International Journal of Business and Management Sciences **E ISSN**: 2708 – 4337 **P ISSN:** 2708 – 4329
Available online at http://www.ijbms.org
International Journal of Business and Management Sciences
Volume 04 (03), 2023
Received, 01 Septmeber, 2023, Revised 11 September, 2023,
Accepted, 15 September, 2023, Online First, 18, September, 2023.

CAN STOCK MARKET MISPRICING OR THE PRESENCE OF STOCK PRICE BUBBLE BE ANTICIPATED USING FUNDAMENTAL ANALYSIS? AN EVIDENCE FROM DEVELOPING ECONOMIES

[1]Shumaila Bibi, [2] Imran Riaz Malik,

Keywords:
ARDL, Stock market mispricing, Fundamental Analysis, Dividend, Earnings, Stock prices, EPS, DPS, MPS, Developing Countries

ABSTRACT

The scarcity of resources is not a new phenomenon and financial resources are further inadequate. Regardless of this fact stock market mispricing and bubbles are a continuing phenomenon. These have far-reaching consequences which penetrate deep and wide in the market causing loss of wealth to the investors. It has been surfaced that even efficiently working stock exchanges have went through this tragic event of bubble burst. Estimation of stock price returns to test the presence of abnormal hike is the crucial need of time. The correction of the mispricing of stocks cost a lot of money, from investors pocket and sometime result in public lending and government bailout. A sample of countries with the history of stock market mispricing, including Pakistan, China, India, Bangladesh, Turkey, Malaysia, Thailand, and Qatar, were selected for the analysis. Stock market data set from 1980 to 2020 was collected for this purpose. It has been observed that the stock price is comprised of two factors the rational (fundamental) and irrational factors. This study has used the ARDL approach to test the impact of fundamental factors on price. Nevertheless its effect on prices has been demonstrated to be inferior as compared to irrational factors such as herding behavior and noise trader effect. However, it is implied that fundamental analysis is eminent in the course of stock price estimation. The results of this study aims to aid the portfolio managers for better investment alternatives selection.

INTRODUCTION

Capital market efficiency can be linked to the assumptions of perfect competition in share markets involving a large number of products, free entry, and free exit, a large number of players such that the action of any particular player does not affect significantly the activities of others, transaction costs are minimal or non-existent and that market players act in

[1] *Phd Scholar,Iqra University/ Lecturer International Islamic University Islamabad. Shumaila.bibi@iiu.edu.pk (Corresponding Author)*
[2] *Associate Professor, Capital University of Science & Technology. imran.riaz@cust.edu.pk*

rationality (Asekome & Agbonkhese, 2015). Having said that divergent from the theoretical definition of rational investors, market players are driven by their rapaciousness and greed. The never-ending love for wealth and its maximization is termed as greed. If we talk about investment and risk-taking beyond a certain point the investors are driven somewhat by their greed. This renowned idea is known as Minsky's hypothesis (Minsky, 1992) that says that greed and fear are intermittent and these are present in financial markets year long.

Generally speaking, investments increase the value of savings by capital appreciation. It serves two purposes: supplying capital to the firms i.e., fuel for the economy, and providing returns to investors. Stock markets around the world grab most of the investments for instance as IMF Statistics states that New York Stock Exchange (NYSE) alone holds USD 30.4 trillion with average daily trading above USD 170 billion. Pakistan is a developing country where GDP is USD 236.478 billion, the stock market holds USD 54 billion.

According to the Efficient Market Hypothesis (EMH), the adjustment of prices in response to new information should be quick and accurate as stated in, The New Palgrave Dictionary of Economics (2018). Every so often bubbles are caused by the misinterpretation of the fundamentals, or the investors do not act as rational in accordance to the efficient market hypothesis as discussed by Teeter et al. (2017). The Dot Com bubble of the late 90s is an accurate example of fundamental misinterpretation (Kumar & Rajesh, 2015). The burst of this bubble caused a 77 percent decrease in the index value and the NASDAQ touched its lowest value of approximately 1100 on October 4, 2002. The crash October 29, 1929 (The economic times, 2017), caused a 14 billion dollar loss on that day and is refereed as black Tuesday in history (NYSE Euronext, Timeline,2008), the value of the stock market before the crash was not achieved until 1954 (Salsman & Richard , 2004). Another black day for investors is referred to as Black Monday (Bates & David 1991) (Seyhun & Nejat 1990), on the closing of October 19, 1987, a twenty-two percent decrease was seen in the value of the Dow Jones Industrial Average as stated in the presidential report prepared by Brady and Nicholas (1988). Black Monday is seen as one of the biggest examples of feedback trading (Black and Fischer 1988) as it was caused majorly by noise traders (Malliaris et al. 1992) and stock markets recovered soon.

The announcement of earning via the annual report or the interim earnings announcement is considered as a positive signal by the investors. A positive correlation among the equity prices and the earning per share is found by Muhammad (2011). Research studies conducted by Bens et al. (2003) and Balanet al. (2017) found that the EPS has a statistically significant

relationship with the market price of share. An analysis conducted by Lama (2016) surfaced that the MPS has a positive and significant relationship with the size of the company, return on assets, DPS and earning per share of the company.

There are many studies in support of dividend policy such as Ramadan (2013) found that prices of shares are significantly impacted by the dividends by studying Jordanian firms, similar results are reported by Okafor, et al. (2011) and Hussainey et al. (2011) by analyzing the Nigerian market and UK market respectively. A strong positive relation between the dividend payout and the earnings of the firm was reported by Murekefu and Ouma (2013) by analyzing the securities listed on Nairobi Securities Exchange over a period of 8 years.

As previously indicated that the fundamental factors such as earnings and dividends do cause the change in security prices or MPS but when there is a surge in prices of stock market securities that fundamentals are unable to explain it is usually followed by massive selling, dragging prices drastically down. Shleifer and Vishny (1997) presented a behavioral finance model and it denotes that prices in the stock market are not a true representative of the discounted future cash flows and hence the stock market is not always efficient. According to this model, the noise traders are driven by their erroneous belief about the coming returns of the risky securities but they usually react to noisy information which is not linked to the cash flows or returns.

The common element in all the asset bubbles is that the increase in prices of assets and the rate of growth cannot be explained by the fundamentals of the market. As the standard valuation model says that price of an asset is equal to the discounted value of the future stream of dividends that the holder of the asset expects to receive. It is also assumed that prices and dividends are cointegrated (Campbell and Shiller, 1988). The volatility of stock prices is very high as compared to the volatility of the dividends implied in reference to the efficient market model, discussed in the empirical research by Shiller (1981) and West (1988).

So, we can derive the obvious conclusion from this, that as a result of stock price bubbles investors lose their wealth/investment, and the biggest dilemma is that many people involved in transactions cant differentiate either this price hike is due to fundaments or a result of a stock price bubble inflation. So, there is a dire need to study and analyze that whether the fundamental factors can be used to anticipate the formation of a bubble or not.

This study is conducted by taking some major queries in consideration (explained further). First of all the question arises that does Dividend and Earnings have a major impact on the

price change of any stock. Subsequently is Auto regressive Distributive Lag (ARDL) able to forecast the major mispricing in the stock market? Information inefficiency in the stock market leads to opacity and delayed information incorporation paving way for exploitation by noise traders who are trading against the fundamentals.

LITERATURE REVIEW

Theoretical Review

The development of the economy as a complex system is manifested in its structural changes, covering the real and financial sectors. The stock market occupies a special place in the financial sector in terms of its scale and consequences of functional disruptions (Kaustia and Knüpfer, 2012).

The problem of cyclical fluctuations in the economy was studied by Gelderen, Gelfand, Wolff, Je-vons, Marx, Keynes, Clark, Kuznets, Kondratyev, Samuelson, Schumpeter, and others. Experts have not come to a consensus about the causes of crises. Most economists have traditionally believed that ups and downs economies are entirely determined by such factors as the availability of natural resources, capital, labor, the value of labor productivity, and the rate of technological progress (Aharoni, Grundy and Zeng, 2013). The financial sector was excluded from consideration because, according to classical economic theory, money in the economy is neutral, money transactions only serve as a form of expression of real laws, but do not affect them. In our opinion, existing theories underestimate the role of securities markets in cyclical fluctuations of the economy (Ajmi et al., 2014).

In many countries, the stock exchange has become extremely important in the process of capital accumulation. Due to the issue of shares of companies quoted on stock exchanges, at the beginning of the 19th century about one-fifth of investments in Europe were financed (Crick and Crick, 2020).

Most recent views suggested that bubbles arise when the price of an asset significantly surpasses its fundamental value and for an adequately long period (Sorescue et al., 2018). As Scherbina (2013) states that many professional investors first find and then invest in undervalued securities. On the other hand, short-sellers, who search the market for overvalued assets for short selling, are regularly mutilated by the state and popular newspapers, not surprisingly by overpriced companies.

Any information that is relevant and has an impact on the price trends of the future and the development of the market have an impact on the stock market as markets are sensitive to this news. It is important to know that both microeconomic and macroeconomic factors are

playing their relevant role in the determination of price (Sirucek and Martin 2013b). When the market is under the clouds of either sell mania or buy mania investors happily take part in it actively taking the relevant position as the rise of the stock market bubble takes place and hence the volatility of the stock market is raised. Those stock markets which become volatile are like a time bomb having atomic bomb-like characteristics as they are threats to the greater side to the whole economy. The inflation of a bubble is usually termed as the overheated activity and is followed by a burst that rapidly sinks as explained by Sirucek and Martin (2013a).

The Great depression has changed the investment behavior of the investors who have experienced it, fact identified by Malmendier and Nagel (2010) in their study, moreover, it was also identified that the risk appetite of these investors differ from those who have not experienced this as the former has become more risk-averse. Other researchers such as Vising-Jorgensen (2003) and Choi et al. (2009) also confirmed in their studies that experience with return specifically loss memories do impact the future decision to take the risk. The term snake bite is coined by Thaler and Johnson (1990) while associating the painful loss/crash memories with the desire to take risks in forthcoming periods.

Through the literature review, the evolutionary behavior of stock market bubbles has the typical characteristics of complexity, such as long memory, positive feedback, and fluctuation accumulation. When the growth or decay of stock prices (stock indexes) caused by a positive feedback mechanism is not sustainable, the external disturbances will trigger the system's inherent instability and cause a phase change or a self-correction of the market. The resulting market's self-correction often manifests itself as the bursting of the bubble or the crash.

Theoretically, it is believed that the prices of stocks reflect all the available information. Behavioral finance theory is a bit different as it believes that investors' cognition impacts the market movements. Following sections are providing a brief overview of some of the theories relevant to this study.

Certainly, one of the first intellectual efforts to understand the rhythms of market economies was known as the "sunspot theory." William Stanley Jevons, while analyzing the eleven-year cycle of sunspot activity, which was identified by astronomers of that era, as it was influenced the earth's climate, which affected crops, causing economies to expand and contract. Jarvis, (2011)

CAPM holds a central position in the field of finance, after his publication of CAPM derivation, finance became a scientific discipline. This theory proposes the model to predict

the risk and the associated relationship of risk and expected return as narrated by Fama & French (2004). Arbitrage pricing theory believes that if portfolios are static there is a linear relationship between risk and expected return, in the paucity of arbitrage. It is a one period model which works on the assumption that capital assets returns' stochastic properties are in accordance with the structure of factors, as reported by Huberman & Wang (2005).

Empirical Review

The measurement of stock bubbles remained a strong point of debate in past researches. Different scholars have used different models to find the existence of bubbles. One of the first approaches to bubble analysis and detection is the Test of Variance Bands created by Shiller (1981) and LeRoy & Porter (1981).

McQueen and Thorley (1994) used duration dependence test on the data set from the year 1927 to the year 1991of the New York Stock Exchange (NYSE) to demonstrate the presence of the speculative bubble they tested value-weighted and equally weighted portfolios of securities traded on New York stock exchange and found negative duration dependence for positive abnormal return. By using monthly abnormal return, speculative bubbles existence was found in S& P 500 index and Asian stock market. Returns, they didn't find any change in duration dependence. Chan et al. (1998) by using yearly data from 1910-1995 also used the duration dependence test to examine the agricultural land markets value. The results show that a rational bubble does not exist. Lavin and Zorn (2001).

Zhang (2008) applied the duration dependence test for the Istanbul stock exchange to explore the existence of speculative bubble for the time duration 1987 to 2008 by taking nominal returns. And found that there is no existence of a speculative bubble in ISE. Tasci and Okuyan (2009) examined the Middle Eastern and North African market mostly referred to as MENA for testing the speculative bubble existence. The presence of rational speculative bubbles was tested by using US dollar-denominated and local denominated investments for different markets Egypt, Bahrain, Morocco, Jordan, Saudi Arabia, Oman, Turkey, and Israel. But were unable to find the existence of bubbles for all eight MENA stock exchanges. Allen, Morris, and Postlewaite (1993) say that the asset price bubble is the mispricing of the asset. Allen and Gorton (1993) say that fund managers exploit the bubbles at the cost of the less informed investor or the investor that is not frequently connected with the market.

In the history of Bangladesh, they have faced several financial crises that started in 1996, then in 1999, and 2010. According to Taleb (2007), stock market crises are black swans these are the event that changes reality fundamentally and are unavoidable. The Dhaka stock

exchange has faced tremendous growth from 2004 and reached extremely high till 5th December 2010 and then collapsed down and keep on dropping for several months after the crash and on the last day of February 2011 the index was in an extremely low state with a 42 percent decline in the DGEN, 85 percent decline in turnover value, and around 35 percent decline in market capitalization compared to the pick point of 5th December 2010. Barua, Arefin, and Rahman (2014) conducted a micro-level study with two major objectives: a) Investigation of the impact of the recent stock market crisis of 2010-11 on the "Quality of Life" - the combination of Economic, Psychological, and Physiological health of the individual investors. b) Assessment of the loss of confidence in the future of Bangladesh's stock market performance.

Many researchers have concluded the obvious that if the economy's growth rate is higher than the required rate of return, there is the existence of an asset price bubble. If the growth rate of the economy is less than the required rate, there is no existence of an asset price bubble.

Forecasting and Cointegration

The Integration and Cointegration Test proposed an approach different from the bubble theme compared to West. The concept of this test is to understand the bubble as a component of residual versus fundamental. So a test is carried out where the series of prices and dividends are discussed and then performing a Cointegration test showing a relationship between the series of prices and dividends. Although the test results seemed interesting, Evans (1991) discovered that the test does not work well with bubbles that periodically collapse, therefore their validity is questioned.

In order to summarize the literature on the above methodology, it was proved in various studies that cointegration failed to prove the existence of a bubble in the market, also it cannot be applied for data analysis of the current study because of the non-stationary time series. So to check the long-term relation between stock price and the fundamental factors this study will be using the auto regressive distributed lag.

Long term relationship of Price, Dividends, & Earnings and ARDL

Corporate stocks retention is a famous investment activity in financial markets (Gitman, 2006). Every investor has an eye on stock prices movement irrespective of individual or large institutional investor. They can access every media and information available in the market. The major indicator for the decision of investment is being used by a majority of investors to invest in a specific stock. Investors put their money in a particular share with the motive to

earn a maximum return at lower risk levels. There are multiple factors that contribute to price changes, for example, psychological factors play an important role in changes over prices and volatility. Shiller, 1987 reported that these factors include dividends, social optimism and pessimism waves, investors' overreactions to earnings, fashion, and fads. The efficient market hypothesis states that a company's stock prices have an impact on every new information, good or bad, negative or positive. Thaler, 1987 articulated that, stock return patterns are tough to be used over holidays, weekends, and other calendar events because the news about it is fundamental value does not remain systematic during these timelines. The prediction of individual stock return variation is difficult to have relied only on systematic economic impact because many other factors may cause the stock price movements (Cutler et al., 1989).

Payment of a reasonable dividend is the key component of stock return for the shareholders. The payment of dividends creates a mindset for the investors that the company is following good practices of corporate governance (Jo & Pan, 2009). Black (1976) reported that companies who pay no dividend will attract more investors than the companies paying dividends. Linter's model was presented in 1956 on the basis of the stylized yield of the specific 'sticky dividend' characteristics (Linter, 1956). It was elucidated that, firms are not willing to pay dividends as it could create a poor performance perception in the minds of investors. Bhattacharya, (1979) and Miller and Rock, (1985) supported the findings of Linter's Model 1956 suggesting that announcing dividends conveys information about a firm's future projections. Because of the content used in dividend information, the announcement of dividends works as a signal that the firm is performing good that will create a positive image of the firm leading to the price rise in stocks and vice versa. Investors having deficit information about the firm's condition or profitability, would take dividends as a signal to the projection of the company. Based on a survey performed at S&P 500, it was found that 87 percent of companies who pay dividends believe that dividends are helpful to be used as a clue of a company's future earnings (Lazo, 1999).

Malakar and Gupta (2002) did a study by using the data of eight major companies of the cement industry in India for the period 1968 to 1988 and discovered that earning per share has a significant impact on the market price of the share (MPS). Bhatt and Sumangala (2012) studied the impact of earning per share on the market value of an equity share of 50 most valuable companies as per the ranking of Business today survey of 2010 and found that EPS impact significantly and explains on an average about 45 percent variation in the market

value of an equity share. On the other side, Basu (1977) found that returns on portfolios of low price-earnings ratio stocks are higher on average than returns on higher price-earnings ratio stocks, even after adjusting for risk. Fisher and Statman (2000) investigated the relation between price-earnings ratio and future returns in the stock market and found that P/E ratios are not good indicators of future stock returns over a short period (one to two years), but the P/E ratio has better forecasting power when used to estimate stock returns over the longer period of time, while more extensively Rapach and Wohar (2005) by using a data sample from 1872 to 1997, reported the presence of little evidence of the correlation between P/E ratio and future stock price changes in the short term, but the high correlation has found over longer time perspective. The results of the study conclude that earning per share has found to be a very strong forecaster of the market price of the shares of select companies, importantly this outcome is similar to the findings of (Al-Omar and AlMutairi, 2008; Uddin, 2009), and price-earnings ratio impact significantly on the prediction of the market price of a share and this result is verified with the findings of (Mehta and Turan 2005). So overall, earning per share is the main leading reflector in the performance of the market price of the share. Based on changes and directions given by earning per share and a price-earnings ratio, the implications may help the existing and potential investors to decide about the investigation of share price and investment potential towards the auto sector.

While defining the stock market Chakraborti et al (2018) termed it as a complex system which is fascinating as well, where the intelligible and interdependent behavior of stock market agents usually leads to the correlation in time series analysis. The stock prices changes are often caused by the signals either positive or negative in the market regarding company fundaments or outer shocks, this may result in unpredicted and a swift decrease in share prices of a majority component of the capital market, which is often termed as a market crash.

Present value theory in literature views dividends as the predictors of stock prices (Cochrane, (2001; 2005); Shiller, (2015)). The stock prices show a non-stationery behavior and the Augmented Dickey-Fuller (ADF) test is used as the standard testing procedure for this non-stationarity. Arshanapalli et al., (2019) used an econometric technique for determining the existence of stock price bubbles in different stock markets like the USA, Germany, UK, France, and Japan. According to this, if there is no bubble component, then the series will be considered to be either stationary or contain a unit root. Different scholars like, Cochrane (1992); Ang and Bekaert (2007) presented, tests for a unit root do not eradicate the possibility

of a non-stationary discount factor that influences the ratio. Further, these tests are considered unduly conservative by Philips et al., (2015).

At the same time, a unified criterion for distinguishing between the financial and real sectors has not been developed. Their interaction at the micro and macro levels has not been sufficiently studied. The place and role of the stock market in the system of the financial sector have also not been the subject of special research. The issues of the different nature of the interaction of the two sectors lacks plentiful exploration, including the complementarity, substitutability, and contradiction (Lusardi, 2015).

It has been reported by De Villiers, Apopo, & Phiri, (2020) that investment decisions have direct relationship with company performance and profits and hence impact the share price. However the study conducted by Alajekwu & Ezeabasili (2020) concluded that if the firm's investment decision is constant, dividend becomes irrelevant. Anachedo et al. (2021) emphasized in their research that the reported earnings of firm do impact the stock prices.

METHODOLOGY

The data for this study is collected from developing countries. More specifically the data of developing countries are taken from Pakistan, China, India, Bangladesh, Turkey, Malaysia, Thailand, & Qatar. The sample is chosen from IMF WEO list of developing countries and where Stock Exchanges witnessed the formation of bubble.

The classic technique of forecasting used in this study (Autoregressive Distributed Lag) uses firm level variables. Those sectors that witnessed the appearance of bubble were selected for analysis purpose.

The Data used for applying the technique of ARDL is Dividend, Earnings, and Stock prices. The values of dividend and earnings are obtained from the firms. The values of relevant stock prices are obtained from the stock index. The frequency of data was yearly.

In order to operationalize the values of dividend were used as the log values of dividend per share, for earnings the log values of earning per share were used. The stock prices taken from stock exchange were used as the average log values. Operational definitions and equations are as follows;

Dividend per share is the proportion of earnings that is not retained by the company and is rather distributed among the owners of the company, calculated on per share basis.

Dividend per share=Total Dividend / No. of outstanding shares

Earnings per share is the total net profit of the company after deducting for the interests and taxes, calculated on per share basis.

Earnings per share= Earning after interest and tax/ No. of outstanding shares

The time frame for the data collection of this study was from 1990 to 2020. By using Johansen–Juselius multivariate cointegration vector auto-regression approach to examine the relationship of stock prices with the fundamental variables as used by Jirasakuldech, Emekter, and Rao (2007) and many others. The model that will be used in this study can be summed up as

$$\Delta LNSP_t = \alpha + C_1 \Delta LNEAR_{t-1} + C_2 \Delta LNDIV_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where LNSP represents the stock prices, LNEAR represents the earnings and LNDIV represents the dividends. The data of earnings and dividends is taken from the sample firms. The sectors with bubble is chosen as the sample for ARDL analysis of this study from developing countries. It has been observed during analysis and data collection of this study that the property or real estate sector is the victim of most of the historic bubbles.

Cointegration is well known for studying long-term relationships, since the time series data used for this study possessed Unit root and was not stationary, having different levels of integration for different variables, so the autoregressive distributed lag was applied to the data. To apply the ARDL model the data of corporate earnings and dividends are taken from firms (using the companies' published sources and annual reports) and the data of stock prices of these companies' shares were obtained from the relevant stock market. The software used for the application of this econometric technique is STATA MP 14.

ANALYSIS

Cointegration, Auto Regressive Distributive Lag and the Stock Price Forecasting

This study aimed at analyzing the contribution of the fundamental factors in determining the prices to achieve the objective that either the fundamental factors can predict the occurrence of a bubble or not. Since the variable selected for this study have a unit root tested by the famous augmented Dickey Fuller test and also some variables were non-stationary at the level at others at first or second lag so cointegration test was not applied. The results of this section are derived from the autoregressive distributive lag. While analyzing the data for this study averaged annual values were used as it has been proved by Hakkio and Rush (1991) that the frequency of data has minimal to no effect on the results of cointegration analysis.

The overall results of this section are consistent with the study of Khan (2009) that observed a strong relationship of prices & dividends and with the studies of Miller and Rock (1985) and Bhattacharya (1979) who claimed that the dividend policies of the firms are attached with the future cash flows and the earnings of the firms by the participants of the stock markets. It

is also evident from the past researches that the dividends are used by the companies to signal the market and investors about the future prospects of the companies and hence positions are taken on the stocks of these firms causing changes in the prices of the stocks (Lazo, 1999). Brickley (1983) has studied that the managers use dividend policy in the tines of distress to keep up with the stock prices in the stock market as stock prices are linked with the dividends.

RESULTS AND DISCUSSION

Pakistan Stock Exchange and Bombay Stock Exchange

The findings for Pakistan reflect that dividends have a significant and direct impact on firms' stock price (0.723 at 5%) in long run. Moreover, the earnings have also a significant and direct association with the stock price (0.640 at 10%). However, in the short run, these relationships do not seem to be working. These results confirm the presence of established relationships among the estimated variables in long run. This validates that the better the dividends payouts and earnings of the firms, the better would be their stock prices. It can also be inferred that investors of this region prefer dividend-paying stocks.

In the analysis of Indian sample firms, it has been observed that earnings play a vital role in defining the stock price (0.0366 at 5%) in long run as well as in the short run. Dividends in this sample proved to be a non-significant variable for the stock price, as investors are more inclined towards the growth securities.

Table 1 ARDL Results for Pakistan and India

Cointegrating from Variable	Coefficient	Standard Error	P. value
Panel A: Pakistan			
Long Run Result			
$LNDIV_{t-1}$	.7232	.8325	.051**
$LNERN_{t-1}$	1.6401	.9821	.097***
Short Run Result			
$LNDIV_{t-1}$	.1109	.1655	.504
$LNERN_{t-1}$	-.0906	.1029	.380
ECM	-.0076	.0070	.282
Panel B: India			
Long Run Result			
$LNDIV_{t-1}$	.6429	.5590	.251
LNERN	.0366	.0177	.043**
Short Run Result			
$LNDIV_{t-1}$	.0269	.0283	.344
LNERN	.6387	.3041	.037**
ECM	.0024	.0031	.442

Note: *, **, *** represent significance level at 1%, 5% and 10% levels, respectively.

Kuala Lumpur Stock Exchange and Stock Exchange of Thailand

The results of Malaysian firms shows that the stock prices are highly dependent upon the earnings of the firms as they can be seen showing a change of 5 percent per unit of the stock

price in the long run at a 5% significance level, same kind of results can be seen in the short run as well regarding earnings as earnings are causing 2.03 units change in the stock prices of Malaysian sample firms. Dividends, on the other hand, can be observed having a strong impact (2.33 at 5%) on the prices in long run, however, this impact can be seen decreasing in the short run as the effect decrease to 1.11 percent at 10% significance level. The investors who prefer dividend-paying stocks can be witnessed buying these stocks in their long-run investment decisions. Earnings of the firms, on the other hand, do have an impact on the prices of the Malaysian firms and this decision can be seen almost constant over the short and long run.

The firms listed on the stock exchange of Thailand are exhibiting a positive and strong relationship with the earnings (6.035 at 5%) as well as the dividends (2.048 at 5%) in the long run. This study has witnessed a very resilient long-run impact of earnings on the prices of the stocks of the firms. On the other hand, the relationship of dividends can be seen having relatively less impact on the pries of the stocks but the impact of earnings (2.122 at 10%) is still eloquent. The Thailand firm's stock prices are more linked with the earnings of the relevant firms as compared to the dividends.

Table 2 ARDL Results for Malaysia and Thailand

Cointegrating from Variable	Coefficient	Standard Error	P. value
Panel A: Malaysia			
Long Run Result			
LNDIV	2.3306	1.1770	.049671**
LNERN	5.2108	2.1711	.017946**
Short Run Result			
LNDIV	1.1185	.61456	.0712***
LNERN	2.03225	1.0212	.04888**
ECM	0.03221	0.0292	.27355
Panel B: Thailand			
Long Run Result			
LNDIV	2.04815	1.0189	.04669**
LNERN	6.03571	2.41428	.0137**
Short Run Result			
LNDIV	1.3991	.6992	.04766**
LNERN	2.1221	1.0783	.05139***
ECM	.621	.62727	.3241

Note: *, **, *** represent significance level at 1%, 5% and 10% levels, respectively.

Shanghai Stock Exchange and Qatar Stock Exchange

The stock prices of firms listed on the Shanghai stock exchange show a positive and significant impact on the independent variables of the study. The dividend payout of the firms can cause a two percent change in the stock prices as a response to a one percent change in the dividends in long run, the short-run results of the dividends can also (1.11 at 5%) be seen having a substantial effect on the relevant stock prices. The impact of earnings

on the stock prices is no different from that of the other variable as earnings impact the stock prices in the long run as well as short run. The earnings of the selected Chinese firms are causing a 5% change in the stock price with every 1% change in the long run, the results of the short-run are exhibiting somewhat similar behavior by causing a 3% change in the prices of the stocks.

The dividends (first lag) of Qatar firms have a positive relationship with the stock prices of the firms in long run but these results can be inferred as somewhat trivial results or the impact of dividends on the dependent variable can be termed as less decisive. On the other hand earnings of these firms can be seen to impact the prices positively and importantly in short term as well as the long term. The results of short term (1.011 at 5%) are more impactful as compared to the results of long term, as it can be seen causing an equal change in prices concerning the earnings of the firms. For the firms of the Qatar stock exchange, it can be summarized that the earnings have a more powerful impact on the prices of the stock as compared to the dividends and the signals of earnings are more dominant in the stock market.

Table 3 ARDL Results for China and Qatar

Cointegrating from Variable	Coefficient	Standard Error	P. value
Panel A: China			
Long Run Result			
LNDIV	2.0448	.9955	.042**
LNERN	5.5315	2.4804	.028**
Short Run Result			
LNDIV	1.1149	.5639	.050**
LNERN	3.0604	1.5075	.041**
ECM	-.9074	.9452	.337
Panel B: Qatar			
Long Run Result			
$LNDIV_{t-1}$	.6567	.3956	.098***
LNERN	.0880	.0425	.037**
Short Run Result			
$LNDIV_{t-1}$	-.0610	.0414	.114
LNERN	1.0117	.4959	.043**
ECM	-1.4421	1.7167	.400

Note: *, **, *** represent significance level at 1%, 5% and 10% levels, respectively.

Borsa Istanbul Stock Exchange and Dhaka Stock Exchange

In the case of Turkey, it can be observed that dividends (first lag) are causing a 3 percent change in the dependent variable in the long run. The earnings on the other hand can be presented as a significant (5.3859 at 5%) independent variable for the stock prices in the long run. In the short run, the dividends are causing approximately a 2% change in the prices of the stocks (at a 10% level). Earnings of the firms can (2.128 at 10%) be termed as a strong determiner of the prices in the short run as well. It is evident from the results of Turkish firms that earnings do play a vital role in determining the prices on successive days.

In panel B, the results of the firms listed on the Dhaka stock exchange are presented It is evident from the results that the optimal lag for dividends is 1, and earnings are used at the level. In the long run results, it is evident that 1.8 units increase in dividends will cause a 1 unit increase in the stock price at 10% and the earnings seem to have a stronger relation (5.2 at 5%) with the prices of stocks in the long run. Earnings of the firms do impact the prices of the stocks in the short-run as well while dividends can be seen having no impact on the short-term pricing of stocks for Bangladeshi firms.

Table 4 ARDL Results for Turkey and Bangladesh

Cointegrating from Variable	Coefficient	Standard Error	P. value
Panel A: Turkey			
Long Run Result			
$LNDIV_{t-1}$	3.09080	1.50038	.0415**
LNERN	5.3859	2.5647	.0378**
Short Run Result			
$LNDIV_{t-1}$	1.9388	1.03679	.0639***
LNERN	2.1279	1.1025	.0559***
ECM	0.07805	0.0650	.2325
Panel B : Bangladesh			
Long Run Result			
$LNDIV_{t-1}$	1.8917	1.1127	.091***
LNERN	5.2005	2.6133	.048**
Short Run Result			
$LNDIV_{t-1}$	.5848	.3872	.133
LNERN	1.2699	.6446	.051**
ECM	.0043	.0041	.296

Note: *, **, *** represent significance level at 1%, 5% and 10% levels, respectively.

DISCUSSION

Classic techniques of forecasting such as cointegration and Auto Regressive Distributive Lag were used for a long time to forecast the long-term relationship of variables. These techniques display weaker predictive capacity as compared to modern-day techniques. However, as the impact of selected fundamentals on the stock prices has been studied in this sample and it can be claimed that fundamentals do have a strong impact on the movements of prices but the abnormal returns cannot be explained with the help of fundamentals.

It has been found that earnings and dividends play a vital role in determining the market price of a stock as investors put huge weight on these two variables while making the buy or sell decision. Earning of the firm play a huge role in signaling the market regarding the future prospects of the firm and the efficiency of management regarding resource allocation and profit generation. As the study conducted by Copeland and Weston (2005) concluded that managers are thought to have more and superior knowledge about firm as compared to the investors so the earnings announcement have a huge impact on the market prices of shares. The research analysis of Joy et al., (1977) also supported that earnings have highly favorable

impact on the prices of the stocks and also that these adjustments are gradual and slow in contrast to efficient market hypothesis' quick adjustment. Bamber and Cheon, (1995) claimed that earning per share is a very resilient predictor of the market price per share as it has been observed during his study that the news of earning announcement boost the trading volume of the stock market. The impact of the profit or earning of the company is very old phenomena and many researches such as (Adi et al., 2013) & Sulistyowati, (2011) & Dewi & Suaryana, (2013) proved this in their researches proved this relationship. Profits of the firms when announced in the form of annual reports or interim earnings announcements send a positive signal to the market so investors bid up the prices as a result of this good news as suggested by the signaling theory. This study has also proved that the signaling theory do work in market and derives the relationship of earnings and market prices of shares aligning it with the researches, conducted by (Cahyaningrum & Antikasari, 2017) & (Egam et al., 2017) and (Ariyani et al., 2018)

The empirical results of this study drawn by using the ARDL technique on the selected sample of developing countries illustrate that while earnings and dividend play a vital role in determining the market price of a stock, the magnitude or intensity of this relationship varies across developing countries. This was also surfaced while studying the Jordanian stock market by Al-Shawawreh (2014) that while there is an impact of dividend payout on the movements of stock prices but this effect is very weak. This also strengthens the objective of this study that fundamental do cause a change, in stock price but the impact is not very strong and they cannot predict all the change in the prices of said stock and hence these are unable to predict the bubbles and crashes.

The impact of earnings on stock prices is more in developing countries with Pakistan, India and, Qatar being the exception, where the impact on prices of earnings is less as compared to other countries. The impact of dividend on stock prices is very vital in all the countries but it has been observed that this impact on developed countries' stocks is greater as compared to the developing countries stocks. However the stocks of Indian firms and Qatari firms are seen having minimal impact of dividend on stock prices.

The results are in line with the results reported by Al-Malkawi (2007) which states that dividends send a signal to the market that firm is earning good profits as is suggested by the signaling theory. The research conducted by Ilaboya and Omoye (2012) were also able to identify that the fluctuation in stock price is somewhat driven by the dividend announcement of the company, similar results were posted by Jahfer and Mulafara (2016) who conducted

there research analysis on the stock market of Srilanka. These two do have impact on the market price and, do cause a change in it but these fundamental factors are unable to explain the abnormal returns.

CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

Conclusion

In the beginning it was hypothesized that traditional econometric techniques can be used to identify and forecast the mispricing or bubbles. According to the literature of finance the fundamental factors do have impact on the stock price. Numerous microeconomic and macroeconomic factors were identified to have an impact on stock prices this study emphasized on the effect of earnings and dividends on stock prices. These two factors proved to have an impact on stock prices in many economies in long run as well as in the short run. It is concluded that earnings of a corporation have a huge impact on the prices of their stocks in the market which is consistent with the inference by Mehta and Turan (2005), Al-Omar and AlMutairi, (2008) and, Uddin (2009).

The earnings of the firms of developing countries can be seen exhibiting a dominant relationship with the prices in long run, which strengthens the phenomena of misinformation spread in the stock market. This study conducted by Nishat and Irfan (2001) to investigate the impact of dividend yield on the movement of stock price of selected firms listed on Pakistan Stock Exchange found a positive relation between these two variables. This study's conclusion is in line with the studies conducted by Nazir et al. (2010) and Khan et al. (2011) which were able to find the significant relationship between the dividend payout of the firm and the market price of its share on the selected firms listed on Karachi Stock Exchange. This study also concludes that earning per share also have an impact on the prices of the stock which is line with the previous studies. Hartone (2004) reported that a significant and positive impact is observed on equity prices when the earning announcement is made by the firm. Similarly Dania, and Malhotra (2011) also found a positive impact of the firms increased profitability on the market price per share. Many researchers while studying the stock prices have analyzed that the price of stocks have two components i.e. the rational component and the irrational component. The effect of fundamentals is the part of rational component while the bubbles and mispricing is caused by the rise in irrational component of price.

It also opposes the EMH as the effect of earnings is not quickly adjusted in the prices. It was observed that the fundamental factors do affect the prices of stocks but they cannot fully describe the changes in stock prices and interestingly many bubbles initiate due to the

misinterpretation of the fundamentals. It was also witnessed that the bubbles or trends cannot be predicted using the fundamental analysis. So the classical techniques can be seen as unable in predicting these crashes.

As long as dividend and earning's impact on stock prices is concerned they do have effect but this is closely related to the fundamental portion of the price. This study concludes that the effect of fundamental factors on the stock prices cannot be overlooked. However it is implied that in case of bubbles and stock mispricing the effect of fundamentals proves to be insufficient as compared to non-fundamental factors. Consequently it is recommended that modern techniques should also be used in addition to the traditional forecasting techniques to estimate and forecast bubbles.

Limitations and Future Research Direction

Most studies are confined to developed countries, this study has tried to expand to developing countries but more and more emerging economies need to be included in the net, the limitation associated with developing countries is the availability of data but we need to solve this problem by some technique. It is suggested that this type of study should be replicated on vast sample of developed economies to check the effect of fundamental factors on stock prices. It is also proposed that more valuation techniques should be used to estimate the abnormal hike in stock prices.

REFERENCES

Adhikary, B. K. (2017). Factors influencing foreign direct investment in South Asian economies: A comparative analysis. *South Asian Journal of Business Studies*.

Aharoni, G., Grundy, B., & Zeng, Q. (2013). Stock returns and the Miller Modigliani valuation formula: Revisiting the Fama French analysis. *Journal of Financial Economics*, *110*(2), 347-357.

Ajmi, A. N., Hammoudeh, S., Nguyen, D. K., & Sarafrazi, S. (2014). How strong are the causal relationships between Islamic stock markets and conventional financial systems? Evidence from linear and nonlinear tests. *Journal of International Financial Markets, Institutions and Money*, *28*, 213-227.

An, L., Bian, J., Lou, D., & Shi, D. (2019). Wealth redistribution in bubbles and crashes. *Available at SSRN 3402254*.

An, L., Lou, D., & Shi, D. (2018). Wealth redistribution in bubbles and crashes. *PBCSF-NIFR Research Paper*.

Barua, S., Arefin, S., & Rahman, M. R. (2014). The Bangladesh Stock Market Crisis of 2010-11: An Economic and Socio-Behavioral Impact Assessment. *Bangladesh Journal of MIS*, *6*(2), 75-88.

Chakraborti, A., Sharma, K., Pharasi, H. K., Das, S., Chatterjee, R., & Seligman, T. H. (2018). Characterization of catastrophic instabilities: Market crashes as paradigm. *arXiv preprint arXiv:1801.07213*.

Fauzi, R., & Wahyudi, I. (2016). The effect of firm and stock characteristics on stock returns: Stock market crash analysis. *The Journal of Finance and Data Science*, *2*(2), 112-124.

Gupta, K., Krishnamurti, C., & Tourani-Rad, A. (2013). Is corporate governance relevant during the financial crisis?. *Journal of International Financial Markets, Institutions and Money*, *23*, 85-110.

Gupta, R., Pierdzioch, C., Vivian, A. J., & Wohar, M. E. (2019). The predictive value of inequality measures for stock returns: An analysis of long-span UK data using quantile random forests. *Finance Research Letters*, *29*, 315-322.

Humpe, A., & Zakrewski, M. (2015). Temporary stock market bubbles: further evidence from Germany. *Investment management and financial innovations*, (12, № 2), 33-40.

Jarvis, M. (2011). Booms and Busts: An Encyclopedia of Economic History from Tulipmania of the 1630s to the Global Financial Crisis of the 21st Century. *Reference Reviews*.

Johnson, K., Li, Y., Phan, H., Singer, J., & Trinh, H. (2012). The Innovative Success that is Apple, Inc.

Karp, A. (2019). *A comparison of the efficient and fractal market hypotheses in developing markets* (Doctoral dissertation, North-West University (South Africa)).

Kaustia, M., & Knüpfer, S. (2012). Peer performance and stock market entry. *Journal of Financial Economics*, *104*(2), 321-338.

Kumar, R. (2017a) 'Analysis of wealth—Walmart', in *Strategic Financial Management Casebook*.

Kumar, R. (2017b) 'Wealth creation by Coca-Cola—a strategic perspective', in *Strategic Financial Management Casebook*.

Lusardi, A. (2012). Financial literacy and financial decision-making in older adults. *Generations*, *36*(2), 25-32.

Nazir, M. S., Mahmood, J., Abbas, F., & Liaqat, A. (2019). Do rational bubbles exist in emerging markets of SAARC?. *Journal of Economic and Administrative Sciences*.

Nie, C. X. (2021). Studying the correlation structure based on market geometry. *Journal of Economic Interaction and Coordination*, *16*(2), 411-441.

Pharasi, H. K., Sharma, K., Chatterjee, R., Chakraborti, A., Leyvraz, F., & Seligman, T. H. (2018). Identifying long-term precursors of financial market crashes using correlation patterns. *New Journal of Physics*, *20*(10), 103041.

Preis, T., Moat, H. S., & Stanley, H. E. (2013). Quantifying trading behavior in financial markets using Google Trends. *Scientific reports*, *3*(1), 1-6.

Rao, L., & Zhou, L. (2019). Crash risk, institutional investors and stock returns. *The North American Journal of Economics and Finance*, *50*, 100987.

Rytchkov, O. (2014). Asset pricing with dynamic margin constraints. *The Journal of Finance*, *69*(1), 405-452.

Thalassinos, E. I., Stamatopoulos, T., & Thalassinos, P. E. (2016). The European sovereign debt crisis and the role of credit swaps. In *the world scientific handbook of futures markets* (pp. 605-639).

Zhang, Y. J., & Yao, T. (2016). Interpreting the movement of oil prices: driven by fundamentals or bubbles?. *Economic Modelling*, *55*, 226-240.

Nishat, M. and Irfan. CM (2001). Dividend Policy and Stock Price Volatility in Pakistan. Paper Presented at 19th Annual General Meeting of PSDE, Pakistan Institute of Development Economics, Pakistan.

Nazir, M. S., Nawaz, M. M., Anwar, W., & Ahmed, F. (2010). Determinants of stock price volatility in karachi stock exchange: The mediating role of corporate dividend policy. *International Research Journal of Finance and Economics*, *55*(55), 100-107.

Eniola, O. J., & Akinselure, O. P. (2016). Impact of dividend policy and earnings on selected quoted companies in Nigeria. *International Journal of Innovative Research and Development*, *5*(6), 308-321.

Sharma, S. (2011). Determinants of equity share prices in India. *Researchers World*, *2*(4), 51.

Bens, D. A., Nagar, V., Skinner, D. J., & Wong, M. F. (2003). Employee stock options, EPS dilution, and stock repurchases. *Journal of Accounting and Economics*, *36*(1-3), 51-90.

Muhammad, A. Z. A. M. (2011). Stock price variation regarding macro-economic and firm-specific accounting variables: Evidence from Karachi stock exchange. *International Research Journal of Finance and Economics*, *1*(81), 77-88.

Lama, M.(2016). The effects of firm-specific and macroeconomic variables on the stock price of Nepalese commercial banks. Nepalese Journal of Management, 3(4), 83-98.

Ramadan, I. Z. (2013). Dividend policy and price volatility. Empirical evidence from Jordan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *3*(2), 15-22.

Okafor, C. A., Mgbame, C. O., & Chijoke-Mgbame, A. M. (2011). Dividend policy and share price volatility in Nigeria. *Journal of research in national development*, *9*(1), 202-210.

Baker, M., & Wurgler, J. (2004). A catering theory of dividends. *The Journal of finance*, *59*(3), 1125-1165.

Hussainey, K., Mgbame, C. O., & Chijoke-Mgbame, A. M. (2011). Dividend policy and share price volatility: UK evidence. *The Journal of risk finance*.

Murekefu, T.M. & Ouma, O.P. (2013). The relationship between dividend payout and firm performance: A study of listed companies in Kenya. European Scientific Journal. 8(9):199- 215.

Ansar, I., Butt, A. A., & Shah, S. B. H. (2015). Impact of dividend policy on shareholder's wealth. *International Review of Management and Business Research*, *4*(1), 89.

Attah-Botchwey, E. (2014). The impact of dividend payment on share price of some selected listed companies on the Ghana Stock Exchange. *International Journal of Humanities and Social Science*, *4*(9), 179-190.

Song, Z., Storesletten, K., & Zilibotti, F. (2011). Growing like china. *American economic review*, *101*(1), 196-233.

Adi, T. W., Suhadak, Handayani, S. R. and Rahayu, S. M. (2013). The Influence of Corporate Governance and Capital Structure on Risk, Financial Performance and Firm Value: A Study on the Mining Company Listed in Indonesia Stock Exchange in 2009-2012, European Journal of Business and Management, Vol.5, No.29, 200-2017.

Dewi, P. D. A., & Suaryana, I. G. (2013). Pengaruh EPS, DER, dan PBV terhadap harga saham. *E-Jurnal Akuntansi*, *4*(1), 215-229.

Cahyaningrum, Y. W., & Antikasari, T. W. (2017). The Influence of Earning Per Share, Price to Book Value, Return on Asset, and Return on Equity to Stock Price in Finance Company. *Jurnal Economia*, *13*(2), 191-200.

Cahyaningrum, Y. W., & Antikasari, T. W. (2017, April). Pengaruh Earning Per Share, Price To Book Value, Return On Asset, Dan Return On Equity Terhadap Perubahan Harga Saham Sektor Keuangan Tahun 2010-2014. In *Prosiding Seminar Pendidikan Ekonomi dan Bisnis* (Vol. 3, No. 1).

Egam, G. E., Ilat, V., & Pangerapan, S. (2017). Pengaruh Return on Asset (ROA), Return on Equity (ROE), Net Profit Margin (NPM), dan Earning Per Share (EPS) terhadap Harga Saham Perusahaan yang Tergabung dalam Indeks LQ45 di Bursa Efek Indonesia Periode Tahun 2013-2015. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, *5*(1).

Sanjaya, S., & Afriyenis, W. (2018). Analisis Fundamental Terhadap Harga Saham Perusahaan Manufaktur Sektor Industri Barang Konsumsi. *Maqdis: Jurnal Kajian Ekonomi Islam*, *3*(1), 71-84.

Lestari, A. P., & Susetyo, A. (2020). Pengaruh NPM, EPS, DER dan PBV Terhadap Harga Saham pada Perusahaan Terdaftar IDX HIDIV20 Dengan DPR sebagai Variabel Intervening. *Jurnal Ilmiah Mahasiswa Manajemen, Bisnis dan Akuntansi (JIMMBA)*, *2*(2), 184-196.

Al-Malkawi, H. A. N. (2007). Determinants of corporate dividend policy in Jordan: an application of the Tobit model. *Journal of Economic and Administrative Sciences*.

Ilaboya, O. J., & Omoye, A. S. (2012). Earnings, dividend and share price volatility in Nigeria. *The Pakistan Journal of Social Issues*, *3*, 149.

Jahfer, A., & Mulafara, A. H. (2016). Dividend policy and share price volatility: Evidence from Colombo stock market. *International Journal of Managerial and Financial Accounting*, *8*(2), 97-108.

Rashid, A., & Rahman, A. A. (2008). Dividend policy and stock price volatility: evidence from Bangladesh. *The journal of applied business and economics*, *8*(4), 71.

Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *the Journal of Business*, *34*(4), 411-433.

Huberman, G., & Wang, Z. (2005). Arbitrage pricing theory.

Fama, E. F., & French, K. R. (2004). The capital asset pricing model: Theory and evidence. *Journal of economic perspectives*, *18*(3), 25-46.