negative impact on financial linkages. Second, political crises may increase the level of risk aversion of investors. This increased risk aversion may cause investors to perceive foreign investments (especially in emerging markets, where political risks tend to be greater) as more risky and may cause them to withdraw money from these markets. This could depress those markets but could also decrease their level of integration with the global market because they would receive less foreign investment. [Panchenko and Wu \(2009\)](#) find that stock market integration increases the demand for equities. Arguably, higher risk premia would lead to a reduction in demand for equities and market segmentation. In contrast to the explanations above which suggest a negative impact of political crises on stock market integration, a positive relationship is also possible. Bad news associated with a political crisis may spill over quickly into other markets, leading to contagion effects, and can thus increase the comovement of financial markets (see also [Beine et al. \(2010\)](#) who highlight this dark side of integration).¹ If contagion drives the impact of crises on financial integration, then it is reasonable to expect a positive impact of political crises on stock market integration. Because the arguments for both negative and positive relationships seem plausible, we cannot predict which one will dominate; the question must be settled empirically.

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¹ We thank the referee for pointing out this explanation.

In this paper, we investigate the impacts of political crises on stock market integration in 19 emerging markets from three regions: South and East Asia, Latin America, and Central and Eastern Europe. To measure the impacts of crises, we use the International Crisis Behavior (ICB) database maintained by the University of Maryland (Brecher and Wilkenfeld, 2009). Using the ICB database, we construct several crisis-related variables, such as the number of active crises per month, the start of a crisis, and the severity of crises. Our measure of stock market integration is based on the notion that if a market is fully integrated, then assets traded on such a market should be priced identically using either a domestic CAPM or an international CAPM. Specifically, we measure stock market integration by comparing a domestic CAPM to a global CAPM on a time-varying basis, and we construct a measure of market integration based on cross-sectional estimates of domestic betas versus global betas (see Koedijk et al., 2002; Bruner et al., 2008).

In line with prior research (e.g., Bekaert, 1995; Bekaert and Harvey, 1995; De Jong and De Roon, 2005; Yu et al., 2010), we find that the overall level of market integration has been increasing over time, although there is substantial variation among countries. With regard to the role of political crises at the country level, we find a negative relationship in most cases, but the level of statistical significance is rather low. This could be because our measure of market integration is a noisy measure on a country-by-country basis. However, when we combine our results and perform joint tests on the impacts of political crises on stock market integration for all countries in the sample or for the three different regions individually, we observe that these political crises and their specific characteristics have significant impacts on the level of market integration. In particular, the beginning of a crisis significantly reduces the degree of stock market integration. In addition, severe crises (defined as those that involve violent acts), crises that involve the US, crises that take place within the region of a particular country and crises that involve many parties generally have significant negative impacts on the degree of stock market integration. Random Effects panel regressions confirm the robustness of these findings.

The remainder of this paper is structured as follows: in Section 2, we introduce our measure of market integration and the data used in this study; in Section 3, we present our results on market integration and its relationships with political crises; in Section 4, we conclude the paper.

2. Methodology and data

2.1. Measuring stock market integration

Our measure of stock market integration is based on the model of Bruner et al. (2008). They use the comparison of the cost of capital implied by the domestic CAPM and the international CAPM as a proxy for market integration. Bruner et al. (2008) motivate this proxy based on the empirical observation of Koedijk et al. (2002), who find that for most countries in their sample, the domestic CAPM and the global CAPM (with or without exchange rate adjustments) produce almost identical costs of equity capital. Bruner et al. (2008) contend that the better the fit between the local and global beta, the higher the level of market integration for that particular country.

We opt for this approach because it offers several advantages over alternative measures of market integration. First, this approach treats market integration as a dynamic process instead of a static one. Second, because this measure of market integration is estimated over the cross-section of stock returns, it can more effectively deal with structural breaks than approaches that base their measures on a time-series basis.² Third, because this approach

uses the whole cross-section of stocks within a country, it is less biased towards large-cap stocks than approaches that use market indices to compute measures of market integration.

To establish the degree of market integration, we run the following time-series regressions. First, for each country, we estimate the domestic CAPM by regressing each company's monthly excess return on its respective local market index over a rolling window of 36 months, i.e.,

$$r_{it} - r_{ft} = \alpha_{it}^C + \beta_{it}^C(r_{ct} - r_{ft}) + \varepsilon_{it}, \quad (1)$$

where r_{it} is the US dollar return on stock i , r_{ct} is the US dollar return on the local market index (we use the MSCI country index), r_{ft} is the risk-free rate, proxied by the 3-month US Treasury Bill and β_{it}^C is the market beta of stock i on the local index for window τ .^{3,4} By rolling this regression forward on a monthly basis, we obtain time-varying betas for each company in a particular country.

Second, similar to the regression on the local market index, we run regressions on a global market index (the MSCI world index) over a rolling window of 36 months, i.e.,

$$r_{it} - r_{ft} = \alpha_{it}^W + \beta_{it}^W(r_{wt} - r_{ft}) + \eta_{it}, \quad (2)$$

where r_{wt} is the US dollar return on the global market index and β_{it}^W is the beta on the global market index for stock i for window τ .

The regression Eqs. (1) and (2) provide us with a panel of beta coefficients for the local and global CAPM. To derive our measure of market integration, we follow Bruner et al. (2008) and estimate cross-sectional regressions of the global beta on the domestic beta for all companies in each country, i.e.,

$$\beta_{it}^W = \gamma_{0\tau} + \gamma_{1\tau}\beta_{it}^C + \xi_{it}. \quad (3)$$

The R^2 value of this regression provides us with a measure of market integration. A higher R^2 value implies a greater fit between the local market beta and the global beta, indicating a higher level of market integration. A low R^2 value implies that the local and global beta produce different estimates for the cost of capital and therefore that the markets are segmented. We estimate Eq. (3) per country on a cross-sectional basis for each window τ . This provides us with a time-series of R^2 's for each country in the sample.⁵

2.2. Stock market data

To compute the measure of market integration detailed above, we collect individual stock price data for each listed security in each country in the sample. In selecting the firms, we include all delisted firms, but exclude any foreign firms listed on that market. This ensures a survivorship bias free dataset containing only domestic issues. For the firms in our sample, we collect monthly stock price data for the period January 1991 to December 2006 from Datastream.⁶ In addition, we collect data on country indices (MSCI country indices) and on the global index (MSCI world index).

³ As in Bruner et al. (2008), we study the issue of stock market integration from the point of view of a US investor. Integration measures based on local currencies would not be comparable across markets. Because we study integration from a US perspective, all returns are converted to US dollars, and the US 3-month T-bill rate is used as a proxy for the risk-free rate.

⁴ Bruner et al. (2008) construct their own value-weighted market indices for each country using all the stocks in their sample. However, our results are very similar to those presented by Bruner et al. (2008), showing that our choice of the MSCI indices does not lead to significant differences.

⁵ An alternative measure would be the slope coefficient of Eq. (3), which should be close to 1 if risk is priced identically in a domestic or global setting. However, markets can be highly integrated even when the slope is not equal to 1, i.e., when there are systemic factors that make the domestic market more or less risky (see also Bruner et al., 2008). Furthermore, Pukthuanthong and Roll (2009) argue that R^2 measures generally produce more accurate measures of market integration.

⁶ The ICB database, at the time of writing, only includes crisis data up to 2006.

² We thank the referee for pointing this out to us.

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