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ScienceDirect

Pacific Science Review 16 (2014) 275–279

www.elsevier.com/locate/pscr

Investigating the efficiency of East Asian stock markets through booms and busts

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Received 7 October 2014; revised 2 February 2015; accepted 2 March 2015
Available online 20 March 2015

Abstract

The Efficient Market Hypothesis has been the subject of considerable debate over the past several decades with a recent surge in interest in East Asian markets. This study investigates the East Asian economies, which have experienced massive capital inflows, inviting the question of whether these markets are efficient enough for further investment and development. We endeavour to assess the volatility and business cycle phases, providing a unique aspect in weak form efficiency studies. We focus on Malaysia, Indonesia, Singapore and South Korea due to their economic and financial development. Using Multifractal Detrended Fluctuation Analysis to study efficiency, we determine first that overall efficiency has improved over the past two decades and second that markets are more efficient in growth phases in comparison to their preceding decline. Our results concur with those reported in the mainstream literature.

Keywords: East Asian stock market; Stock market efficiency; md-dfa; Econophysics

Introduction

East Asia has assumed a more significant role in the global arena against the backdrop of rapid expansions of economies and the financial landscape, globally contributing up to 40% of the world's GDP growth. A factor that has contributed to this region's global rise to prominence is its emphasis on the development of trade and liberalization of investment policies. This also led to an increase in the inflow of foreign direct investment (FDI), which was only affected during the various crisis periods, i.e., 1997 Asian crisis, the 2000 dot com crisis, and the recent 2008 global crisis [11].

The massive amounts of FDI coming into East Asia and the emerging nature of its stock markets, which are more prone to volatility, begs the question of whether the stock markets are efficient and how they perform during different business phases. The objective of this paper is to cultivate the weak-form efficiency ranking of four major East Asian markets and relate the rankings derived with the stage of business cycle movement.

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Peer review under responsibility of Far Eastern Federal University, Kangnam University, Dalian University of Technology, Kokushikan University.

http://dx.doi.org/10.1016/j.pscr.2015.03.003
1229-5450/

Since its introduction by Fama (1965) [6]; the weak form efficiency hypothesis has been tested for several emerging markets with rather inconclusive results. Furthermore, we find limited research on its efficiency; Guidi and Gupta (2011) [7] rejected the Efficient Market Hypothesis (EMH) for the stock markets of Indonesia, Malaysia, and only found Singapore to be weak form efficient. Hoque et al. (2007) [8] examined weak form efficiency for the periods before and after the Asian financial crisis in eight Asian countries and found that the crisis did not have any significant impact on the degree of efficiency in Hong Kong, Indonesia, Malaysia, the Philippines, Singapore and Thailand; hence, the inefficiency persisted even after the crisis. Faiq et al. (2010) [5] found that the subprime crisis had no impact on informational efficiency in the Chinese stock market. Kim and Abdul (2008) [10] also found the Asian crisis to be insignificant in terms of market efficiency for most East Asian countries; the exceptions were Singapore and Thailand, which achieved efficiency after the crisis.

The motivation behind this study arises from the economic eminence of these four East Asian economies as a global shift from the west to the east is being witnessed. The primarily reason for sticking to the four major ASEAN countries concerns their stage of economic development and the presence of capital markets and liberalization policies. The prominence of these countries arises from their rapid economic development and liberalized capital market policies. Since we plan to focus on the stock markets, these countries contributed nearly 85% of the market capitalization in the region. Furthermore, considering the crucial role of intra-industry trade and capital flows, our study lends credibility to the economic prominence of East Asia, providing policymakers with precarious details to avoid extensive misallocation of resources that may have a negative impact on long-term economic growth. Likewise, understanding the relations between a market's efficiency and the different phases of the economy will allow investors to make more informed investment decisions.

Data and methodology

Our dataset comprises four East Asian economies, namely, Malaysia, Singapore, Indonesia and South Korea, which were selected based on their economic development stage, the size of their markets and exposure to both domestic and international crises over past two decades. A key consideration is the infamous Asian financial crisis of 1997—98.

The fundamental indicator for market development for our sample countries, as illustrated in Fig. 1, shows a relatively similar progression over the two decades.

We use the daily closing price of the MSCI (Morgan Stanley Composite Index) benchmark index of each individual market from 1/1/1990 until 31/7/2013 (MSCI Malaysia, MSCI Indonesia, MSCI South Korea, MSCI Singapore), which gives us 6153 observations for every country. The rationale behind selecting this time period is based on the revival of the east Asian region, which began in the 1990 s due to liberalization policies, with the next two decades seeing rapid growth, then the Asian financial crisis, and then the region's recovery.

To aid this study's investigation, the sample period is divided into economic booms and recessions using the Christiano-Fitzgerald filter (2003) [4] for each country's economic cycle determination over the sample period.

To measure the efficiency we employ the multifractal de-trended fluctuation analysis (MFDFA), as it allows us to rank successively the efficiency of the

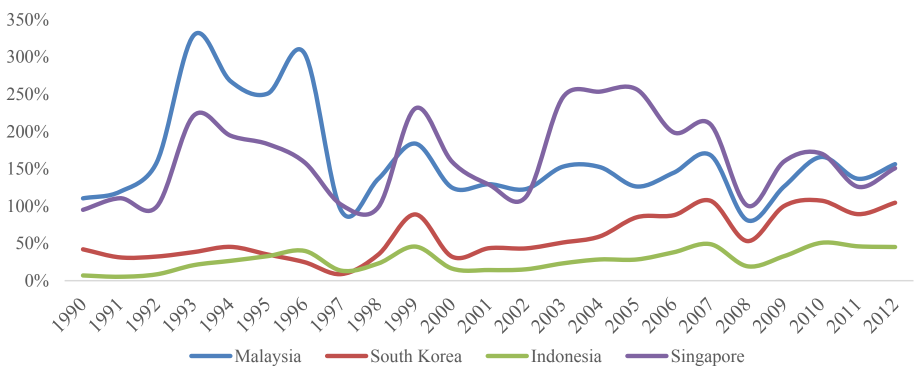

Fig. 1. Market Capitalization/GDP from 1990 to 2012.