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Country risk and financial integration—A case study of South Africa

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ABSTRACT

This paper examines the importance of economic factors in a time-varying beta model of country risk before and after the occurrence of financial integration for South Africa's stock market. We examine how fundamental economic factors impact the variation of South Africa's country risk over the period 1993–2008. We find that exchange rates and gold prices are significant economic variables that induce significant volatility in South Africa's beta during the pre-financial integration period through June 1998. Post-financial integration, South Africa's beta rises and fundamental economic factors cease to be significant in determining its variation, a result consistent with an integrated financial market.

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1. Introduction

The World Capital Asset Pricing Model (CAPM) has become a standard approach for estimating the risk of a country's financial markets with respect to a world market index. A large body of literature has established the importance of a country's economic and political variables in explaining cross-sectional variations in beta measures across countries. This literature begins with Harvey (1991) who investigates global CAPM regressions and continues through Ferson and Harvey (1999) who investigate multi-factor model regressions across 18 countries.

Another strand of this literature recognizes that a country's beta with respect to the world index is likely to change for countries that liberalize their previously closed financial markets to foreign

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investors. It is likely that the beta of a liberalizing country exhibits a structural break, with its beta changing to reflect the higher correlations of local financial markets returns to movements in the world index after liberalization. A great deal of empirical work has been done on exploring the effects of liberalization on country risk as measured by its beta, and dating liberalization incidents based on shifts in estimated betas. Bekaert and Campbell (1995) estimate time-varying degrees of integration across a variety of liberalizing countries. More recently, Goldberg and Delgado (2001) dated liberalization episodes using panels of stock returns for each country.

If country betas change systematically across liberalization episodes, as all the literature suggests, it seems reasonable to believe that a single country's beta may fluctuate with changes in that country's other important economic variables. Gangemi et al. (2000) explore the notion that economic risk factors may change a country's beta over time, even if the country's degree of integration into world markets remains essentially unchanged. They focus on whether increasing government debt burdens are responsible for shifts in country risk for Australia. Their results are somewhat surprising; the only risk factor that seems important for changing Australia's beta with respect to the world index are surprises associated with changes in Australia's exchange rate.

Our paper investigates the importance of political and economic factors in a time-varying beta model of country risk for South Africa, a developing economy with financial markets that have been integrated with world markets for at least the past decade. We begin by dating the integration of South Africa's financial markets with the rest of the world using the procedure from BLS (1998). Our objective is to determine if this integration date is related to the significant political and economic changes that South Africa experienced in the decade of the 1990s. We then investigate if the integration episode changed the economic factors impacting the risk character of the South African stock market using the time-varying beta approach of Gangemi et al. (2000).

We date the integration of the South African stock market as mid-1998, the organic consequence of a series of favorable political events and economic policies that begin with the election of Nelson Mandela in April 1994 and the move away from the "financial" rand in early-1995. Our results on the economic determinants of South Africa's beta are also interesting. We find that exchange rate surprises and gold prices are important determinants of how South Africa's beta varies over the pre-integration period, but not the post-integration period. In addition, South Africa's beta is lower in the pre-integration period but extremely volatile. In the post-integration period it shifts up as expected and is far less volatile over the period.

Section 2 provides a brief overview of the process used for dating financial market liberalization, the results for South Africa's stock market and a dating of the significant political and financial market events that occurred prior to the liberalization date. Section 3 introduces the data to be used and the paper's estimation strategy for time-varying country risk. Section 4 presents our results on time-varying beta estimates for South Africa and Section 5 concludes the paper.

2. Dating financial integration

By examining stock market variables in emerging economies, particularly the return generating process, much can be learned with respect to the dating of financial integration of these countries' stock markets. As emerging markets move from a segmented to an integrated regime, one would expect stock returns to be impacted by the liberalization process, mostly because of changing risk characteristics in the emerging market stocks. In order to test for a change in the return process, one could construct a test that specifies a null hypothesis of no structural break² in a regime versus the alternative of an unknown structural break. Specifically, such a test could examine breaks in a stock's return series through time. If we fail to reject the null hypothesis of no structural break in the stock return generating process, then we must conclude that the stock markets have not integrated. Once a break is detected, we can examine what changes occur in the time series post-identified break date.

² A structural break can be defined as a change in the coefficients on the dependent variables in a model, tested at a specific point in the sample under consideration.

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