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Time-varying market integration and expected returns in emerging markets[☆]

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Abstract

In the last two decades, emerging stock markets have become less segmented from world stock markets. The average annual decrease in segmentation of 0.055, on a $[0,1]$ scale, reduces the cost of capital (measured by dividend yields) by about 11 basis points, and reduces stock returns by about 4.5%. The decline in expected returns is due to a decrease in two types of segmentation. A fall in local segmentation accounts for about 2/3 of the decline in expected returns. The remaining 1/3 is due to a fall in the level of segmentation of the region. These results, which we document for 30 emerging markets, are robust to the addition of control variables.
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1. Introduction

In the last two decades, emerging stock markets have become less segmented from the world market. This increased integration has decreased the cost of capital in these markets, as documented by Bekaert and Harvey (2000) and Henry (2000a,b). Most of the literature treats liberalization as a one-shot event, assuming that markets are completely segmented before the official liberalization date and perfectly integrated after that date. In reality, as Bekaert and Harvey (1995) and Stulz (1999a) note, the degree of segmentation changes only gradually over time. In this paper we argue that time variation in the level of market segmentation is important and should be taken into account when estimating the impact of liberalizations on the cost of capital. The importance of time variation in integration or segmentation follows naturally from an international asset pricing model with investment restrictions: In segmented markets closed to foreign investors, all risk has to be borne by the domestic investors; opening markets to foreign investors improves risk sharing and decreases the cost of capital.[1]

This paper develops an international asset pricing model with partially segmented markets, wherein assets that cannot be traded by foreign investors have to be held by domestic investors only. This portfolio restriction generates an additional risk premium in the country's assets, similar to the hedging pressure effects on expected returns in futures markets. Since the level of segmentation changes over time, expected returns should be time-varying as well. The measure of market segmentation suggested by this analysis is the ratio of noninvestable market value to total market value. Carrieri et al. (2001) show that this measure fluctuates significantly over time and across countries, but they don't investigate asset pricing implications. Our asset pricing model augments the pricing equation of the International Capital Asset Pricing Model (I-CAPM) with the ratio of noninvestable market value to total market value as an additional determinant of expected returns.[2] This setup allows us to estimate the effect of market segmentation on expected returns from a simple regression model. The estimates can then be used to gauge the impact of market liberalizations on the cost of capital in emerging markets.

An important implication of our model is that additional risk premiums relative to the standard I-CAPM may arise for two reasons, namely local segmentation, the segmentation of a given country from the world, and the regional segmentation, the segmentation from the world of the region in which the country dwells. The regional segmentation effect arises because economically related countries in a region can be

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[1] See, e.g., Stulz (1999a). Chari and Henry (2004) provide cross-sectional evidence that risk sharing drives much of the return effects during liberalizations. Karolyi and Stulz (2003) and Stulz (2003) discuss this and other evidence on the relevance of risk sharing for international asset pricing.

[2] The I-CAPM is developed in Adler and Dumas (1983) and Sercu (1980). Our model follows the setup of Errunza and Losq (1985), in which expected returns depend on the level of market segmentation, and is similar to both the well-known CAPM with nontradable assets as in Mayers (1976) and the hedging pressure models for futures markets, as proposed by Hirshleifer, 1988 and De Roon et al. (2000).

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