

CAPITAL MARKET EFFICIENCY AND PORTFOLIO EQUITY INFLOWS IN BANGLADESH

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Abstract

Foreign direct investment (FDI) has attracted a considerable number of studies in empirical finance, particularly in determining the relationship between portfolio equity inflows and the market efficiency of an emerging financial market. This paper examines paradigm of non-parametric tests of market efficiency for an emerging stock market, the Dhaka Stock Exchange (DSE), consisting of non-parametric test which is autocorrelation function tests (ACF), to establish a more definitive conclusion about Efficient market hypothesis in emerging financial markets. The result of this research demonstrates that a positive autocorrelation on DSE returns exists particularly in the period of 1998-2012 and DSE doesn't hold weak form of efficiency and not following the Random walk model but the relationship between market returns and the equity inflows in equity is positive for the period of 1998-2012. The inefficiency of the DSE follows on from the violation of the necessary conditions for an efficient market with a developed financial system and also implies financial and institutional imperfections and the significance of equity inflows in Bangladesh.

Keywords: *Efficient Market Hypothesis, Weak-form Market Efficiency, DSE, Random walk, Emerging market, equity inflows*

INTRODUCTION

In this paper we tried to examine the various links among portfolio equity investment, financial markets and growth. We model an economy with a continuum of agents indexed by their level of ability. Better financial markets allow the economy to take advantage of very fast growth from equity inflows. The empirical evidence at different point of time by researchers suggests that portfolio equity plays an important role in contributing to economic growth, Islam S & Watanapalachaikul S (2005). However, the level of development of local financial markets is crucial from the positive effects of equity inflows.

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Bangladesh-the new investment frontier- is expected to be attended by leading 50 to 75 percent equity and fixed income securities investors across the globe. Bangladesh's overall economic potentials, untapped capital market and its reforms in last decade, current legal and governance frameworks, public and private foreign investment opportunities with special highlights on some sectors like power, telecom, textiles, pharmaceuticals and financial services through portfolio equity investment.

Bangladesh has enormous potentiality to attract the foreign investors' attention with a strong economic growth and the ensuing that facilitate by the growth of the securities market. Investment climates are very much encouraged by the strength of the Bangladesh economy and it's near term capital market potential and create an opportunity for leading equity and fixed income investors across the globe to hear from key policy makers and market intermediaries in the country.

The objective of this paper is to build a paradigm of non-parametric testing of market efficiency by undertaking autocorrelation function test (ACF); and to try to establish a conclusion about EMH and FDI inflows in the capital market. The non-parametric autocorrelation test being pursued in this study are targeting consistent statistical characteristics of the price and returns profile, using few inter-linkages with a specific model of asset pricing. If the stock exchange of Dhaka (DSE) was efficient, the stock prices would correctly and fully reflect all relevant information and hence, no arbitrage opportunities would exist. Thus in this type of test, the rejection of the null hypothesis would reject market efficiency that is weak form efficient market hypothesis (WEMH) for the Dhaka stock exchange. The implication of efficiency, in its broadest sense, is that stock prices always reflect their intrinsic worth and can be taken at their face value.

This paper is structured as follows: Section 2 provides a literature review of the market efficiency hypothesis and random walk model and foreign direct investment. Section 3 discusses about the research design and hypotheses and sample size and period. Section 4 applies the most common non-parametric method such as the autocorrelation function (ACF) test in testing the EMH. The results also shown in this section. A conclusion is given in Section 5.

LITERATURE REVIEW

“An efficient capital market is a market that is efficient in processing information. In an efficient market, prices ‘fully reflect’ available information” (Fama 1976, p. 133). In the broadest terms of EMH, there are three types of market efficiency. Firstly, in weak form efficiency, the information set is that the market index reflects only the history of prices or returns themselves. Secondly, in semi-strong form efficiency, the information set includes most information known to all market participants. Finally, in strong form efficiency, the information set includes all information known to any market participant.

In the 1960s and early 1970s, the controversy focused on the extent to which successive changes in prices of the stocks were independent of each other or whether stock prices followed a random walk. The early tests to answer this question were conducted by Fama (1965) and Samuelson (1965), in which they concluded that most of the evidence seems to have been consistent with the efficient market hypothesis (EMH). Stock prices followed a random walk model and the predictable variations in equity returns, if any, were found to be

statistically insignificant. Other studies in the US with similar findings included those of Sharpe (1966), Friend *et al.* (1970), and Williamson (1972). Throughout the 1980s, EMH has provided the theoretical basis for much of the research, and most empirical studies during these years focused on predicting prices from historical data, while also attempting to produce forecasts based on variables such as P/E ratios (Campbell and Shiller 1987), dividend yield (Fama and French 1989), term structure variables (Harvey 1991), and announcement of various events, i.e. earnings, stock splits, capital expenditure, divestitures, and takeovers (Jensen and Ruback 1983; McConnell and Muscarella 1985; Kettel 2001). The issue of EMH in relation to stock prices is fundamental for an investigation of the characteristics of the Dhaka stock exchange. The initiator was Alam *et al.* (1999). They examined the weak form efficiency of DSE for the period 1986 to 1995 based on the monthly stock price indices. Applying variance ratio test, they revealed that the DSE followed random walk model and the DSE was weak form efficient.

Hassan, Islam and Basher (2000) examined the weak form efficiency in DSE for the period September 1986 - November 1999. They found that the equity return of the DSE were the positive skewness of 0.11 and 22.93, excess of kurtosis of 49.66 and 992.65 and the deviation from the normality. They also revealed that there was a significant negative serial correlation (-0.07) which implied that the DSE market was not weak form efficient. They further found that there were a significant relationship between the conditional volatility and the stock returns. Mobarek and Keasey (2002) investigated to test weak form efficiency based on the daily price indices of all listed DSE securities for the period 1988 to 1997. The sample covered 2638 daily observations. They used various tests including Auto-correlation test, Auto-regression and run tests. They concluded that the significant autocorrelation coefficient at different lags which did not support the weak form efficiency or random walk model of DSE market.

Formal Definition of the Concept

Before we examine the efficiency issues of Dhaka stock exchange (DSE), we need to revisit the definition of EMH. The EMH is a statement about: (1) the theory that stock prices reflect the true value of stocks; (2) the absence of arbitrage opportunities in an economy populated by rational, profit-maximizing agents; and (3) the hypothesis that market prices always fully reflect available information (Fama 1970). In Jensen (1978), an efficient market is defined with respect to an information set Φ_t if it is impossible to earn economic profits by trading on the basis of Φ_t . Fama (1970) presented a general notation describing how investors generate price expectations for stocks. This could be explained as (Cuthbertson 1996):

$$E(p_{j,t+1} | \Phi_t) = [1 + E(r_{j,t+1} | \Phi_t)]p_{jt} \quad (1)$$

where E is the expected value operator, $p_{j,t+1}$ is the price of security j at time $t+1$, $r_{j,t+1}$ is the return on security j during period $t+1$, and Φ_t is the set of information available to investors at time t .

The left-hand side of the formula $E(p_{j,t+1} | \Phi_t)$ denotes the expected end-of-period price on stock j , given the information available at the beginning of the period Φ_t . On the right-hand side, $1 + E(r_{j,t+1} | \Phi_t)$ denotes the expected return over the forthcoming time period of stocks having the same amount of risk as stock j .

Under the efficient market hypothesis (EMH), investors cannot earn abnormal profits on the available information set Φ_t other than by chance. The level of over value or under value of a particular stock is defined as:

$$x_{j,t+1} = p_{j,t+1} - E(p_{j,t+1} | \Phi_t) \quad (2)$$

where $x_{j,t+1}$ indicates the extent to which the actual price for security j at the end of the period differs from the price expected by investors based on the information available Φ_t . As a result, in an efficient market it must be true that:

$$E(x_{j,t+1} | \Phi_t) = 0 \quad (3)$$

This implies that the information is always impounded in stock prices. Therefore the rational expectations of the returns for a particular stock according to the EMH may be represented as:

$$P_{t+1} = E_t P_{t+1} + \varepsilon_{t+1} \quad (4)$$

where P_t is the stock price; and ε_{t+1} is the forecast error. $P_{t+1} - E_t P_{t+1}$ should therefore be zero on average and should be uncorrelated with any information Φ_t . Also $E(x_{j,t+1} | \Phi_t) = 0$ when the random variable (good or bad news), the expected value of the forecast error, is zero:

$$E_t \varepsilon_{t+1} = E_t (P_{t+1} - E_t P_{t+1}) = E_t P_{t+1} - E_t P_{t+1} = 0. \quad (5)$$

Underlying the efficiency market hypothesis, it is opportune to mention that expected stock returns are entirely consistent with randomness in security returns. This position is supported by the *law of iterated expectations* (Campbell *et al.* 1997; Samuelson 1965). The expectational difference equation can be solved forward by repeatedly substituting out future prices and using the law of iterated expectations:

$$E_t [E_t + I_t (X)] = E_t (X). \quad (6)$$

Campbell *et al.* (1997) state that:

...if one has limited information I_t , the best forecast one can make a random variable X is the forecast of the forecast one would make of X if one had superior information J_t , rewritten as $E_t [X - E[X | J_t] | I_t]$ is equal to zero. One cannot use limited information I_t to predict the forecast error one would make if one had superior information J_t . (1997, p. 23)

Non-parametric testing of market efficiency is based on the premise of no arbitrage opportunities, i.e., that opportunities for earning unusual returns do not exist (Fama 1970; Jensen 1978). Along with other empirical studies (Ball 1978; Charest 1978; Banz 1981; Schwert 1983; Fama and French 1989; Fama 1991; Fama *et al.* 1993; Lo 1996), many researchers have also jointly tested the market efficiency with an asset pricing model. If the null hypothesis is rejected, the failure of either market efficiency or the model does exist. However, the authors have often preferred to conclude that difficulties in asset pricing theory, rather than market efficiency, underlie the rejection of the null hypotheses which have been uncovered in tests of asset pricing. In addition, the rejection of the null hypotheses is likely to have resulted from the misspecification of the asset pricing theory and not market efficiency itself.

Random Walk Model

Traditionally, lower the market efficiency, the greater the predictability of stock price changes. According to Fama (1970), the efficient market exists if the share prices are reflected by the all available information. In other words, in an efficient market, price changes must be a response only to new information. As the information arrives randomly in market, the share prices fluctuate unpredictably. In weak-form efficient, the price movements fluctuate and the changes of price are independent. In that case, the investors cannot predict the insights of the future prices based on the past information and cannot earn abnormal returns.

The random walk idea of the asset price was introduced by Bachelier in 1900 (Poshakwale 1996). The random walk model states that the price changes cannot be predicted from earlier changes, the successive price changes of any stock are independent and the price changes occur without any significant trends. The random walk will be consistent with equity being appropriately priced at an equilibrium level, whereas the absence of a random walk will follow the inappropriate of pricing of capital and risk. This has important implications for the allocation of capital development of overall economy.

Foreign Direct Investment

Foreign direct investment is that investment, which is made to serve the business interests of the investor in a company, which is in a different nation distinct from the investor's country of origin. A parent business enterprise and its foreign affiliate are the two sides of the FDI relationship. Together they comprise an MNC. The parent enterprise through its foreign direct investment effort seeks to exercise substantial control over the foreign affiliate company. 'Control' as defined by the UN, is ownership of greater than or equal to 10% of ordinary shares or access to voting rights in an incorporated firm. For an unincorporated firm one needs to consider an equivalent criterion. Ownership share amounting to less than that stated above is termed as portfolio investment and is not categorized as FDI

There has been a dramatic shift in the attitude of developing countries towards FDI in recent years. The change has become particularly visible since mid-1980s. Most developing countries have adopted a much more favorable view of FDI. The need for reliance on FDI has been reinforced by the declining trend in ODA. Meanwhile, the changing nature of the activities of transnational corporations led to a more benign perception of their role. Many corporations moved into manufacturing activities in developing countries with greater possibilities for forward and backward linkages. Many of them became engaged in export-oriented manufactures, complementing the national development objectives of achieving improved balance of payments and greater industrialization simultaneously. Transnational corporations were being increasingly looked upon as sources not only of capital, but also of production, management and marketing technologies. Thus, many developing countries started liberalizing their FDI policy regimes on the basis of the new perception of commonality of interests. The developing countries of the ESCAP region are no exception to this general trend. The above factors have been complemented by other supportive changes in the global economic scene. These changes, involving greater "componentization" of production, convergence of demand patterns and reduced costs for cross-border transport and communication, have created favorable conditions for a greater number of developing countries to attract FDI.

Types of Foreign Direct Investment: An Overview

FDIs can be broadly classified into two types: outward FDIs and inward FDIs. This classification is based on the types of restrictions imposed, and the various prerequisites required for these investments. An outward-bound FDI is backed by the government against all types of associated risks. This form of FDI is subject to tax incentives as well as disincentives of various forms. Risk coverage provided to the domestic industries and subsidies granted to the local firms stand in the way of outward FDIs, which are also known as 'direct investments abroad.' Different economic factors encourage inward FDIs. These include interest loans, tax breaks, grants, subsidies, and the removal of restrictions and limitations. Factors detrimental to the growth of FDIs include necessities of differential performance and limitations related with ownership patterns.

Other categorizations of FDI exist as well. Vertical Foreign Direct Investment takes place when a multinational corporation owns some shares of a foreign enterprise, which supplies input for it or uses the output produced by the MNC. Horizontal foreign direct investments happen when a multinational company carries out a similar business operation in different nations. Foreign Direct Investment is guided by different motives. FDIs that are undertaken to strengthen the existing market structure or explore the opportunities of new markets can be called 'market-seeking FDIs.' 'Resource-seeking FDIs' are aimed at factors of production which have more operational efficiency than those available in the home country of the investor. Some foreign direct investments involve the transfer of strategic assets. FDI activities may also be carried out to ensure optimization of available opportunities and economies of scale. In this case, the foreign direct investment is termed as 'efficiency-seeking

Motivations Underlying FDI

Measures to attract FDI have to be conceived with a clear understanding of its determinants and its location in a particular country. A vast literature has emerged seeking to explain why transnational corporations engage in production abroad and the considerations that dictate their choice of particular locations. FDI is essentially an effort on the part of a transnational corporation to internalize control over production. Some variables which prompt a company to consider internalization as an advantageous option relate to costs of quality control and super-vision, transport and marketing costs, restrictions on intra-firm transactions etc.

The considerations of ownership and internalization advantages influence the decision as to whether or not to undertake FDI. The next step in the process is for the company to choose a particular location from among alternative choices. This choice is contingent on the advantages offered by one location relative to others. These advantages relate to, inter alia, availability of natural resources and raw materials, cost and quality of labor, adequacy of infrastructure, size and growth prospects of the host country, and policies pursued by the host country.

Relationship Between FDI and Capital Market.

The interaction between capital markets and FDI did not receive much attention until recently. In a broader sense the benefits of all types of capital flows and capital market integration have been studied extensively in the literature. Well-integrated inter-regional and international capital markets allow insurance against idiosyncratic shocks, and allow better use of resources (Obstfeld 1994). In the standard one-good inter-temporal model of trade,

countries gain from borrowing or lending abroad when there is a difference between the economy's autarky interest rate and the world interest rate. Obstfeld's (1994) model shows that international financial integration can lead to higher growth as countries can take advantage of risky higher-yield bonds. In a similar framework of risk-return trade-off Acemoglu and Zilibotti (1997) show that developing countries tend to specialize in safe technologies due to less diversification opportunities. In particular, Tesar and Rowland's (2000) and Tesar and Hull's (2000) work shows that multinationals can allow for greater risk diversification.

Several other models, including Saint-Paul (1992), Feeney (1997) show the gains of capital market integration-induced specialization and production efficiency in a theoretical framework. Kalemli-Ozcan, Sorensen and Yosha (1999) test these theoretical predictions and find supporting evidence that risk-sharing, facilitated by favorable legal environments and well developed financial systems, leads to specialization, which implies higher economic growth. While it may seem natural to argue that foreign direct investment can convey greater knowledge spillovers, a country's capacity to take advantage of these spillovers might be limited by local conditions. While this paper stresses the role of local financial markets, arguably another important factor is the stock of local human capital. Nelson and Phelps (1966) presented a model where the rate of growth of total factor productivity is a function of a country's human capital stock. To the extent that FDI brings with it knowledge spillovers which increases total factor productivity, the stock of human capital should play an important role in realizing the benefits of foreign direct investment. This line of thought is pursued in Borensztein et al (1998). Using a data set of FDI flows from industrialized countries to sixty-nine developing countries, they find that FDI is an important vehicle for the transfer of technology and higher growth. However, they show that the higher productivity is only possible when the host country has a minimum threshold stock of human capital.

The interaction between financial markets and growth itself has lately received a lot of attention. As described above, the theoretical framework has been well-established in the literature, with supporting evidence in the empirical studies. King and Levine (1993a,b) model how better financial systems improve the probability of successful innovation and thereby accelerate growth and provide empirical evidence suggesting that financial systems are important for productivity growth and development. Analyzing the roles of different types of financial institutions Levine and Zervos (1998) show that stock markets and banks provide different services, but both stock market liquidity and banking development positively predict growth, capital accumulation and productivity improvements. At the country level, Beck, Levine and Loayza (2000a, 2000b) once again empirically show the positive effects of financial development on growth and that these positive effects work through total factor productivity. At the industry level, Rajan and Zingales (1998) find that the state of financial development reduces the cost of external finance to firms, thereby promoting growth. Combining industry and country level, Wurgler (2000) shows that even if financial development does not lead to higher levels of investment, it seems to allocate the existing investment better and hence causing economic growth. Finally, as mentioned above, Kalemli-Ozcan et al (1999) focus on the channel through which these growth effects of financial markets can be possible and provide evidence that more integrated capital markets enhance specialization in production.

RESEARCH OBJECTIVES AND HYPOTHESES

This study seeks the evidence whether the Dhaka Stock Exchange is weak form efficient or not and does it follow the random walk model? The subsequent extension of this article is: Is there any correlation between market efficiency and FDI inflows in equity?

The specific objectives of the present study linkage with the research questions are as follows:

- a) To determine whether the Dhaka stock exchange follows a random walk model or is weak-form efficient.
- b) To determine whether any correlation persist between capital market efficiency and FDI inflows in equity.

H1: The Dhaka stock market follows random –walk model.

H2: There is correlation between market efficiency and FDI inflows in equity.

SAMPLE PERIOD

The sample included total 2682 daily observations for the total sample period 1998 to 2009. To confirm the results of the empirical analysis; we also compute the first sub-sample (1998-2003, first 5 years), the second sub-sample (2005-july 2009, last 5 years) and with observations excluding the outliers. The FDI inflows (in equity) from 1998 to 2012.

SAMPLE SIZE

The sample included total 2682 daily observations of daily price indices for the year of 1998 to 2012 and FDI inflows in equity from 1998 to 2012.

NON-PARAMETRIC STOCK MARKET EFFICIENCY TESTS

There are a large number of other direct tests of EMH. In addition, indirect tests are also used as evidence for or against the EMH. Keane (1983, p. 31) provides some basic explanations of what makes markets inefficient. One of his ideas is called “Gambler’s Fallacy”. This may be described as the belief that what “goes up must come down”. This phenomenon exhibits itself amongst investors whose stocks’ price has risen for a period of time and so is deemed to be “due for a fall”. Generally speaking, by knowing the relationship of the current price to recent price movements, one can better estimate the likely direction of future price movements, i.e. historical data such as price movement can be used to predict future prices. This provides credibility to the argument that the market is predictable and inefficient. Therefore, the issue is to see whether the stock market is predictable or not by detecting serial dependence of stock returns. In this paper, we applied the popular tests of market efficiency which can test serial dependence of stock returns are functional, which is autocorrelation function (ACF) test.

The results of the test will be supplemented by the evidence from tests of predictability, anomaly, and volatility reported by the authors in Islam and Watanapalachaikul (2005), to draw a conclusion about EMH in the DSE.

Autocorrelation Function Test

The autocorrelation function (ACF) test is examined to identify the degree of autocorrelation in a time series. It measures the correlation between the current and lagged observations of the time series of stock returns, which is defined as:

$$p_k = \frac{\sum_{t=1}^{n-k} (R_t - \bar{R})(R_{t+k} - \bar{R})}{\sum_{t=1}^n (R_t - \bar{R})^2} \quad (10)$$

where k is the number of lags, and R_t represents the real rate of return calculated as:

$$R_t = \ln\left(\frac{I_t}{I_{t-1}}\right) \times 100 = \alpha + u. \quad (11)$$

Two important elements for estimating of autocorrelation are the standard error test and the Box Pierce Q (BPQ) test. The standard error test measures the autocorrelation coefficient for individual lags and identifies the significant one, while the Box Pierce Q test, measures the significant autocorrelation coefficients at the group level. The standard error σ_k is defined as:

$$\sqrt{\frac{1 + 2 \sum_{t=1}^{k-1} \theta_t^2}{N}} \quad (12)$$

Where N is the total number of observations and θ_k is the autocorrelation at lag (k).

Box Pierce Q is identified as:

$$N(N+2) \sum_{t=1}^k \frac{R_t^2}{N-t}. \quad (13)$$

We use daily index of the market return to calculate ACF. Table 2 shows the autocorrelation from the year 1998-2012 and periodical correlation from the year 1998 to 2009 as well 1998 to 2003 and 2005 to 2009 period of the stock market return (DSE) in the ACF test as follows

Table 1: Autocorrelation of the DSE returns 1998-2012.

<i>Year</i>	<i>Autocorrelation</i>
1998—2012	0.0267
1998-2005	-0.0140
2005-2012	0.0682
1998	0.1035
1999	0.1079
2000	0.0860
2001	-0.0247
2002	0.1586
2003	-0.0308
2005	0.1138
2006	0.1721
2008	0.0709
2009	0.0596
2010	0.1124
2011	0.0774

2012	0.1292
N=2680	
K=1	

Correlogram:

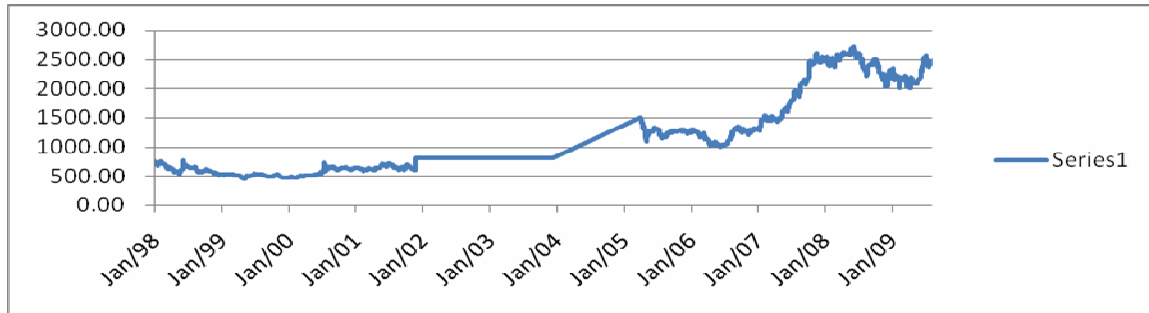


Fig 1: Correlogram of the autocorrelation function on stock returns, 1998-2012.

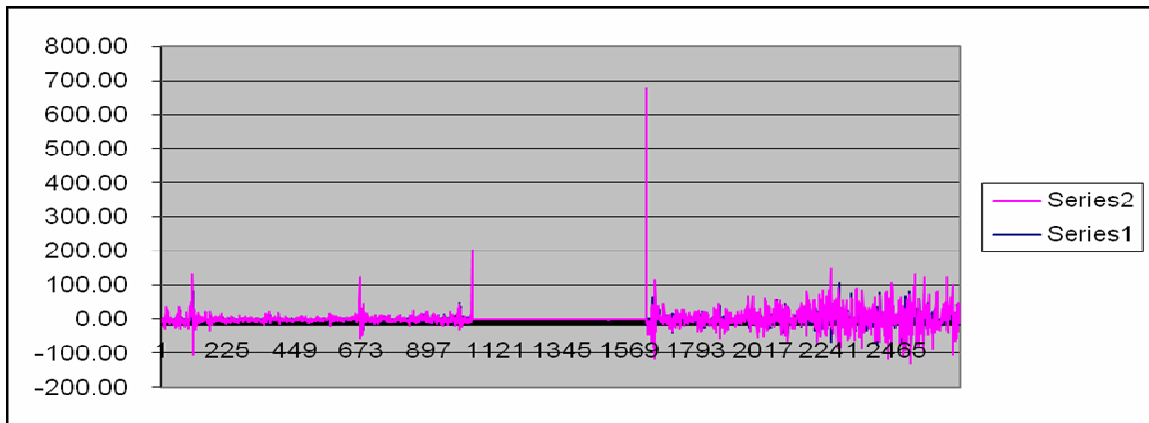


Fig 2: Correlogram of the partial autocorrelation function on stock returns, 1998-2012

Table 2: Autocorrelation of the DSE returns and FDI inflows 1998-2012.

Year	Market efficiency/ correlation	FDI Inflows (equity) million USD	Correlation
1998	0.103471307	349	0.082205
1999	0.107913375	396	
2000	0.085954865	153	
2001	-0.024732265	372	
2002	0.158624207	230	
2003	-0.030775655	164	
2005	0.113801197	361	
2006	0.172141519	447	
2007	-0.014095738	403	
2008	0.070893028	809.25	

2009	0.059635738	131.65
2010	0.11248733	658.54
2011	0.07741209	120.75
2012	0.12928413	214.01

According to the results, we found that in our observed period from 1998 to 2012 in DSE weak form of efficiency doesn't exist. There are movements of autocorrelation at various lags that hover around positive numbers. This explains the non-stationary time series. The results exhibit a small level of positive autocorrelation of the periodic returns on the DSE during 1998-2012. The ACF tests of yearly return are similar in that both tests produce a positive and negative autocorrelation. So, Autocorrelation test rejected of both hypotheses that is DSE doesn't follow random walk model and it doesn't hold any weak form of efficiency. So, anyone can make abnormal profit using the past information, basically that is not the characteristics of weak form of efficient markets that follow a random walk model.

The test results of autocorrelation of the DSE returns and FDI inflows from 1998 to 2012 shows that there is a positive correlation between the market returns and the FDI inflows in equity and the correlation is 0.0822.

To see if ACF is significant, the study period from 1998-2012, correlation of the market return is .0267, which is a positive figure and Therefore, we can reject the hypothesis (H 1), But the results accepted (H2) as of positive correlation found between the market returns and FDI inflows in equity that is 0.0822 for the period of 1998 to 2012.

CONCLUSION

The theoretical and pragmatic studies of the efficient market hypothesis have made an important contribution to the understanding of the stock market and FDI inflows of a country, although the present state of understanding of the issue, especially in the emerging financial markets, is far from being decisive. The results of the present study show that there is a positive autocorrelation on stock market returns in DSE during the period of 1998-2012 that is 0.0267 and significant positive correlation between the market returns and the FDI inflows in equity that is 0.0822 for the period of 1998 to 2012. The result from the autocorrelation test rejects the (H1) but accepts the (H2). From this we may conclude that these emerging stock markets are not weak form efficient but level of efficiency has strong contribution to the country's FDI inflows as of gradually the level of market efficiency increasing as well market size and dept.

The inefficiency of Dhaka stock exchange (DSE) follows from the violation of the necessary conditions for an efficient market with a developed financial system and also implies financial and institutional imperfections. This leads to the conclusion that Bangladesh financial policies and regulations such as those concerning liberalization, deregulation and insincerity of Securities and Exchange Commission (SEC) have generated a perceived inconsistency, and a tendency to produce instability. The implication is that the benefits of a well-functioning stock market are not being realized in the economy. Indeed, the weak-form inefficiency of the stock market demonstrated in this study is most likely caused by a

combination of the lack of its development and the implication of policy choices and the proper functioning watchdog. It is necessary to gain more insights into the operation and characteristics of the stock market in Bangladesh (DSE) of its efficiency and the valuation processes to make an informed assessment of the empirical characteristics of the Bangladesh financial market.

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