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Country risk and the cost of equity in emerging markets

Ignacio Warnes, Pablo E. Warnes [*]

Universidad de San Andrés, Argentina

A R T I C L E   I N F O

A B S T R A C T

We test whether the country risk variable is a significant risk factor in several CAPM based models of expected equity returns in Argentina, Brazil, Mexico, South Africa, Russia, Turkey and Venezuela. We also test the usual assumption that country risk can be added with a coefficient value of one. Only in Brazil and Mexico the risk premium associated with the country risk factor is significant. Adding country risk with a coefficient value of one is not generally valid and moreover, in Brazil and Mexico the risk premium for country risk takes a negative value. This shows that international investors may look for exposure to country risk.

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1. Introduction

Is there empirical support for the extended practice of adding the country risk variable into expected equity return models in emerging markets? Financial practitioners use several models to value emerging markets stock prices. Most of these models are based on the CAPM and rely on the spreads of sovereign bonds, usually called country risk,[1] as a key rate. However, there is neither a generally

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* Corresponding author at: Maestría en Finanzas, Universidad de San Andrés, Ciudad Autónoma de Buenos Aires, 25 de Mayo 586, C1002 ABL, Argentina. Tel.: +54 11 43129499x33.
E-mail address: pwarnes@udesa.edu.ar (P.E. Warnes).

[1] In this paper we use the terms "country risk" as synonym of "country spread", with the meaning of the yield spread of sovereign bonds from that country with respect to bonds of similar maturity issued by the US Treasury. Although this is the

accepted theoretical model which supports this practice, nor a broad body of empirical evidence behind it, as has been pointed out by Harvey (2001), Estrada (2007) and Andrade (2009). This paper tests the significance of the spreads of sovereign bonds or country risk in the seven largest emerging markets for which data are available, Argentina, Brazil, Mexico, South Africa, Russia, Turkey and Venezuela.

Computation of the cost of equity lies at the center of financial theory and practice. Academics and practitioners have suggested several different models to tackle the cost of equity in international markets. The starting point to divide the different asset pricing models is whether the international stock markets are considered as segmented, fully integrated or partially integrated markets.

As pointed out by Bekaert and Harvey (1995) the local CAPM appears when the CAPM of Sharpe (1964), Lintner (1965) and Black (1972) is tested on the data of returns from a single national stock market index. This is the case for all the seminal tests in the US stock market, such as the works of Fama and MacBeth (1973), Lintner (1965) or Black (1972).

The international CAPM, also called global CAPM or world CAPM, is first defined in the works of Dumas and Solnik (1995), and Dumas (1994). This model applies when stock markets are fully integrated across different countries, and utilizes as market benchmark the returns on a world stock market index, such as the global MSCI. [2]

The CAPM, under the assumption of partially integrated markets, is first studied by Errunza and Losq (1985). Bekaert and Harvey (1995) study a partially integrated CAPM with time variation in the degree of world capital markets integration. Bodnar et al. (2003) present the partially integrated CAPM as a two factor model in which stock returns depend both on their domestic market index returns, and also on the returns of a world market index.

Several researchers use modified versions of the models mentioned above to compute expected equity returns in emerging markets: Mariscal and Lee (1993) introduce the country risk variable (also often called country spread), i.e. the difference between the yields to maturity of the emerging market sovereign bonds (denominated in US dollars) and the yield to maturity of US Treasury bonds. This country spread variable is added to a modified version of the international CAPM so as to provide the cost of equity in developing world stocks.

Mariscal and Lee's model, often called the Goldman Sachs' model, has become very popular among practitioners. Their proposal of adding the country spread variable to measure the equity return for emerging markets has influenced other equity models that are popular among financial practitioners such as the ones introduced by Damodaran (2003) and Godfrey and Espinosa (1996). In particular Damodaran (2003) proposes a model of equity valuation in emerging markets, which he calls "The Lambda Approach" in which the coefficient lambda of the country risk variable does not need to be equal to one. Our work tests Damodaran's Lambda Approach model, among several others, to verify the empirical validity of this model and particularly, its implicit assumption of significance of the country spread variable.

Mariscal and Lee (1993) suggest summing up the country spread variable, as a way to obtain expected equity returns which are more accurate than the ones that resulted from a direct application of the global CAPM to emerging markets. As Harvey (1995a,b) has shown, the correlation between equity returns in emerging markets *vis à vis* the returns of mature markets is low. Hence, a straightforward application of the global CAPM using an international benchmark that is strongly based on developed market indices would provide expected equity returns for emerging markets that are well below those actually observed (Harvey, 2001). By adding the country risk premium, Mariscal and Lee (1993) and others who follow suit aim to obtain expected equity returns with values that are closer to what is intuitively expected by financial practitioners.

It has long been known that the country spread variable has enormous relevance in the emerging financial markets. It measures the cost of sovereign debt financing for each country, and it also shows

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usual definition of country risk, some researchers, have used different definitions; see Damodaran (2003) for a broad discussion on this issue. Other related models use the credit rating measure (rather than country spreads) in the computation of equity returns, for instance, Erb et al. (1995).

[2] Koedijk et al. (2002) analyze to what extent the multifactor international CAPM and the domestic CAPM lead to different estimates of the cost of capital for individual firms.