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**Explaining Exchange Rate Risk in Emerging
Stock Markets**

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Abstract

Problem statement:

Unexpected fluctuations in foreign exchange rates are an important concern to firms who are involved in international transactions. If the exchange rate depreciates, a firm that makes use of imported materials in production, will suffer as its production costs will increase and profits will subsequently decrease. Lower profits are reflected by a reduction in firm value, i.e. the stock price of the firm. On the other hand, an export-oriented firm would benefit from a depreciation of the local currency, as its product would become more affordable to foreign customers. The objective of this paper is to examine the significance of foreign exchange rate risk in 20 emerging stock markets, and explain this risk in terms of macroeconomic variables.

Research method:

A time-varying two-factor international asset pricing model is used to estimate daily excess equity returns from 1 July 1998 to 31 March 2003. Following a rolling regression GARCH approach with t -distributed residuals, daily excess equity returns are explained by the excess returns on the MCSI world equity index and a trade-weighted currency index.

Previous studies such as Patro et al. (2002) have used a similar method, but under the assumption that the GARCH regressions have normally distributed residuals. This paper differs from existing literature by assuming t -distributed instead of normally distributed residuals. Verhoeven and McAleer (2003) find that the empirical distribution of returns conditioned on the current level of volatility is not normally distributed, as is frequently assumed. Bollerslev (1987) advocates using the GARCH model, allowing for conditionally t -distributed residuals. This assumption turns out to be very important, since the stochastic process underlying asset returns provides essential information about the riskiness of assets. Therefore, proper knowledge and specification of this process is essential for making correct investment decisions. Financial models, such as the capital asset pricing model (CAPM) assume that returns are independently and identically distributed (i.i.d.) normal variates. However, the i.i.d. assumption is generally not satisfied as financial returns are not normally distributed.

A stock market's exposure to exchange rate fluctuations is represented by the regression coefficient of the trade-weighted currency index, known as the exchange rate beta. Using a panel approach, these exchange rate betas are regressed on certain macroeconomic variables.

Results and conclusions:

We find that the majority of emerging markets bear significant exchange rate risk. The macroeconomic variables that significantly explain these exchange rate risks are imports, exports, inflation and the budget deficit, all as ratios to GDP. Therefore, current macroeconomic conditions in emerging markets are valuable in predicting possible future exchange rate risk exposures.