

Value-at-Risk for country risk ratings

Michael McAleer^{a,b,c}, Bernardo da Veiga^{d,*}, Suhejla Hoti^e

^a *Econometric Institute, Erasmus School of Economics, Erasmus University Rotterdam, The Netherlands*

^b *Tinbergen Institute, The Netherlands*

^c *Department of Economics and Finance, University of Canterbury, New Zealand*

^d *School of Economics and Finance, Curtin University of Technology, GPO Box U1987, Perth, Western Australia 6845, Australia*

^e *Department of Treasury and Finance, Western Australia, Australia*

Received 5 November 2009; received in revised form 25 May 2010; accepted 1 June 2010

Available online 25 June 2010

Abstract

The country risk literature argues that country risk ratings have a direct impact on the cost of borrowings as they reflect the probability of debt default by a country. An improvement in country risk ratings, or country creditworthiness, will lower a country's cost of borrowing and debt servicing obligations, and vice versa. In this context, it is useful to analyse country risk ratings data, much like financial data, in terms of the time series patterns, as such an analysis would provide policy makers and the industry stakeholders with a more accurate method of forecasting future changes in the risks and returns of country risk ratings. This paper considered an extension of the Value-at-Risk (VaR) framework where both the upper and lower thresholds are considered. The purpose of the paper was to forecast the conditional variance and Country Risk Bounds (CRBs) for the rate of change of risk ratings for 10 countries. The conditional variance of composite risk returns for the 10 countries were forecasted using the Single Index (SI) and Portfolio Methods (PM) of McAleer and da Veiga [10,11]. The results suggested that the country risk ratings of Switzerland, Japan and Australia are much more likely to remain close to current levels than the country risk ratings of Argentina, Brazil and Mexico. This type of analysis would be useful to lenders/investors evaluating the attractiveness of lending/investing in alternative countries.

© 2010 IMACS. Published by Elsevier B.V. All rights reserved.

Keywords: Country risk; Risk ratings; Value-at-Risk; Risk Bounds; Risk management

1. Introduction

A variety of univariate and multivariate conditional volatility models was used in Hoti and McAleer [6] to analyse the dynamics of the conditional volatility associated with country risk returns for 120 countries across eight geographical regions. This extensive analysis classified the countries according to the persistence of shocks to risk returns and the correlation coefficients of the conditional shocks to risk returns. Similarly, Hoti [4] provided an analysis of economic, financial, political and composite risk ratings using univariate and multivariate volatility models for nine Eastern European countries. The empirical results enabled a comparative assessment of the conditional means and volatilities associated with country risk returns, defined as the rate of change in country risk ratings, across the countries. Moreover

* Corresponding author. Tel.: +61 410439520.

E-mail address: b.daveiga@curtin.edu.au (B. da Veiga).