

The Impact of Stock Dividends and Stock Splits on Shares' Prices: Evidence from Egypt

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Abstract

This research aims to examine the effect of two types of corporate actions, "Stock Split" and "Stock Dividends", on the shares' prices, liquidity changes, and price volatility; and to investigate the efficiency of the Egyptian stock market in response to the announcement of the corporate actions. The research provides the investors with a scientific tool to predict and explain changes in stock prices in response to announced corporate actions and to improve their investment decision-making process.

The objective is to investigate whether the two actions collectively or independently have a positive impact on the prices of the related stocks listed on the Egyptian Stock Exchange (EGX), and assess the similarities and dissimilarities between their individual impacts.

We applied the "Event Study" approach to measure the impact of the stock splits and stock dividends announcement on the stock prices through measuring the cumulated average abnormal return (CAAR) resulted from events to assess their impact on the stock performance around the announcement day (for a period of 30 prior and 30 days post announcement) as applied before by Terhi (2011).

The analysis concluded that the announcement of both of stock split and stock dividend has a positive impact on stock prices. This positive impact drove the authors to test the efficiency of EGX in respect of the impact of the announcement the corporate actions to the public investors. A correlation analysis is performed to reflect this impact.

Keywords: Corporate actions, Stock split, Stock dividends, Cash dividends, Split factor, Signaling, Trading range, Cumulative abnormal returns

1. Introduction

In recent years, the Egyptian stock market witnessed numerous executions of stock splits and stock dividends, which affected the market prices in an abnormal behavior. Stock splits and stock dividends are similar in many aspects. Both events are allowing the shareholders to receive new shares, without bearing any charges, based on their ownership of the company's stocks at a specific date. While the stock par value remains unchanged with the stock dividends, the stock splits change the par value according to the split factor. Each of these corporate actions could have positive impacts on stock prices but for different reasons.

Stock splits and stock dividends do not affect the operational performance of a corporate (e.g. sales, revenues, profits, etc.), and they do not change the ownership structure of a corporate. It's noted, however, that in most cases the execution of these corporate actions are associated with positive impact on stock market prices that could be misleading or manipulating the stock market.

The objective of this research is to analyze the effect of these corporate actions on the stock prices to measure the impact of their announcement on the associated stocks from different aspects; stock prices, volatility, liquidity levels, period of effect, as well as the investors' prospects toward these corporate actions with the application on the companies listed on the Egyptian Stock Exchange (EGX). Accordingly, the research problem can be stated as: "exploring and evaluating the impact of stock splits and stock dividends on the trading performance of the listed securities, as measured by the cumulated average abnormal return".

2. Literature Review

Introduction:

The objective of this section is to light on the impact of stock dividends and stock splits on share prices. This section is divided into the following parts:

- The impact of the stock dividends on share prices
- The impact of the stock splits on share prices
- The impact of stock splits and stock dividends on share prices

2.1 The Impact of the stock dividends On Share Prices

A research developed by Barker (1959), to investigate the price changes in response to the stock dividends for stocks listed on NYSE, revealed that stock dividends on their own did not provide enhancements to the stock prices. Nevertheless, a preferable enhancement in stock prices could be reached through combining the stock dividends with the associated cash dividend policy. On the other hand, the research revealed that stock splits bring the common stocks to a more marketable price range.

A research executed by Adaoglu and Lasfer (2011), in the Turkish stock Market (ISE), to evaluate the effect of the stock dividend, concluded that the market reacted positively towards the announcement of stock dividends. This react can be interpreted as follows, the stocks of companies with weak financial position responded positively to the announcement of stock dividends, whereas stocks of companies with good financial position reacted at a lower extent to the announcement of the stock dividends.

A research developed by Chavali and Nusratunnisa (2013), to measure the impact of dividends on share prices, revealed that the stock market reacted positively to the announcement of the dividends in terms of stock prices as well as the market capitalization under the limitation of the rest factors. They built their findings, applying an event study to measure the impact around the announcement day for 41 days (20 days before announcement date – 20 days after).

However Khurana and Warne (2016), examined the bonus dividends using the event study methodology to examine the announcement impact of the bonus issue on the stock prices they concluded that there is significant positive abnormal returns associated with the bonus issue in the period before the announcement date the derived there concluded result depending on applying the semi strong test of market efficiency.

2.2 The Impact of the Stock Splits on Share Prices

A research developed by the Fama et al., (1969), to address the stock prices adjustments to new information concluded that the extent of changes in common stock prices are associated with the level of market efficiency, companies planned for the stock split through the booming periods while the stock prices of these companies increased much more than the normal level, furthermore these changes are associated with the new information declared in the market for instance the stock splits are fully reflected in the stock prices of common shares after the date of split announcement, these changes are most probably reverted to the expected level of subsequent dividends and according to the assumptions of the efficient market no one can exceed the market return unless there is inside information concerning the level of future dividends.

An examination study introduced by Huang et al., (2011), to test the effect of the stock splits on liquidity change. They found that the liquidity of the stock splits has been improved almost the period of the stock splits announcement and the period after the ex-dates the stock prices have given back to the prices level as before the stock splits. They concluded that reaction to the announcement did not associate with future improvements in the operating activities; eventually, they concluded that the stock splits were made to draw the investors' attention of their stocks.

A research conducted by Waweru N.M., and Mwendwa J., (2012) concluded that most companies in Nairobi stock market undertook the stock split decision to direct the trading range to an optimum level to rectify a previous increase in the stock prices and better diversification to the ownership base, where is the post split prices could increase after the split period to biased level, which requires amendments to reverse these split transactions as well the biased prices through improving legal framework of Nairobi capital market to as recommended by the researcher.

2.3 The Impact of Stock Splits and Stock Dividends on Share Prices

Many studies which addressed the impact of the stock splits and stock dividends on stock prices treated this subject from different views; signaling theory, market response, retained earnings hypothesis, trading range, tick size,

liquidity improvement and others that can be outlined as follows:

A research conducted by Baker et al., (1995), intended to explore the different hypotheses which discussed before in previous studies to demonstrate the circumstances of the stock distributions (s. split- s. dividends) from two points of views market reacts toward the announcement of the event and the process of the decision making by firm managers.

A research carried out by Rankine and Stice (1997), to discriminate between the market impact of the accounting method of stock dividends and the stock split they perceived, that the choice of the stock dividend rate with (two for one) has a positive impact on the realized returns with 5 days announcement period of (2.70%) compared to (.93%) the associated announcement returns of the stock splits choice. This impact of the stock dividend announcement affects the growth earnings of these firms for the two following years, while not be with the stock split firms.

The difference between the stock splits and stock dividends demonstrated by Bechmann and Raballa (2007), who investigated the different impact between both events for listed stocks in Copenhagen stock market (CSE), they concluded that when the announcement of the stock split decision concurrent to increase in the prospected cash dividends (good news), make a positive and significant effect on the stock prices. While the unchanged level of prospected cash dividends (bad news) makes a negative or insignificant effect on stock prices and in this case the decision of the stock split on its own represents a cosmetic event. Hence, the announcement of the stock dividends acting as a significant and positive effect on stock prices when the prospected cash dividends increased or at least exceeded the capital increase. On the contrary, when the prospected cash dividends increased, but with a lower level than the portion of the capital increase, this made the effect of the announcement insignificant or negative to the stock prices. In this case, the stock dividend decision represents negative news and supports the retained earnings hypothesis.

Another comparison between stock splits and stock dividends events for stocks listed in the Indian stock market prepared by Ray (2011), in his research, he concluded that the stock splits events have positive impact associated with the announcement date whether the stock dividends events haven't proven this positive impact as stock split events. He tested also the form of market efficiency in the Indian stock market depending on applying an event study approach to test the related effect of the stock splits and stock dividends events.

The following is a summary of the main characteristics of similarities and dissimilarities that were perceived between the stock splits and stock dividends:

The comparative study between both events designed by Baker et al., (1995), he concluded that although both stock splits and stock dividends events lead similar acts as shown in the following items:

- Increase the number of outstanding shares,
- They did not provide the firm with new funds upon the execution of these actions.
- They did not charge its shareholders with any added claims to company assets.
- Theoretically, the economic value of the firm remains the same because the distributions of stock splits simply divide the corporate pie into more pieces or in other words, if we have a banknote with a value of LE 200 we took the decision to substitute it into four banknotes with LE 50 each; the collective result is the same amount. While the Empirical evidence showed that the market reacted positively to the announcement of the distribution for both of them.

However, the dissimilarities between them can be summarized in the following items:

- The par value of old shares is changed according to the split factor of the split decision, but the par values of stock dividends on new shares remain the same as before such dividend.
- The stock dividends can be financed through the retained earnings, profit, or reserves while the stock splits require no changes in other balance sheet account.
- The total share paid in capital increases proportionally to the size of the stock dividends while the total share capital remains the same after the stock splits.

3. Research Methodology

The applied approach in this research depends on using an event study to measure the impact of the stock split and stock dividend announcement on stock prices through calculating (AR's, AAR, and CAAR's) covering all selected events. To perform these tests different types of data were extracted to get the proper outcomes (i.e. the historical prices of the selected stocks for time series, economic variables, yearly trading days of each security, the number of

outstanding shares, the number of the daily traded shares ...) the illustration of the applied approach and criteria of measurements for different variables in the selected sample are shown below:

3.1 Population and Selected Sample:

- The population in this research includes all events of the stock split and stock dividend executed during the period from (1997- 2014) by companies listed on the EGX. Total populations of stock splits and stock dividend are 554 and 740 respectively.
- The selected sample includes 36 listed companies which executed both types of corporate actions (51 stock splits - 93 stock dividends); total observations 144 during the period (1999- 2014) with percentage 11.13% of the total population. They have been neutrally selected from EGX database to reflect the real population.
- The announcement dates of the actions were obtained from the Egypt Information Dissemination (EGID) a subsidiary company of EGX, whereas the split and dividend factors were obtained from the database of MCDR.

3.2 Availability of Data

- While applying the selected sample to the research methodology other required criteria were used for the selected events which lead the final sample to be 74 out of 144 events consist of (52 stock dividends – 22 stock splits). The following are the supplementary criteria that were used in selecting the final applicable sample:
 1. The announcement date of the selected events.
 2. The existence of daily trading in the selected stocks during the period before and after the event date (through event window – estimation window) with at least 100 trading days per year.
 3. Availability of the data required for the events and its issuance firms.

3.3 Research Design

The research is designed to examine the difference between the stock splits and stock dividends and to analyze the announcement effect of each of them on stock prices, so other analyses have been performed to assess the stock dividend and stock split announcement effect when it is associated with other variables like change in cash dividends, change in stocks liquidity, and stock price volatility around the event.

The research depends on the secondary data gathered from different reliable sources in order to sustain the research outcomes, with most accurate and trustful data as possible. According to the selected methodology, the applied approach is depending on operating the data into two stages.

The first stage is designed to provide the estimated values of the parameters that used in analyzing the data within the event window like beta calculation by calculating the covariance of the returns on stock market index and the returns of the individual stock to divide the result by the stock market variance to get the value of Beta of each security as applied by Bhuvaneshwari and Ramya (2014).

The second stage is designed to apply the calculated Beta to the Capital asset pricing model (CAPM) to get the expected returns of each security through the assigned period of the event effect which assigned as the event window to extract the abnormal return for each security with the event period.

3.4 Limitation of Study

The analysis is limited to the availability of the recorded data with both the Egyptian stock exchange and Misr for Clearing since the mandatory of the trading records starts after the issuance of the capital market law no. 95 of 1992 and the Central Securities Depository and Registry Law No. 93 of 2000 and their executive regulations which regulate the trading transactions in the stock market.

3.5 Development of Research Hypotheses

3.5.1 Testing the Difference of Impact on Stock Price between the Stock Split and Stock Dividends

H_1 : There is a significant difference between the statistical mean of average abnormal return of the stock split and the stock dividends.

The hypothesis tests the difference in impact on stock price between the stock splits and stock dividends. This hypothesis was investigated by Dhar and Chhaochharia (2008). They also concluded that both of the stock splits and

stock dividends have different impacts on stock prices towards the announcement of these two actions.

3.5.2 Testing the Impact of the Events Announcement on Stock Prices:

H_2 : There is a significant difference between the average abnormal returns before and after the announcement of both stock dividends and stock split.

The market impact hypothesis has been tested before by several studies in other stock markets. Researchers have tested the market reaction towards the announcement of the stock splits and stock dividends with the objective of analyzing the positive reaction of the market. As examined by Fama et al., (1969), Chavali and Nusratunnisa (2013).

3.5.3 Testing the Efficiency of the Egyptian Stock Market:

H_3 : There is a difference between the expected and actual prices over the event window of the selected sample.

The efficient market hypothesis states that no one can exceed the market return unless there is insider information concerning the level of future dividends, and that the extent of changes in common stock prices are associated with the level of market efficiency towards the new information declared in the stock market as concluded by Fama et al (1969).

3.5.4 The Signaling Hypothesis Stated that:

H_4 : stock splits and stock dividends have strong correlation with the split/ or dividend factor

According to this hypothesis, the stock splits and stock dividends have a significant correlation with the split/dividend factor that the investors build their positive expectation on assuming that the firm's managers have private information about future earnings, which encourage investors to give preference to buy these shares and motivate the prices to go up. As concluded by Anderson et al., (2011).

3.5.5 The Cosmetic Hypothesis:

The positive effect of stock splits and stock dividends on the stock market reaction in relation to the future cash dividends

H_5 : The cosmetic hypothesis states that:

'The stock splits and stock dividends have a positive effect on the stock market reaction if the firms expect to provide the shareholders with a large increase in future total cash dividends'.

This argues that stock splits and stock dividends are simply cosmetic events. This positive reaction which resulted from the stock splits and stock dividends can explained by a close relationship between these events and changes in a firm's payout as tested before by Bechmann and Raaballe (2007).

3.5.6 The Liquidity Change Hypothesis:

H_6 : "There is a significant change in liquidity level combined with the announcement of the stock splits and stock dividends"

In order to test the change in stock liquidity as a result of the execution of the related corporate action, a liquidity analysis has been performed for stocks within the selected sample over the event window as previously investigated by Ray (2011).

3.5.7 The Optimal Trading Range Hypothesis

H_7 : The Optimal trading range hypothesis states:

The Optimal trading range hypothesis suggests that a stock split and a stock dividend change the stock price to a more optimal trading range, for example, such that the stock is affordable to a larger group of investors. This, in turn, could increase the demand for the stock, leading to a positive stock price.

The Optimal Trading range Hypothesis was examined by Lakonish and Lev (1987).

3.5.8 The Neglected Firm's Hypothesis:

H_8 : The neglected firm's hypothesis states:

There is a negative relationship between the effect of the stock split and stock dividend announcement and the market value of the firm. The stock splits and stock dividends are made primarily of firms that believe their stocks to be undervalued and the decision of the stock splits and stock dividends are considered to be a way of attracting the attention of analysts to analyze their stocks as tested before by While Nielsen (2016).

4. Research Methodology and Testing Results

4.1 Data Source, Population, and Sample:

- The population in this research includes all events of stock split and stock dividend executed during the period from (1997- 2014) by companies listed on the EGX. Total populations of the stock splits and stock dividend are 554 and 740 respectively.
- The selected sample includes 36 listed companies which executed both types of corporate actions (51 stock splits - 93 stock dividends); total observations 144 during the period (1999- 2014) with percentage 11.13% of the total population. They have been neutrally selected form EGX database to reflect the real population.
- The announcement dates of the actions were obtained from the Egypt Information Dissemination (EGID) a subsidiary company of EGX, whereas the splits and dividend factors were obtained from the database of MCDR.

4.2 Statistical Techniques

This research examines the relationship between the stock split and stock dividends announcements, testing the efficiency of the Egyptian stock market and the changes in stock price, the price volatility, liquidity and other related variables. To examine these different relations with the following statistical techniques are applied:

- The T. paired test to test if there is excess in abnormal return actualized while comparing between the average abnormal return for both events (stock split and stock dividends) resulted from comparing the difference between the means before and after the announcement date within the same group for each of them.
- The T. paired test to test the level of market efficiency of the Egyptian stock market while responding to the announcement of the stock split and stock dividends.
- Measuring the stock price volatility used to examine the robustness of cross-sectional analysis of the announcement effect.
- Liquidity level of securities before and after the selected events
- The correlation between firms’ market value and the average abnormal returns.

4.3 The Research Empirical Results:

4.3.1 First Testing the Difference between the Stock Splits and Stock Dividends

H_1 : There is a significant difference between the mean of the stock split Average Abnormal Return (AAR) and the stock dividend Average Abnormal Return.

To investigate whether there is a difference between the stock splits and stock dividends’ means. The T. test is proposed to compare their impacts on the stock price reaction using the average abnormal return (AAR), for (30 days) before the event, (30 days) after the event, and during the event window (61days) for the both selected samples of 22 stock splits and 52 stock dividends. The CAAR’s are following the normal distribution.

The analysis and the result of testing the hypothesis are presented below:

Table 1. T. test between the AARs of stock split and stock dividends events over the event window (the significant level of the differences between both events)

		Levene's Test for Equality of Variances						
		F	Sig.	t-test for Equality of Means				
				T	Df.	Sig. (2-tailed)	Mean Difference	Std. Error Difference
AAR	Equal variances assumed	16.709	.000	13.523	120	***.000	0.0146	0.001078
	AAR before events	7.515	.008	11.755	58	***.000	.01627	.00138
	AAR after events	4.661	.035	8.248	58	***.000	.0124	.00150

*** Significant at 0.01

The above table shows the following results:

1. The Significance (sig.) level at 2-Tailed is 5% where the level of significance as per the T. test P value is.0000 for the three different levels of comparison which is less than the assumed level of significant 5%, which lead to support the alternative hypothesis that the impact stock split (mean average AAR) differs than the related impact of the stock dividends in the favor to the stock splits which impacted positively to AAR more than the stock dividends as shown in (table 1).

This comparison analysis concluded that there is a difference between the impact of stock split and the impact of the stock dividends, which support the tested hypotheses that there is a significant difference between the mean of the stock split AAR's and the stock dividends AAR's.

4.3.2 The Impact of Events Announcement on Stock Prices

H_2 : There is a significant difference between the average abnormal return before the announcement and the after the announcement.

To investigate this hypothesis the data set has to be divided into different windows (the pre announcement window and the post announcement window) to calculate this impact a T. paired test is applied to compare between the impacts of these different windows.

T. Paired test represents a typical model in comparing between pairs of dependent variables with similar units accordingly, the AAR before the event announcement for 74 events are compared to AAR after the event announcement (30 days before the announcement – 30 days after the announcement).

The following tables present the t. paired test analysis for the calculated AAR's before the announcement date compared to the calculated AAR's for the period after the announcement:

Table 2. Paired Samples Test for before and after AAR's of stock splits and stock dividends

Sample descriptions	Paired Differences					T	Df.	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error	90% Confidence Interval of the Difference				
			Mean	Lower	Upper			
Pair 1 Pre event AAR for s. split and s. dividends– post event AAR for s. split and s. dividends	.00267	.00691	.00126	.00008	.00525	2.112	29	**.043

* Donated the significant level at ** significant at 0.05

I. The outputs in (table 2) show the following results:

1. According to the paired sample test, the mean difference between the average abnormal return of the stock split and stock dividends before the event compared to after the event amounted to.00267with standard deviation.00691and standard error mean.00126 as the degree of freedom (d.f. =n-1) is 29, where the observed t. statistics is 2.112.

2. The donated Significance level is 10%, 5%, 1% to test the 2 tailed

The level of significance as per the t. paired test P value is 0.043 which is less than the assumed level of significant %5 and 10% for the 2 tailed which lead to support the tested Hypothesis H_2 .that there is a significant difference in the average abnormal return before the announcement compared to the after the announcement.

It can be concluded that there is a statistically significant difference between the mean of average abnormal return of stock split and stock dividends before the announcement and the AAR's after the announcement date in favor to the impact before the event date.

4.3.3 Testing the Efficiency of the Egyptian Stock Market:

H_3 : There is a difference between the expected and actual prices regarding the announcement of the stock split and stock dividends events.

To test the efficiency of the Egyptian Stock market toward the changes in the stock prices for the selected sample a comparison between the expected and the actual stock prices is performed through applying the Pearson correlation to investigate the market efficiency level of the Egyptian stock market is applied as follows:

1. The average expected and actual prices are calculated on a weekly basis over the event window.
2. The following equation is applied to the processed data to get the correlation result.

$$r_p = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{(n \sum x^2 - (\sum x)^2)(n \sum y^2 - (\sum y)^2)}} \tag{1}$$

X: represents the weekly average actual returns

Y: represents the weekly average expected returns

n: number of the sample selected which represents the weekly average return used in the statistical sample.

3. Pearson correlation is calculated to get the correlation level of the stock market efficiency using the following equation:

$$r_p = \frac{8 * (-0.023) - (-0.09)(2.01)}{\sqrt{((8 * .0022 - (-.09)^2)(8 * 0.51 - (2.01)^2)}}$$

Then $r_p = -0.317$

This result indicated that there is a weak negative correlation existed between the expected and actual weekly prices of the associated stocks over the event window this result suggested that the stock market is an inefficient market.

4. To confirm the form of market efficiency the researcher uses the standard deviation to test the difference between before and after stock prices on a weekly basis to test if there is a difference between both variables or not.

If the standard deviation (S.D.) of the weekly stock prices for the selected sample in the period before the announcement date differed than after the event date. This means that the market is inefficient, and someone could use the information of the associated events to retain gains from this information who can beat the market by exceeding the market returns, whereas if not, means that no one can use this information to retain a special gain.

The standard deviation of weekly prices before event day is:

$$\sigma = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}} = 0.010853 \tag{2}$$

While the standard deviation of weekly prices after the event day is:

$$\sigma = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}} = 0.00530$$

The analysis revealed that there is a difference between the standard deviation before and after the event date which indicated that the market is inefficient.

The following table presents the t. paired test between the stock prices before and after the event date to ensure that there is a significant difference between both prices as well as supporting the efficient market test:

Table 3. Paired Samples Test between the actual weekly prices before and after

Paired variables	Paired Differences				T	Df.	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower Upper				
Pair 1 Weekly actual prices before Weekly actual prices after	.02000	.00816	.00408	.00701	.03299	4.899	3	** .016
Pair 2 Daily actual prices before daily actual prices after	0.0026	0.00460	0.000870	0.000862	0.004431	3.043	27	***0.005

*** Significant at 0.01, ** significant at 0.05

The (table 3) revealed that there is a significant difference between the before and after actual weekly prices with P value =.016 at the level of sig., while the T. Paired test between the means of daily stock prices' revealed a significant difference between their means with P value =.005 which is significant at the level of sig. 1% and 5% at two tail test.

The concluded results reflect that the difference between the actual prices before the announcement of the events and after lead to evaluate the market as a weak form or inefficient market.

4.3.4 The Signaling Hypothesis:

H_4 : The impact of the stock splits and stock dividends announcement has a strong correlation with the split/or dividend factor.

According to this hypothesis, the impact of stock splits and stock dividends has a significant correlation with the split/dividend factor of the related events. Although both actions have different objectives which firms are trying to attain, both of these actions have the same impact on stock prices. While the comparison between their factors shows that the stock split factors are higher than the stock dividend factors (The average stock split factor is 5.67, while the average stock dividend factor is 0.31).

To test the type of relationship between the impact of the stock split and stock dividends and their associated split/dividend factors a Pearson correlation performed between the Net Average Abnormal Returns of both events and their related factors to reflect the significant level of these relations as shown in (Table 4) and (Table 5).

Table 4. Pearson Correlations between Net Average Abnormal Returns (NAAR) of stock split events and split factor

Correlated variables	Pearson Correlation	Sig. (2-tailed)	N	t-Statistic
NAAR with split factors	0.152	0.4998	22	0.687209
NAAR with split factors 4:1 or more	0.486	*.0782	14	1.925463

Donated significant level at *0.10

Table 5. Pearson Correlations between Net Average Abnormal Returns (NAAR) of stock dividends events and split factor:

Correlated variables	Pearson Correlation	Sig. (2-tailed)	N	t-Statistic
NAAR with dividends factors	.630	.000***	52	5.735267
NAAR with dividends factors 0.25:1 or more	0.758	.000***	23	5.333302

Donated Significant level at ***0.01

The analysis of the Split/ dividends factors as shown in (table 4 and table5) illustrate as following facts:

1. The correlation analysis as per (table 4) between the net average abnormal returns and its related split factor using Pearson Correlation analysis revealed a weak and insignificant positive correlation which did not support the signal hypothesis. While the correlation analysis discloses a positive significant relation by 0.486 between NAAR's of stock split events and the stock split factors, by excluding the lower factors of (less than 4:1).

2. The correlation analysis for stock dividends as per (table 5) between the net average abnormal returns of stock dividends events and its related dividends factor using Pearson Correlation analysis revealed that there is a significant positive relationship between the NAAR's and dividends factor by 0.630 for all stock dividends sample and correlation value with 0.758 when excluding the events with lower dividend factor less than 0.25:1 at P value = 0.00 Which is highly support the signal hypothesis at donated level 10%, 5% and 1% level (2 tailed).

4.3.5 The Cosmetic Hypothesis

H_5 : 'The stock splits and stock dividends have a positive effect on the stock market reaction if the firms expected to provide the shareholders with a large increase in future cash dividends'

To test this hypothesis an analysis is performed to compare the change in cash dividends with the related net average abnormal return.

The change in cash dividends level is calculated for each event using the following equation:

$$\text{Change in cash dividend} =$$

$$(\text{Current cash dividend} \times \text{outstanding shares} - \text{Prior year cash dividend} \times \text{prior year outstanding shares}) / \text{Prior year cash dividend} \times \text{prior year outstanding shares}.$$

To reflect the actual change in current cash dividend with current outstanding shares compared to the prior year.

These calculated values for the change in cash dividend are classified into 4 different groups (positive – unchanged – negative – unusual) change in cash dividend level.

Each of these classes is distributed according to the split/ dividend factors to get the cross relation of the change in cash dividends with their related split/ dividend factors.

1. The stock split events:

The following table analyzes the significance of the relation between the positive change in cash dividend level compared to the net average abnormal returns (table 6) through T. Paired test between the before and after AAR's for events with Positive change in cash dividends level and between the before and after AAR's for events with negative and unchanged in cash dividends level.

Table 6. Analysis of stock split Net Average Abnormal Returns (NAAR) with positive increase in cash dividends level and with other change in cash dividends level:

Group	t. Paired variables	No. of event	AAR Before	AAR After	NAAR	t.	Df.	Sig. (2tailed)
Stock splits	Positive Δ in cash dividends	11	-.546	-.55	0.004	0.16	10	0.876
	Negative Δ in cash dividends	6	0.051	-.021	0.072	1.229	5	.274
Group	Pearson Correlation variables				N	Pearson Correlation	t.	Sig. (2tailed)
Stock splits	Positive change in cash dividend and NAAR				11	.163	0.49	.633
	Negative and unchanged in cash dividend and NAAR				6	-0.299	-0.628	0.563

Note: Events with unusual change cash dividends are excluded from the analysis

The outcomes of this analysis:

It revealed that there is no significant change between the before and after AAR's for events with increased cash dividends level. As well as the events with other changes in cash dividends have insignificant impact at 5% or 10%

This result confirmed also by calculating the Pearson correlation between NAAR of stock split events with the Positive change in cash dividends which revealed low and insignificant positive correlation by 0.163.

These concluded results are inconstant with the cosmetic hypothesis.

2. The stock dividends events:

The following table analyzes the significance of the relation between the positive change in cash dividend level compared to the net average abnormal returns (table 7) through T. Paired test between the before and after AAR's for events with Positive change in cash dividends level and between the before and after AAR's for events with negative and unchanged in cash dividends level.

Table 7. Stock dividends Net Average Abnormal Returns (NAAR) with positive increase in cash dividends level with other change in cash dividends level

Group	Δ in cash dividends.	No. of event	Before AAR	After AAR	Net AAR	t.	Df.	Sig. (2tailed)
Stock dividends	Positive Δ in cash dividends	21	-1.24	-1.34	0.102	1.808	20	*0.086
	other Δ in cash dividends	11	-0.02	-0.26	0.029	1.150	10	0.277

Group	Pearson Correlation variables	N	Pearson Correlation	t.	Sig. (2tailed)
Stock dividends	Positive change in cash dividend and NAAR	21	-.035	-0.153	0.879
	Negative and unchanged in cash dividend and NAAR	11	-0.287	2.67	0.391

Note: Events with unusual change cash dividends are excluded from the analysis * Significant at 0.10

The outcomes of these analyses showing the following facts:

It revealed that there is a significant change between the before and after AAR's $P = 0.08$ for events with the increase cash dividends level at Significant at 0.10 at two tailed test, where the events with other changes in cash dividends have insignificant impact at 5% or 10%.

The result of calculating the Pearson correlation between NAAR of stock dividends events with the Positive change in cash dividends which revealed low and insignificant negative correlation by -0.035, as well as the correlation between the decreased and unchanged change in cash dividend when compared with its related NAAR's revealed that there is an insignificant negative correlation by -0.287 at significant $p = 0.391$ at the noted significant 5% and 10% at two tailed test.

These concluded results are inconstant with the cosmetic hypothesis that assumes that there is a positive effect on the stock market reaction to the increase in the future cash dividends as tested before by Bechmann and Raaballe (2007). While Wang (2012) has a different view about the impact of the stock dividends announcement in relation to the event with cash dividends who concluded a significant negative relation between both of them.

4.3.6 The Impact of the Change in the Stock's Liquidity:

This hypothesis stated that

H_6 : "There is a significant change in liquidity level combined with the announcement of the stock splits and stock dividends".

To test this hypothesis a liquidity analysis is performed for the selected sample to compare the liquidity average of the associated events before the events with the liquidity average after the events.

Stock splits and stock dividends events are classified in relation to the changes in cash dividends (increase – unchanged – decrease- unusual cash dividends).

The liquidity level is calculated based on the average daily turnover of the associated events using the following in equation:

$$\text{Daily liquidity turnover} = (\text{Daily traded shares} / \text{total outstanding shares}) * 100$$

The average liquidity turnovers are calculated for each event (30 days before the event day – 30 days after the event day), and T. paired test is performed to test the significant level of the differences between the liquidity value before and after the announcement.

These results are interpreted in the following table:

Table 8. The impact of the stock split and stock dividends on the stock liquidity

Event type	Before	After	Diff.	no. of events	T. paired test
split events					
Decrease in cash dividends	1.136	1.552	-0.416	5	0.366
unchanged in cash dividends	0.080	0.100	-0.020	1	-
increase in cash dividends	4.311	5.235	-0.924	11	0.298
unstable cash dividends	10.291	13.096	-2.805	5	0.166
All events	15.819	19.984	-4.165	22	**0.05
Dividends events					
Decrease in cash dividends	2.340	2.874	-0.534	10	0.415
unchanged in cash dividends	5.417	6.046	-0.629	3	0.648
increase in cash dividends	5.443	5.053	0.390	21	0.633
unstable cash dividends	14.567	13.127	1.440	18	0.75
All events	27.768	27.099	0.668	52	0.886
split events					
Decrease in cash dividends	0.94	0.98	-0.04	5	0.295
unchanged in cash dividends	1.00	0.97	0.03	1	-
increase in cash dividends	0.98	0.99	-0.01	11	0.42
unstable cash dividends	1.00	1.00	0.00	5	-
All events	0.98	0.99	-0.02	22	0.217
Dividends events					
Decrease in cash dividends	0.97	0.98	-0.003	10	0.913
unchanged in cash dividends	1.00	1.00	0.00	3	-
increase in cash dividends	0.95	0.98	-0.03	21	0.134
unstable cash dividends	0.99	1.00	-0.01	18	0.163
All events	0.97	0.99	-0.02	52	0.139

The first part of this table showing the liquidity analysis Based on the average turnover of the daily traded shares (as the percentage of outstanding shares of each firm) through the event window (-30, +30), whether the second part of the table reflects the liquidity analysis based on the average number of trading days (30 before the event and 30 days after the event) for each event as a percentage of the actual trading days as per the EGX regarding the same period.

** Significant at 0.05

1. Liquidity of stock splits:

The liquidity analysis in (table 8) of the stock split events revealed that the liquidity turnover, higher in the period after the announcement date than before the event. While comparing these events using the actual trading days of each stock before and after the event date it is found that the liquidity level is higher in the period after the event, except two subgroups; unchanged cash dividends which represented in only one event and the unusual cash dividends that the liquidity level before is the same as after the event date.

The results of the liquidity analysis are slightly different if the turnover analysis considered instead of the daily traded shares.

The increase in the liquidity level in the period after events is convenient with the declared reason of the stock split events that most stock splits are executed upon the EGX requirements as per (the executive regulation decree # 30 for the rules of listing and delisting the financial securities in EGX). It's concluded that there is no positive impact associated with the announcement in the period precede the event date and most of these positive movements

occurred after the event date also the overall difference between the liquidity level before and after the event for all split events revealed that there is significant positive ($P=0.05$) impact of the split events have occurred after the announcement date which is significant at 10%.

2. Liquidity of stock dividends:

The announcement of the stock dividends have different impact on the liquidity level of these associated stocks when combined with change in cash dividends, which classified into four subgroups (decrease in cash dividends- unchanged in cash dividends- increase in cash dividends- unusual cash dividends), it's found that the stock dividends announcement impacted positively on two subgroups the increase in cash dividends and unusual cash dividends that the liquidity level was higher in the period preceding the announcement date while the two other subgroups (decrease in cash dividends - unchanged in cash dividends) noted that the liquidity level has been impacted positively after the announcement date. While the overall analysis of total stock dividends events is impacted positively in the period before the announcements. While the T. Paired test between the before and after the announcement has resulted an insignificant difference with $P = 0.886$. Which concluded that there are no significant liquidity changes associated with the announcement of stock dividends events as presented in (table 8).

4.3.7 Relation to Change in Volatility

H_7 : The Optimal trading range hypothesis stated that:

“This hypothesis assumed that the stock splits and stock dividends change the price to the more optimal trading range”.

Optimal trading range hypothesis suggests that the stock splits and a stock dividends change the stock prices to a more optimal trading range, such that the stock is affordable to a larger group of investors, which increases the demand for these stocks, leading to a positive stock price which can be investigated through calculating the stock price volatility for the selected events before and after the announcement date. This hypothesis has been addressed before by some researchers who revealed that the volatility level of the stock prices is changed according to the announcement of the related events as concluded by Desai, M. Nimalendran, and S. Venkataraman, (1998).

1. Stock split:

The stock price volatility for stock split events revealed a positive impact in the period subsequent announcement date that the Standard deviation of the stock split prices over the event window is higher in the period after the announcement date as well as the trading volume of stock split events have been improved after the event date, which agreed with the planned and declared decision of most firm managers who took the split decisions response to EGX requirement of the executive regulation decree # 30 for the rules of listing and delisting the financial securities in EGX).

The result of T. paired test of the comparison between the price volatility before and after the event for all stock split events revealed that there is significant on stock prices in the period after the event date $P = 0.079$ at significant level 10% as presented below in (table 9). Therefore the changes in prices volatility for stock split events supporting the optimal trading range hypothesis.

Table 9. The T. paired test for the volatility level of stock split events

Event type	Before	After	.Diff	no. of events	T. paired test
Decrease in cash dividends	0.135	0.163	-0.029	5	0.288
unchanged in cash dividends	0.018	0.020	-0.002	1	-
increase in cash dividends	0.297	0.35	-0.052	11	0.207
unusual cash dividends	0.120	0.123	-0.003	5	0.775
All events	0.57	0.66	-0.09	22	*0.079

* Significant at 0.10

2. Stock dividends

The results of the T. Paired test analysis of the comparison the price volatility of stock dividends events before the and after the announcement date are explained as an insignificant impact as presented below in Table 10. Therefore the changes in the price volatility associated with the stock dividends announcements are insignificant as well doesn't support the optimal trading range hypothesis.

Table 10. The T. paired test for the volatility level of stock dividends events

Event type	Before	After	Diff.	no. of events	T. paired test
Decrease in cash dividends	0.239	0.265	-0.026	10	0.333
unchanged in cash dividends	0.096	0.097	-0.001	3	0.978
increase in cash dividends	0.460	0.439	0.021	21	0.498
unusual cash dividends	0.450	0.418	0.032	18	0.512
All events	1.245	1.220	0.025	52	0.702

4.3.8 The stock splits and stock dividends have a significant relationship with firms market value"

H_0 : The neglected firm's hypothesis stated that:

"There is a negative relationship between the effect of stock split and stock dividends announcement and the market value of the firm".

In order to investigate the neglected hypothesis, a correlation analysis has been performed to measure the relationship between the average company's market values and the net average abnormal returns.

Note: the average company's market value calculated over the event window for each event and has been substituted with its logarithm value.

The correlation analysis performed on three levels all events within the selected sample, stock split events and stock dividends using the Econometric statistical program E. views 8 According to that the outputs of the analysis are illustrated as follows:

1. The correlation analysis for all selected sample

The Pearson correlation between the NAAR of all events and company market value of these events, revealed that there is a significant negative correlation amounted to -0.27 with significant ($P=0.019$) at (0.05 level of significance) as shown in (Table 11).

This result supports the neglected hypothesis which states that there is a negative relationship between the effect of the stock split and stock dividends announcement and the market value of the firm.

Table 11. Pearson Correlations between company's average market value and net average abnormal return for all events

Correlated variables for all events	Pearson Correlation	Sig. (2-tailed)	N	t-Statistic
Company market with NAAR's	-0.271	**0.0193	74	-2.393

Donated significant level: ** significant at 0.05

2. The correlation analysis for Stock split events:

The Pearson correlation revealed while comparing the company's market value of the stock splits events with its related NAAR's revealed that there is a negative relation with -0.478 at significance $P=0.025$ which is significant at the donated significant level 5%. As well as supporting the neglected firm's hypothesis as shown below in table 12.

Table 12. Pearson Correlations between the average market value of all split events and their net average abnormal returns

Correlated variables for stock split events	Pearson Correlation	Sig. (2-tailed)	N	t-Statistic
Company market with NAAR's	-0.478	**0.025	22	-2.431858

Donated significant level: ** significant at 0.05

3. The correlation analysis for dividends events

The Person correlation between the company market values of stock dividends events with their related NAAR revealed that there is a weak negative correlation relation with -0.089 at significance $P=0.526$ which is insignificant at the donated significant level, 5%, and did not support the neglected firm's hypothesis as demonstrated below in (Table 13).

Table 13. Pearson Correlations between the average market value of all stock dividends events and their net average abnormal returns

Correlated variables for stock dividends events	Pearson Correlation	Sig. (2-tailed)	N	t-Statistic
Company market with NAAR's	-0.08994	0.526	52	-0.63859

4.4 Testing the Impact of All Independent Variables on the Average Abnormal Return of Stocks Subject to Corporate Actions

To examine the relation between the announcement impact and the identified variables, a panel regression analysis is developed to explore the cross-sectional regression between all variables together and the NAAR over the research period (1999 till 2014).

4.4.1 Multiple Regression for Stock Split Events:

The following (Table 14) presents the statistical results of the multiple regression analysis for stock split events covering the period starting from 2001 till 2014:

Table 14. The multiple regression for stock split events

Independent Variables	Beta	t	Sig	Collinearity Statistics	
				Tolerance	VIF
(Constant)	.108	2.539	***.028		
splits factor	.001	.909	.383	.657	1.522
Change in cash dividends	-.005	-2.203	***.050	.421	2.377
Volatility	.424	1.062	.311	.733	1.364
Liquidity	-.019	-.800	.441	.475	2.105
Company market value	-.012	-2.349	***.039	.571	1.751
Goodness of Fit Statistics					
R ^2					0.519
Adjusted R^ 2					.300
**F-equation					**2.370
Prob. (F-statistics)					.108

Donated significant level: *** Significant at 0.05

4.4.2 Multiple regression for stock dividends events:

The following (table15) presents the statistical results of the multiple regression analysis for stock dividends events covering the period starting from 1999 till 2014:

Table 15. The multiple regression analysis for stock dividend events:

Independent Variables	Beta	t.	Sig	Collinearity Statistics	
				Tolerance	VIF
(Constant)	0.12	.404	.689		
Dividends factor	.019	4.064	***.000	.977	1.024
Change in cash dividends	.000	.306	.762	.923	1.083
Volatility	.130	.552	.586	.843	1.187
Liquidity	-.008	-.701	.490	.682	1.465
Company market value	-.002	-.510	.615	.841	1.189
Goodness of Fit Statistics					
R ^2					0.42
Adjusted R^ 2					0.317
**F-equation					**3.884
Prob. (F-statistics)					*** 0.009

*** Significant at 0.01

**Note: There is no multi Collinearity problem associated the variables' coefficient. Since the variance inflation

factor (VIF) for tested variables for both events is less than 4 as for all independent variables. As the multi Collinearity problem presented, if the (VIF) is greater than 10 as concluded by Hair, et al., (2009).

The analysis of the multiple regression analysis shows the following facts:

1. Stock splits multiple regression:

The split factors are not significantly correlated with the net average abnormal return of stock split events. This means that NAAR's resulted from stock split are not affected by the split factor. That was decided on the related securities, as well as, the price volatility and liquidity level of stock splits are not significantly correlated with the average abnormal return. While both of the change in cash dividends and company market values are significantly correlated- negatively with the stock split NAAR's. This means that both the variables are contributed in the realizing the abnormal returns resulted upon the announcement of the split events. This negative correlation of the change in cash dividends which is compatible with the previous study performed by Wang (2014), while the negative correlation of the company's market value with the NAAR's is supported by Nielsen (2016).

According to the multiple regression analysis, the assumption that all independent variables related to the NAAR (change in cash dividends, split factor, liquidity level, price volatility, and firms' capital market value) have a relative impact on the Net Average Abnormal Return is rejected but this case multiple regression analysis is partially accepted.

2. Stock dividends multiple regression:

The dividend factors are significantly correlated with the net average abnormal return of stock dividends events which is supported before by Anderson et al., (2011). This means that NAAR's resulted from stock dividends returns are affected by the dividend factor that as the dividend factor increase the net average abnormal returns realized from the announcement increased. Whoever the other independent variables related to the stock dividends performance does not significantly correlate with the net average returns resulted from the announcement of these events. According to the multiple regression analysis the assumption that all independent variables related to the NAAR (change in cash dividends, dividends factor, liquidity level, price volatility and firms' capital) have a relative impact net average abnormal return. In this case, multiple regression analysis is partially accepted.

5. Research Finding and Concluded Results

5.1 The following is a Summary of the Concluded Results of These Analyses

The research analysis revealed that the stock split and stock dividends have a Positive impact on stock prices during the period before the announcement date. This positive impact prior to the official announcement of the stock dividends or stock split is associated with factors other than the announcement of the event itself as follows:

1. The inefficiency of the Egyptian stock market; which means that the stock prices don't reflect all information on the date of the announcement and asymmetric information may take place in the Egyptian market, which is allowing some investors to gain abnormal returns as a profit gained from insider information in the stock market. This action resulted as the firms' insiders who have access to new information realize abnormal returns from this information achieved by manipulating associated stock prices which harm the other investors.
2. The significance of the positive impact of the stock split events increases as the split factor is 4:1 or higher. Likewise, the significance of the positive impact of stock dividends events increases as dividend factor is 0.25:1 or more.
3. The significance of the impact of stock split decreases as the market capitalization of the firm increases. In other words, the positive impact of the stock split is more significant for small market capitalization firms.

5.2 Summary of the Hypotheses Results

The following table presents the concluded results of testing the proposed hypotheses in the form of comparison between the different impacts of both events:

Table 16. Comparison between the different impacts of the tested hypotheses

Tested hypothesis	Stock splits	Stock dividends
H_1 The difference between stock split and stock dividends	Have higher impact on stock prices There is a significant difference between the impact of the stock split and stock dividends on stock prices	Lower impact on stock prices
H_2 The different between stock split and stock dividends impact before and after announcement date	Support H_2 There is a significant difference between the AAR's before the announcement compared to after the announcement in favor of the AAR before the announcement date	Support H_2
H_3 The efficiency of the Egyptian stock market	A weak negative correlation is concluded between expected and actual prices which lead to evaluate the market as inefficient	
H_4 Relation between the split/dividends factor and NAAR's (signal hypothesis)	The signal hypothesis is accepted as the split factors for the related events are 4:1 or more. Otherwise, the hypothesis has weak insignificant positive correlation	Highly Support the signal hypothesis Significant positive correlation
H_5 Relation change in cash dividends and NAAR's (Cosmetic hypothesis)	Un-support the cosmetic hypothesis	Un-support the cosmetic hypothesis Weak and insignificant positive correlation between change cash dividends and NAAR's
H_6 The analysis of the liquidity level	There is a significant positive impact associated with the liquidity level after the announcement date	There is insignificant positive impact of the liquidity level in the period before the announcement
H_7 Price volatility (optimal trading range hypothesis)	There is a positive impact in the period subsequent the announcement date. As well as the trading volume has improved in the period after the announcement date.	There is an insignificant positive impact in the period before the announcement date. As well as the trading volume has improved in the period before the announcement.
H_8 firms market value (neglected firms' Hypothesis)	There is a significant negative correlation between AAR and there firms market value There is a significant negative correlation between AAR's of all events and firms market value	There is an insignificant negative correlation between AAR and their firms market value
Testing the impact of all variables	Not all variables have a significant impact on the AAR, it is considered as partially accepted	Only the dividend factor which has a significant impact on the AAR –Partially accepted

6. Recommendations and Future Researches

The following recommendations are provided to inexperienced investors, to market regulators and Issuer companies as follows:

6.1 Recommendations for Investors

It is recommended for investors to be aware of the financial position of firms they plan to invest in; do not react to all potential and/or announced stock dividends and stock splits as a positive signs for the stock performance; don't deal with stocks that are subject for splitting its stock value as preferential stocks that will realize higher profits; Don't follow un-trusted trade recommendations related to stocks subject to stock dividends and stock splits in your investment decisions; Avoid investments with high volatility in short term or that associated with rumors; Don't look for investments yielding high returns without addressing the real reasons for these returns.

6.2 Market Regulators

The research concluded and recommended further developments in relation to stock splits and stock dividends regulations and surveillance as to: support the surveillance function that provides adequate controls over (the process of the stock dividends and stock splits actions and procedures, Related disclosures to ensure that firms disclose the

real reasons for the planned corporate actions to prevent any fake or factious transactions as possible, and Associated insiders' trading); scrutinize the validity of reasons claimed or reported by issuer to justify the intended corporate actions; enhance the review process to extend review of the traded transactions before and after the announcement of the events (-30 days to +30 days) or more to ensure that traded transactions are free from the fictitious and suspicious transactions; review the reasonableness of the change in the price volatility resulted from the corporate action decision through the event period; verify and analyze the improvement in the liquidity level of the traded stocks after the split decision to comply with EGX listing and delisting rules; and mandate issuer companies to submit an analysis of the stock price impact of any prior corporate action before approving an application for a new action.

6.3 Issuer Companies

Issuer companies should follow the rules and regulations related to the listing and delisting process with respect to; real free float percentage and related parties; provide the regulatory authority with the reasons and objectives for their intended corporate actions, and provide the regulatory authorities with a proposed investment plan for distributing stock dividends instead of cash.

6.4 Future Studies

The Egyptian stock market lacks enough studies that address the market variables and their related impact on stock prices especially the new instruments introduced to the Egyptian stock market to assess and improve the credibility of the market such as; the relation between the payout policy and the impact of the stock split and stock dividends actions; study impact of other corporate actions on stock prices; study the impact of exchange-traded funds (ETFs) on the market; address the effect of Macroeconomic decisions on the stock market especially the decision of floating the Egyptian pound; studying the impact of the size of free float shares on stock price performance, as well as, GDR and EDR.

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