DOES STOCK SPLIT INFLUENCE TO LIQUIDITY AND STOCK RETURN? (EMPIRICAL EVIDENCE IN THE INDONESIAN CAPITAL MARKET)

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ABSTRACT

Research on stock splits has frequently been undertaken. The results vary, but fundamentally can be classified into two groups. First, the stock split is purely "cosmetic". Second, the stock split has a real effect on stocks. The difference between these opinions raises controversy. The purpose of this study is to examine whether stock splits influence stock liquidity and return of an individual stock as well as in a group of stocks as a portfolio. Overall, the results of this study show that stock splits did influence stock price, trading volume and bid-ask spread but did not influence stock risk and abnormal return from the point of view of an individual stock as well as in a group of stocks as a portfolio. The test of a relationship between bid–ask spread and stock price, trading volume and stock risk for each stock shows that all three variable did not significantly affect the bid–ask spread. On the other hand, the test of a relationship in a portfolio reveals that only stock prices significantly affect the bid-ask spread.

1. INTRODUCTION

This study is a continuation of research (Adisetiawan, 2017) before. According to Lorie et al. (1985) is a stock's price is the price which was formed from the interaction of the sellers and buyers of shares effected by their expectations towards the profit of the company. For that investors require information relating to the share price formation in taking decisions to sell or buy. Decision making is related to the selection of the most advantageous investment portfolio with a particular risk. Information can reduce the uncertainty that occurs so that the decisions taken are expected to comply with the objectives to be achieved.

In the capital market, a lot of information that can be obtained by investors both information available in public and private information. One of the available information is stock split announcement or stock split. Stock split is an activity performed by a public company to increase the number of shares in circulation. Stock split is an activity performed by a public company to increase the number of shares in circulation (Brigham et al., 2006); (Adisetiawan, 2017). Such activity is usually done when the price is overvalued so it will reduce the ability of investors to buy it. There are a lot of opinions about stock split, but basically it can be divided into two groups. First, stock split is just a "cosmetic" change. Second, stock split may affect shareholder profits, stock risk and signal to market. Based on

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some of these views, this study is intended to reexamine the extent to which stock split affect liquidity and stock returns (Sears and Trennepohl, 1993); (Adisetiawan, 2017).

This research was conducted in the period $2016 - 2017$ the election period is based on the consideration that in that period the economy of Indonesia in a stable state (Adisetiawan and Surono, 2016). Overall, this research aims, first, to test whether a stock split affect stock price, trading volume, stock, the percentage variance spread and abnormal return. Second, see if the stock split affect the return of shares is measured from the abnormal return. Third, testing the relationships share price, trading volume and stock variances against the spread. The fourth test in emperical whether stock split affected the liquidity of a stock as measured from the magnitude of the percentage spread. Is the volume of trade is the number of the units of the unit shares traded during a given period, usually daily. The variance is the square of the deviation value than the average return of the stock. While the spread is the difference between the sale price and the purchase price reflecting the strength of the demand and supply of a particular stock.

2. LITERATURE

According to Baker and Powell (1999) the distribution of shares in the form of stock split merely have changes that are "cosmetic", due to the stock split had no effect on the cash flow of the company and the proportion of ownership of the investors. This opinion is contrary to Baker and Gallagher (1980) stating that the split refund the price of the stock at a rate per sheet optimal trade and increase liquidity. According to them, the company that did the split in its shares will attract investors with the stock price so low will lead to the increase of the number of shareholders after the announcement of the split (Adisetiawan, 2017).

The impact split against profits investors described (Grinblatt et al., 1984) that showed a split announcement around the behavior of the stock price is abnormal. It is believed that the increase in price that occurs is not caused due to increased dividend announcements such as Fama and French (1993). The market gave a positive rating against a split due to the tax-option impact. The impact of the tax exemption-shaped facing investors (tax−option investors) so that investors earn more profit. While Nichols and McDonal (1983) to conclude the existence of a market anomaly due to the split, the company's earnings will be getting bigger (Adisetiawan, 2017).

Otherwise the risk of stocks, according to Brennan and Copeland (1988) became larger in the days surrounding the announcement of the split and it is believed that the risk on the day the ex-date tend to experience increased permanent. The increasing liquidity after the split can occur due to the greater ownership of shares and the amount of the transaction. The number of shareholders become increasingly abounded after the split. The increase in the number of shareholders was caused by the drop in prices, the volatility of stock prices are becoming increasingly large attract investors to multiply the number of shares held. Thus the increase in liquidity is due to the growing number of investors who sell and buy shares (Adisetiawan, 2017).

In contrast, research by Copeland (1979); Conroy et al. (1990) discovered the existence of a decrease in liquidity after the split with each using the trading volume and the bid-ask spread − as a proxy. Copeland and Mayers (1982) do research on 162 companies listed on the OTC for the period 1965-1978 and found the presence of a statistically significant increase in the percentage of the bid-ask spread after split (over 40 trading days ex-date). These results contradict (Miller and Rock, 1985) which stated that the split had no effect against the trading volume as well as the bid-ask spread. Miller and Rock did a study of 100 companies that do split and listed on the OTC, with 1972-1976 and produce periods of absence changes the percentage spread relative to the control group. The explanation that the split could give a signal informative about the prospect of profitable companies, according to Brennan and Copeland (1988) the activity of the split signal costly to information manager because the cost of the trade depends on the magnitude of the stock price where both variables have negative relationships. If the split activities can raise the cost of liquidity to investors, then split shows a valid signal. It is supported (Brennan, 1986). According to them the higher the level the Commission shares with the more low the stock price increase raises costs that must be

incurred due to the company split. The level of the Commission shares the higher is the attraction for the broker to do the analysis as precisely as possible so that the stock price is at a level of optimal trade as well as being able to provide information that is favorable to the company and investors (Adisetiawan, 2017).

3. METHOD

The data used in this research is secondary data are derived from the Capital Market Directory and historical data from the Indonesia stock exchange (IDX). The data used is the daily data stock price, trading volume, and the bid-ask spread. This type of research belongs to this type of research historical research. The population of this research is that companies listing on IDX and issued policy of stock split (Adisetiawan, 2017).

The determination of the sampling done in a purposive sampling, in which the sample is selected with the following criteria: (1) the sample selected stocks actively traded (at least ten trading days); (2) just issued the policy of stock split during the period $2016 - 2017$.

3.1. Concept Measurement

The model used in this study is the test of two different averages and multiple regression. Application of this model is used to achieve several goals, among others: Levine *et al.* (1999); Adisetiawan (2017)

1. See if split activity affects stock prices, trading volume, stock variance, and percentage of spreads individually reviewed for each company's stock or as a portfolio. This test uses a two-degree difference test to see if there is a significant difference between the pre-split period and the period after the split to stock prices, trading volume, stock variance, and spread percentage.

2. See if split activity affects stock return as measured from abnormal return. This test uses two different test averages. But before that must calculate the amount of abnormal return first. Abnormal return is the difference between actual return and expected return. The expected return for each stock can be obtained by using the market model which can be expressed as follows:

$$R_i = \alpha + \beta R_m$$

where R_i is the market return and R_m is the return of a certain stock, while the expected return for the portfolio equals the actual market return. After obtaining its abnormal return, it is tested using two difference test average. If the test results show that there is a significant difference between the period before and after the split, then said the split activity affect the stock return, otherwise if there is no difference, then said the split activity does not affect the stock return.

3. Measure the relationship between stock prices, trading volume and stock variance to spreads. Measurement of this relationship is done by using regression model where the percentage of spread as dependent variable and stock price, trading volume, stock variance as independent variable. The regression model can be expressed as follows:

$$S_{i,t} = b_0 + b_1 PRICE_{i,t} + b_2 VOL_{i,t} + b_3 RISK_{i,t} + e_{i,t}$$

where: S = spread; PRICE = stock price; VOL = trade volume; RISK = risk is represented by standard deviation; i = i-shares; and t = time.

4. Empirically test whether stock liquidity becomes increasing or decreasing after a split as measured by the percentage of spread. This test uses two average difference test results on the percentage of spread that has been done in stage one. If the test results at stage one show that there is a significant difference to the percentage of spread then the split activity affects the liquidity and if otherwise the split activity does not affect the liquidity. The next step is to see if the percentage of spreads is getting bigger or smaller after split activity. The greater the percentage of spread after the split shows that liquidity is decreasing and the smaller the spread percentage means the liquidity increases after the split.

Table-1.The Results of the Statistical Test for Each of the Issuers

sample company name	Price			Volume			Varians			Spread			Abnormal Return		
	average before split	average after split	t-Value (Sig.)	average before split	average after split	t-Value (Sig.)	average before split	average after split	t-Value (Sig.)	average before split	average after split	t-Value (Sig.)	average before split	average after split	t-Value (Sig.)
AIMS	945.50	907.50	2.21407	626,700	139,500	4.27877	0.00217	0.00140	0.65208	1.82366	2.75742	-4.36897	0.00937	-0.00997	2.52548
			0.03997			0.00045			0.52259			0.00037			0.02116
BTON	1,221.25	1,282.50	-12.20070	3,930,600	1,090,550	3.55629	0.00223	0.00149	0.42893	1.02045	1.94947	-150.715	0.00296	-0.00168	0.55365
			0.00000			0.00226			0.67306			0.00000			0.58663
CNTX	1,227.50	1,340.00	-2.33663	2,996,955	4,841,222	-0.86961	0.00142	0.03023	-2.72140	1.21579	2.08406	-3.07611	-0.00225	0.00344	-0.26351
			0.03122			0.39596			0.01400			0.00651			0.79515
HMSP	11,298.80	12,512.50	-5.02220	649,100	177,850	3.99528	0.00551	0.00381	0.55418	0.22814	0.77122	-2.99182	0.01402	-0.01069	2.08535
			0.00009			0.00085			0.59299			0.00782			0.05155
ICBP	2,602.50	2,707.50	-4.41359	66,600	45,750	0.66363	0.00245	0.00147	0.94567	1.28678	2.19675	-1.91428	0.00572	-0.00718	1.57091
			0.00034			0.51534			0.35684			0.07162			0.13362
IKBI	3,242.50	3,585.00	-9.85297	982,600	183,450	2.68885	0.00281	0.00166	0.79232	0.67842	1.53527	-2.01038	0.00878	-0.00793	1.86529
			0.00000			0.01500			0.43849			0.05962			0.07853
IMPC	4,950.00	4,950.00	-0.83676	682,400	227,550	2.43193	0.00157	0.00062	1.00478	0.63001	3.01774	-2.60107	0.00125	-0.00136	0.37470
			0.41370			0.02568			0.32832			0.01806			0.71226
ITMA	1,706.25	1,860.00	-9.22212	278,100	1,741,150	-2.63940	0.00965	0.00150	1.95439	3.48858	1.32641	2.53952	0.00370	-0.00304	0.43593
			0.00000			0.01666			0.06637			0.02054			0.66807
KICI	708.75	665.00	5.55719	418,500	155,250	2.07176	0.00457	0.00454	0.01085	1.93036	4.05067	-5.08286	0.00840	-0.00889	1.26975
			0.00003			0.05293			0.99146			0.00008			0.22035
KONI	2,708.75	2,922.50	-6.74942	696,600	188,600	3.26375	0.00121	0.00334	-1.12901	0.73546	1.18993	-2.45105	0.00548	-0.00546	1.13496
			0.00000			0.00431			0.27372			0.02469			0.27128
KREN	3,210.00	3,215.00	-0.03820	10,000,000	777,300	5.01304	0.01869	0.00618	1.24882	0.53809	1.49069	-3.62170	0.02640	-0.02462	2.53237
			0.96995			0.00009			0.22773			0.00195			0.02085
MYOR	1,495.00	1,735.00	-6.50526	14,000,000	4,350,450	1.48032	0.01426	0.00525	1.04354	1.00000	5.19540	-1.17727	0.01419	-0.01363	1.62303
			0.00000			0.15608			0.31051			0.25442			0.12197
SMSM	1,510.00	1,557.50	-2.13168	2,225,400	887,600	2.18252	0.00259	0.00110	0.98797	1.57874	3.20957	-3.55336	0.00758	-0.00777	1.84872
			0.04707			0.04256			0.33626			0.00227			0.08099
TBMS	1,540.00	1,407.50	6.65978	3,252,700	1,687,850	1.36583	0.00181	0.00541	-1.67641	1.23792	2.47415	-2.77963	-0.00277	0.00245	-0.41443
			0.00000			0.18882			0.11094			0.01236			0.68346
TOTO	750.00	975.00	-8.58116	34,900	294,150	-1.46845	0.00716	0.01886	-1.01286	3.54041	4.44271	-0.67043	0.01155	-0.01109	0.97437
			0.00000			0.15924			0.32455			0.51110			0.34279

Significance at α = 5%

Source: processed data

3.2. Test of Differences between Rates, Volume, Variance and Spread Percentage

a. Two Different Test Differences on Each Company

In Table 1, it can be seen that the average of stock price, trading volume, and spread percentage of each company shows a significant difference between the period before and after the split. Only stock variance alone does not show any significant difference. In this section there are several stages of discussion. First, a discussion of stock prices, of the fifteen sample companies studied, thirteen sample companies stated that there was a significant difference between the period before and after the split, while the remaining two sample companies showed otherwise. On average, stock prices of each company increased after the split, only two sample companies whose average price decreased after the split.

Second, the discussion on trading volume, of the fifteen sample companies studied, there are nine sample companies showing that there is a significant difference between the period before and after the split, while the remaining six show the opposite result. On average, trading volume decreased after the split, only two sample companies whose average volume increased after the split. Third, the discussion of the percentage of spreads, of the fifteen sample companies, as many as eleven sample companies indicates that there is a significant difference between the period before and after the split, there are only four sample companies showing the opposite result. On average, the percentage of spreads gets larger after split activity. Of the eleven sample companies stating that there is a significant difference, there is only one company that shows that the percentage of spreads becomes smaller after a split.

Fourth, the last discussion on stock variance. Of the fifteen sample companies, a total of fourteen companies stated that there was no significant difference between the period before and after the split, only one company stated otherwise.

b. The Differences Test of the Two Averages to the Entire Stock as Portfolio

The two-dimensional difference test against the stock price in Table 2, yields a t-count of -5.439 (p-value 0.000). With a significance level of 5%, this result indicates that between the stock price before and after the split there is a significant difference. Furthermore, in Table 2 it can be seen that the difference of two average test on trading volume yielded t-count of 2.662 (p-value 0.016). At the 5% significance level, these results indicate that between trading volume before split to trading volume after split there is a significant difference. The result of difference test of two average to stock variance in Table 2, can be seen t-count equal to -0.351 (p-value 0.730). With a significance level of 5%, this value indicates that there is no significant difference between the variance of the stock before and after the split. Finally, the average difference test of two averages to the percentage of spreads in Table 2, can be seen t-count for the percentage of the spread is -3.70 (p-value 0.002). At the 5% significance level, these results indicate that there is a significant difference between the period before the period after the split.

Table-2. Statistical Test Results for All Shares as Portfolio

Description	Average Before Split	After Before Split	t-Value (Sig.)
Price (Rp)	2,605.917	2,774.833	-5.439) (0.000)
Trade Volume (Thousand Rupiah)	2,665,880	1,111,806	2.662) (0.016)
Varians (%)	1.504	1.340	-0.351) (0.729)
Spread (%)	1.416	2.513	-3.700) (0.002)
Abnormal Return (%)	0.649	1.426	-0.685) (0.502)

Significance at α = 5%
Source: processed data

3.3. Different Two Different Tests Abnormal Return to See What is Split Activity Influence Return Share

a. Testing Against Abnormal Return of each Company

In Table 1, we can see the results of the two different average test against the abnormal return for each company. Of the fifteen sample companies studied, on average, their abnormal returns did not show any significant difference between the period before and after the split, only two companies showed otherwise results. Thus, the results of this test indicate that split activity does not affect abnormal return, in the absence of significant abnormal return difference, then the stock return also will not change significantly. So it can be said that split activity does not affect the stock return.

b. Testing Against Abnormal Return All Shares as Portfolio

The difference test of two average against abnormal return portfolio in Table 2, it can be seen that the value of t-count is -0.685 (p-value 0.502). Using a 5% significance level, this value indicates that between abnormal returns before and after splits shows no significant difference. With this result, it can be said although reviewed as a portfolio of split activity still does not affect stock returns. This can be seen from the absence of significant differences to the abnormal return.

Table-3. Spread Regression Results Against Price, Volume, Variance for Each Issuer

Parameter	AIMS	BTON	CNTX	HMSP	ICBP	IKBI	IMPC	ITMA	KICI	KONI	KREN	MYOR	SMSM	TBMS	TOTO
Constants	7.964	-13.019	1.333	-1.678	-11.69	-8.194	-12.008	33.326	29.435	-0.905	0.116	-24.101	-5.028	15.723	3.518
p-value	0.025	8.91E-08	0.444	0.279	0.232	0.114	0.714	0.0019	0.0004	0.761	0.964	0.166	0.533	0.006	0.534
Koef. Price	-0.005	0.0116	0.00025	0.00019	0.005	0.0027	0.0029	-0.0173	-0.0388	0.0007	0.00042	0.0169	0.005	-0.0091	0.00055
p-value	0.113	1.31E-08	0.8588	0.1326	0.163	0.069	0.655	0.003	0.0012	0.49	0.598	0.115	0.335	0.0152	0.934
Koef. Trade Vol.	-1.04E-07	-4.52E-08	-9.02E-08	-5.6E-07	-2.90E-06	-1.34E-07	-1.79E-06	9.36E-08	9.31E-07	-2.30E-07	-6.72E-08	-2.55E-07	-2.77E-07	-7.18E-08	-5.72E-09
p-value	0.819	0.0202	0.0415	0.141	0.497	0.723	0.152	0.765	0.475	0.475	0.0395	0.2215	0.247467	0.442189	0.997738
Koef. Variance	-87.7	2.553	23.5	20.803	4.00E+01	66.059	-4.18E+01	4.756	-4.583	-4.583	-4.48E+00	209.3661	-1.24E+01	-57.67805	1.54E+01
p-value	0.133	0.789	0.00025	0.271	0.792	0.408	0.874	0.91	0.87	0.87	0.528477	0.169963	0.906098	0.281697	0.621838
R-square	0.238	0.909	0.562	0.331	0.139	0.27	0.159	0.459	0.106	0.106	0.284	0.201	R-0.201	0.359801	0.019129
F statistics	1.774	56.77	7.291	2.799	0.922	2.099	1.078	4.824	0.675	0.675	2.245	1.433	1.433	3.184747	0.110511
Significance F	0.19	4.56E-09	0.0024	0.071	0.451	0.138	0.385	0.013	0.579	0.579	0.12	0.266	0.268	0.050534	0.952779

Significance at α = 1%

Source: processed data

3.4. Measurement of Relationship between Price, Volume and Variance to Spread

a. Measurement Relationship With Regression For Each Company

The result of regression in each company in Table 3 shows that the average, stock price, trading volume, and stock variance do not have a significant effect on the percentage of spread. In this section there are several stages of discussion. First, a discussion of the relationship of stock prices to the percentage of spreads. Of the fifteen sample companies, as many as eleven sample companies show that stock prices are positively related to the spread, while the remaining four companies show otherwise. The regression results also show that of the fifteen sample firms, there are only three firms that price has a significant effect on the percentage of spreads. Second, the discussion of trade volume relationship to the percentage of spread. Of the fifteen firms studied, thirteen sample companies showed that trading volume had a negative relationship to the percentage of spreads. The regression results also show that of the fifteen sample firms, there are only two sample companies stating that trading volume has a significant effect on the percentage of spreads. Third, the discussion of the relationship of stock variance to the percentage of spread. Of the fifteen firms studied, nine sample companies showed that stock variance had a positive relationship with the percentage of spreads. The regression results also show that of the fifteen sample firms, there is only one sample company which states that trading volume has a significant effect on the percentage of spreads.

b. Measurement Relationship to Regression Against All Shares as Portfolio

The result of regression to the portfolio in Table 4 shows the value of R-square generated by 0.529. This value means that the possibility of independent variables such as price, volume and variance can explain the percentage of spread as a dependent variable of 52.9%. In addition, this model has an F-value of 6.38 (p-value 0.004) and is statistically significant at the 1% level. This shows that there is at least a significant relationship between the dependent variable with one of its independent variables. Furthermore, the discussion of the relationship between each independent variable with its dependent variable. First, from regression, the coefficient of price variable is 0.005 (p-value 0.001) and statistically significant at 1% level. This coefficient number indicates that the stock price has a positive relationship to the percentage of spread and this result also shows that stock price has a significant effect on the percentage of spread. If the stock price rises by 1%, ceteris paribus, then the spread will rise by 0.005 percent or vice versa. Second, from the regression, the coefficient of trading volume variables is -1.27E-07 (p-value 0.277) and statistically insignificant at 1% level. The coefficient number indicates that the trading volume has a negative relationship to the percentage of spread and this result also shows the trading volume has no significant effect on the percentage of spread. Third, from the regression, the coefficient of variable variance of stock is 33.99 (p-value 0.457) and statistically not significant at level 1%. The coefficient number indicates that the stock variance has a positive relationship to the percentage of spread and also indicates that the trading volume has no significant effect on the percentage of spread.

Table-4. Results of Regression against Portfolio

Parameter	coefficient	p-value
Constants	–11.416	0.004021
Price	0.005	0.001099
Trade Volume	-1.27E-07	2.77E-01
Variance	33.987	0.457
R-square	0.529	
F-stat	6.38	
Sig.F	0.004	

Significance at $\alpha = 1\%$
Source: processed data

3.5. Emperical Prove Employees Whether Split Activity Influences the Liquidity that Measured from Spread Percentage

Liquidity of a stock can be measured from its execution cost (Blake, 1990). This execution cost is the amount of costs that must be incurred to convert a security into cash or vice versa. There are two kinds of execution cost, firstly, broker commission fee and second, bid-ask spread where this spread is determined by the dealer. The greater the percentage of the spread, the lower the liquidity and vice versa. The measure of liquidity in this study is the percentage of spreads. In Tables 1 and 2, it can be viewed both for each company and as a portfolio, between the percentage of spreads before and after the split shows a significant difference where the average spread percentage becomes larger. Thus, these results prove that stock liquidity has decreased after split activity. (Adisetiawan, 2017)

4. CONCLUSION

Based on the results of research that has been done there are some conclusions that can be made, among others:

1. Split activity has a significant influence on stock prices, trading volume and percentage of spreads, but has no significant effect on stock variance and abnormal return either individually or as a portfolio.

2. The absence of significant differences for abnormal return means there is also no change in stock returns. Thus, it is concluded that split activity does not affect stock return either individually or as a portfolio.

3. On average, stock prices have a positive relationship to the percentage of the spread either individually or as a portfolio.

4. On average, trading volume has a negative relationship to the percentage of spreads either individually or as a portfolio.

5. On average, stock variance has a positive relationship to the percentage of spreads, either individually or as a portfolio.

6. If individually reviewed, the larger percentage change in spreads is not caused significantly by price, volume or stock variance.

7. When viewed as a portfolio, the percentage change in spreads is significantly influenced by stock prices.

8. The greater the percentage of spreads, overall both individually reviewed and as a portfolio concluded that stock liquidity declined after the split.

REFERENCES

Adisetiawan and Y. Surono, 2016. Indonesian capital market efficiency. British Journal of Economics, Finance and Management Sciences, 11(1): 108-121. *View at Google Scholar*

Adisetiawan, R., 2017. Does stock option force bid-ask spread and abnormal return? International Research Journal of Finance and Economics, 161: 96-104.

Baker, K.H. and P.L. Gallagher, 1980. Management's view of stock splits. Financial Management, 9(2): 73-77. *View at Google Scholar | View at Publisher*

Baker, K.H. and G.E. Powell, 1999. How corporate managers view dividend policy. Quarterly Journal of Business and Economics, 38(2): 17-35. *View at Google Scholar*

Blake, D., 1990. Financial market analysis. London: McGraw-Hill Book Company.

Brennan, M.J., 1986. A theory of price limits in future markets. Journal of Financial Economics, 16(2): 213-233. *View at Google Scholar | View at Publisher*

Brennan, M.J. and T.E. Copeland, 1988. Beta changes around stock splits. Journal of Finance, 43(4): 1009-1013. *View at Google Scholar | View at Publisher*

Brigham, E.F., L.C. Gapenski and P.R. Daves, 2006. Intermediate financial management. 9th Edn., Florida: Dryden Press.

Conroy, R.M., H.S. Robert and B.A. Bruce, 1990. The effect of stock split on bid-ask spreads. Journal of Finance, 45(4): 1285-1295.

Copeland, T.E., 1979. Liquidity changes following stock splits. Journal of Finance, 34(1): 115-141. *View at Google Scholar | View at Publisher*

Copeland, T.E. and D. Mayers, 1982. The value line enignma (1965-1978): A case study of performance evaluation issues. Journal of Financial Economics, 10(3): 289-321. *View at Google Scholar | View at Publisher*

Fama, E.F. and K.R. French, 1993. Common risk factors in the returns on stocks and bonds. Journal of Finance, 33(1): 3-56. *View at Google Scholar | View at Publisher*

Grinblatt, M.S., R.W. Masulis and S. Titman, 1984. The valuation effects of stock splits and stock dividends. Journal of Financial Economics, 13(4): 461-490. *View at Google Scholar | View at Publisher*

Levine, D.M., M.L. Berenson and D. Stephen, 1999. Statistics for managers. New Jersey: Prentice-Hall Inc.

Lorie, J.H., P. Dodd and M.H. Kimpton, 1985. The stock market: Theories and evidance. 2nd Edn., Homewood, IL: Irwin.

Miller, M.H. and K. Rock, 1985. Dividend policy under assymetric information. Journal of Finance, 40(4): 1031-1051. *View at Google Scholar | View at Publisher*

Nichols, W.D. and B. McDonal, 1983. Stock splits and market anomalies. Financial Review, 18(4): 237-256. *View at Google Scholar | View at Publisher*

Sears, R.S. and G.L. Trennepohl, 1993. Investment management. Fort Worth: Dryden Press.