On the returns generating process and the profitability of trading rules in emerging capital markets

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Abstract

In this paper, we aim to characterize the stock return dynamics of four Latin American and four Asian emerging capital market economies and assess the profitability of popular trading rules. Using Morgan Stanley Capital International (MSCI) daily stock index prices, we find that dollar denominated returns exhibit statistically significant long-memory effects in volatility but not in the mean. ''Trading'' our findings via a number of rules, we beat the ''buy-and-hold'' benchmark strategy in all markets before transaction costs and, predominantly, in Asian markets after transaction costs. The robustness of our results casts serious doubt on the weak form efficiency of such markets.
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1. Introduction

In recent years, emerging capital markets (henceforth ECM) have attracted a great deal of attention from investors and investment funds seeking to diversify their portfolios.

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Notwithstanding their high risk, the higher sample average returns and low correlations with developed market returns are two of the distinguishing features of ECM returns (Bekaert and Harvey, 1997) that have made such markets increasingly attractive to international investors. Such characteristics, coupled with the financial liberalization process these countries have embarked on, have led to a dramatic increase in capital flows since the early 1990s, with portfolio flows (fixed income and equity) and foreign direct investment replacing commercial bank debt as the dominant sources of foreign capital (Bekaert and Harvey, 2003).

Despite the significance of ECM as important conduits of international diversification, little has been said in the literature about the statistical returns generating process, and the profitability of trading rules in these markets. The principal aim of this paper is to fill this void in the literature by modeling the dynamic behavior of stock returns in ECM and assessing the potential profitability of popular trading strategies.

Recent studies show that emerging markets tend to exhibit higher volatility (both conditional and unconditional) compared with developed markets (see, for example, De Santis and Imrohoroğlu, 1997; Bekaert and Harvey, 1997), as well as higher persistence in stock returns (see Bekaert and Harvey, 1997). Such evidence could be attributed to some form of market inefficiency offering opportunities for excess returns, even after adjusting for risk. It could also reflect a more persistent variation of risk factors in ECM.

Persistence in equity returns may be attributed to long-range dependence, or long memory, in the returns time series. Arguably, ECM are more likely to exhibit such characteristics than developed markets. Market thinness and nonsynchronous trading biases should be expected to be more severe in ECM, given their low level of liquidity (De Santis and Imrohoroğlu, 1997). Also, ''learning effects'' are bound to be important since investors in ECM tend to react slowly and gradually to new information (Barkoulas et al., 2000). In addition, the mounting evidence of nonnormality and non-linearities in ECM returns (Bekaert and Harvey, 1997) is consistent with a persistent (either in mean and/or volatility) return generating process in emerging markets. Recently, Cajueiro and Tabak (2004, 2005) estimate Hurst exponents and find strong long-range dependence in the volatility of ECM returns.

Such characteristics of a market suggest that technical trading rules could be profitable (see Van Der Hart et al., 2003). Technical trading analysis assumes that the patterns in past security price series will recur in the future, and can thus be used for predictive purposes. Furthermore, technical analysis may be used to uncover hidden patterns in stock returns not picked up by standard statistical tests, which can help to better forecast prices.

Two questions are being predominantly addressed in this paper: First, within the ARFIMA–FIGARCH framework, the existence of long memory in the mean and variance of ECM stock return dynamics. Second, the relative profitability over and above the buy-and-hold strategy of popular trading rules such as Moving Average and Trading Range Break strategies. The impact of transaction costs and measurement errors in returns is also examined. Furthermore, we re-evaluate the performance of the trading strategies within a risk-return framework using the Sharpe ratio statistic which characterizes whether excess – to the buy and hold – returns generated by our trading rules come at the expense of unduly higher risk.

Since the influential paper of Sullivan et al. (1999), any apparent success of trading rules has been confronted with an appropriate degree of scepticism due to data-snooping biases. In order to mitigate the possibility of reporting spurious results, in the empirical part of the paper we are employing a relatively unexplored data set; it is well known that data snooping is aggravated by