العلاقة بين نسبة التوزيعات المدفوعة كعوائد للمساهمين والنمو المستقبلى لعوائد الشركات

دراسة تطبيقية على سوق رأس المال المصرى

حسن إسماعيل فارس

أستاذ إدارة الأعمال المساعد

أكاديمية الشروق - مصر

egyptwatch@hotmail.com

2012

الملخص :

تهدف هذه الدراسة إلى بيان العلاقة بين نسبة التوزيعات المدفوعة كعوائد للمساهمين على أسهم الشركات والنمو المستقبلى لعوائد تلك الشركات، ولإنجاز ذلك قام الباحث بإجراء دراسة تطبيقية على الشركات المدرجة في البورصة المصرية للأوراق المالية، حيث اعتمدت منهجية الدراسة على جمع بيانات من خلال تقارير السوق، **وغطت** الدراسة الفترة ما بين 2005-2010، ولقد **أسفرت** الدراسة -خلافا للنظرية التقليدية- عن وجود علاقة ذات دلالة إحصائية بين نسبة التوزيعات على أسهم الشركات والنمو المستقبلى لعوائد تلك الشركات، فكلما زادت نسبة التوزيعات زاد بالتالى معدل النمو المستقبلى لعوائد تلك الشركات، وذلك على مستوى السوق ككل، وكذلك على مستوى كل شركة على حدى. ويوجد عدة افتراضات مبدئية قد **تفسر** هذه الظاهرة منها ثقة الإدارة، رغبة الشركات فى التوسع لتصبح شركات عملاقة، وعدم رغبة مديرى الشركات فى إجراء التوزيعات، فرط الاستثمار من جانب الشركات ذات التوزيعات المنخفضة، وللنتائج التى تم التوصل إليها اثر على سوق عقود الخيارات، والسياسات الاستثمارية لصناديق الاستثمار، وقيمة حقوق المساهمين.

كلمات رئيسية :

نسبة الاحتجاز، نسبة التوزيعات، نمو العوائد، سياسة التوزيعات، قيمة حقوق المساهمين.

Relationship between Dividend Payout Ratio and Earnings Growth
A Test of the Egyptian Stock Market

Hasan Ismail Faris
Assistant Professor of B. A.,
Al Shorouk Academy, Egypt
egyptwatch@hotmail.com
2012

Abstract:

Stock dividend puzzles have been studied for many years. Conventional theory suggests that future earnings growth is largely supported by the percentage of retained earnings that is reinvested in the same corporation and not paid out as dividends. This paper, for the first time, investigates the relationship between payout ratios and earnings growth in the Egyptian Stock Market during the period from 2005 to 2010. We found that there is a statistically significant positive correlation between payout ratio and earnings growth (i.e., the greater the payout ratio, the greater the future earnings growth) in the Egyptian Stock Market contrary to conventional theory in both aggregate level and company level as well. The following reasons represent a beginning effort to explain this relationship: management confidence, corporate managers' loath to cut dividends, management attempts to build empire, overinvestment on the part of low-payout companies, sticky dividends. The finding of this paper has a significant impact on stock options, mutual funds investment strategies and shareholders' value.

Key Words:

Plowback Ratio, Dividend Payout Ratio, Earnings Growth, Dividend Policy, Shareholders' Value

1. Background

A dividend is a cash payment, made to stockholders, from earnings. If the payment is from sources other than current earnings, it is called a liquidating dividend. How often a dividend is paid by an individual stock or fund is called dividend frequency (Gul, 2012).

A firm's dividend policy determines the pattern of dividend payment over time. Dividend policy determines the division of earnings between payments to stockholders and reinvestments in the firm. Managers' task is to allocate the earnings to dividends or retained earnings. A firm that will never pay cash benefits to stockholders would have zero value. A firm can pay a large percentage of earnings as dividends, or choose to pay a small percentage and reinvest the rest in other projects. The issue of dividend policy concerns the question of whether one or the other of these approaches is more advantageous to the stockholders (Laux, 2011).

According to conventional theory, there may be information content in a firm's dividend policy. The greater retained earnings could also partly or wholly replace debt finance. Retained earnings are one of the most significant sources of funds for financing corporate growth. Corporate growth makes it eventually possibly to get more dividends. Historical evidence suggests that corporate management is usually very reluctant to cut dividends. Thus when management increases its dividends, it may be "signaling" to the market that it anticipates being able to maintain higher earnings over an extended period of time sufficient to sustain dividend payments at this increased level. If shareholders believe that an increased dividend is indicative of higher future earnings, they will bid up that price of the company's stock (Adefila et. al, 2011).

Most books and articles on dividends reveal that stocks with low dividends present the highest growth potential. Therefore, the typical academic contributions regarding dividends are supported by the measure of "Sustainable growth model" which estimates prices of stocks (Higgins, 1981). Further, this measure also shows that future growth is greatly enhanced by the retained earnings which could be reinvested in same corporation and not paid as dividends (Azhagaiah, 2008).

In finance, there are some areas, which have puzzled researchers. One of them is the dividend behavior of firms. Dividend policy has been an issue of interest in financial literature since Joint Stock Companies came into existence. Along with capital structure, dividend policy has been one of the first areas of corporate finance to be analyzed with a precise model, and it has since been one of the most thoroughly researched issues in modern finance. In spite of this, much remains unexplained concerning the role of dividends. According to Brealey and Myers (2002) dividend policy has been kept as the top ten puzzles in finance (Kowerski, 2012). Black (1976) epitomizes the lack of consensus by stating: “The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don’t fit together”.

2. Literature Review

Dividend payout ratio is the percentage of earnings paid to shareholders in dividends. The payout ratio provides an idea of how well earnings support the dividend payments. More mature companies tend to have a higher payout ratio. Dividend payout ratio is calculated as the following:

$$\text{Dividend Pay} = \frac{\textbf{Yearly Dividend per Share}}{\textbf{Earnings per Share}} \quad (1)$$

or equivalently:

$$= \frac{\textbf{Dividends}}{\textbf{Net Income}} \quad (2)$$

Earnings Growth Rate is the annual growth rate of investments' earnings. When the dividend payout ratio is the same, the dividend growth rate is equal to the earnings growth rate. Part of the earnings is paid out as dividends and part of it is retained to fund future growth of firm, as given by the payout ratio and the plowback ratio. Thus the growth rate is given by the following equation:-

G = Plowback Ratio x Return on Equity (3)

Plowback ratio measures the amount of earnings retained after dividends have been paid out. This is the opposite of the payout ratio, which measures the amount of dividends that are paid out as a percentage of earnings. Plowback ratio is also known as "retention rate", "retention ratio" or the "earnings retention ratio".

The expected return on total market can be calculated using the constant-growth valuation model presented by Gordon (1962), illustrated as follows:-

$$R = \frac{D}{P} + G \quad (4)$$

$$R = \frac{D}{E} \cdot \frac{E}{P} + G \quad (5)$$

Whereas, R, which refers to the expected return on the market; equals the sum of dividend yield, D/P, and the expected constant dividend growth, G, (equation 4).

Similarly, the product of the payout ratio, D/E, and earnings yield; E/P, plus the constant growth term, G (equation 5). Arnott and Asness (2003) consider the effect of a permanent downward shift in the payout ratio. However, in the light of the hypotheses of Miller and Modigliani (1961), if earnings do not change, then, there may be no change in the value of those earnings. As a result, the earnings yield remains constant. This means that in order that the expected return could remain fixed, the decline from the lower payout ratio should be justified by the increase in the expected growth of dividends. In turn, this supports the idea behind the theory that firms' high retained earnings may lead to higher earnings growth levels (Vojtech, 2012).

According to Lakonishok et al (1993); Fama and French (1996), there is a positive relation between earnings yield and returns. Studies which are presented for example by Keim (1985), Christie (1990), and Morgan and Thomas (1998) also stated that there is a positive relation between dividend yields and returns for portfolios consists of individual firms.

One group of financial theorists (Martin, Petty, Keown, and Scott, 1991; Miller, 1986; and Miller and Modigliani, 1961) provides a hypothesis for dividend policy irrelevance. This group bases its theory on the assumptions of 1) perfect capital markets, meaning no taxes or transaction costs exist, the market price cannot be influenced by a single buyer or seller, and there is costless access to information; 2) rational behavior on the part of participants in the market, valuing securities based on the discounted value of future cash flows accruing to investors; 3) certainty about the investment policy of the firm and complete knowledge of these cash flows; and 4) managers that act as perfect agents of the shareholders. For dividend policy to matter, one or more of these assumptions cannot hold.

Perhaps the most prominent work in this field is Miller and Modigliani (1961), who show that, in the above illustrated perfect markets, the payout decision is irrelevant because it neither creates nor destroys value for shareholders. If the investment decision is held constant, higher dividends result in lower capital gains, leaving the total wealth of shareholders unchanged (Borges, 2009).

Miller and Modigliani (1961) show that the way a firm divides earnings between dividends and reinvestment has no impact on firm value. Higher payouts will lead to lower retained earnings and lower capital gains—it's just a trade off. Stockholders who prefer dividends will buy into firms that pay them, and those who want capital gains will buy the stocks of growth firms that reinvest earnings.

Moreover, according to Modigliani and Miller (1961), share's market price should be irrelevant to dividends and firm's value does not depend at all on the retained dividends. Therefore, the earnings portion which is retained should contain information about the future earnings. If this is true, share's market price has to respond to the announcements regarding dividends, not the portion of earnings which is paid out as dividends (Laux, 2011).

In the real world, with market imperfections such as taxes and transaction costs, and other issues such as information asymmetries and agency problems, dividend policy seems to be very relevant, both for the managers of the firms, shareholders, prospective investors and market analysts. Not only do managers show extra care in their payout decisions, especially in changing payout decisions, but also the markets react strongly to dividend changes, and more so, to dividend omissions and initiations, as proved by Aharony and Swary (1980) and Michaely, Thaler and Womack (1995).

Another school of thought holds that without Modigliani and Miller’s (1961) restrictive assumptions, their argument collapses. They asserted that since, in reality investors operate in a world of brokerage fees, taxes, and uncertainty, it is better to view the firm in the light of these factors. The leading proponent of the relevance of dividend theory, Gordon (1962) suggests that shareholders do have a preference for current dividends, that, in fact theme is direct relationship between the dividend policy of a firm and its market value. Gordon (1962) argues that investors are generally risk-averters and attach less risk to current as opposed to future dividends or capital gains. This ‘birds r’ hand” argument suggest that a firm’ dividend policy is relevant since investors prefer some dividend now in order to reduce their uncertainty. When investors are uncertain about their returns they discount the firm’s future earnings at a lower rate therefore placing a higher value on the firm (Laux, 2011).

Ibbotson and Chen (2003) found out that the estimated aggregate returns should not be impacted by the payout ratio because this in turn would affect the means by which investors get their gains. Investors receive their gains either through dividends or capital increases, thus, low dividends should be offset by the high growth in expected earnings. Also, this high expected growth can be used to account for the high P/E ratio. Some argue that mispricing is not expected in an efficient market as equity premium is considered constant over both the period of estimation and the future. As a result, it is not expected to be a function of lower return rate.

McManus et al (2004) examined the role of payout ratio in asset pricing in UK market. They found that there is a positive relation between the payout ratio and the returns of a ten years period. In addition, this impact dominates over the impact of divided yield, although there is no relationship discussed regarding earnings growth.

From the aggregate market view, Arnott and Asness (2003) examined the role of dividend payout ratio of US equity market in predicting the growth of future earning via analyzing the US data during the period from 1871 to 2001. Because dividends reduce the funds available for investment, many investors associate high dividend payout with weak future earnings growth. But Arnott and Asness (2003) revealed the unexpected result that higher dividend payout ratios at the market level correspond to higher future earnings growth and low payout ratios (i.e. high rates of retained earnings precede the low earnings growth in the United States).

Arnott and Asness (2003) have found that empirical facts are consistent with a world where managers have that private information which make them pay a large share of earnings (i.e. high payout ratio) when they are optimistic that dividend cuts will not be essential. While this information make these managers pay little portion of dividends (i.e. low payout ratio) when they are pessimistic that the retained dividends are important in order that they could be able to maintain the dividend payouts.

In other words, these findings are consistent with a world where low payout ratio result in an efficient empire building, then, funding less projects and investments. This in turn leads to poor growth. High ratios of paid dividends result in more carefully chosen projects.

Gwilym et al (2004) examined the relationship among the real earnings growth, real dividends growth, the payout and the real returns on stocks in both the USA and the UK in the period from

1900 to 2001. They found that there is a positive relationship between the ratio of payout and real growth of earnings in UK stock market. This finding is on the contrary to the traditional theory, although it is consistent with the US evidence which have been presented by both Arnott and Asness (2003).

Parker (2005) argued that there is a positive relation between the payout ratio and the growth of earnings in the USA, Canada and Australia. But, this relation was weak in Australia over the period from 1956 to 2005. Although the relation between the payout ratio and the growth of future earnings is weakest in Australia, the regression of 10-year growth of future earnings on the current monthly payout ratio showed that the R-squared and t-statistics of all the 237 regressions which were conducted for the ASX market index were significant.

Gwilym et al. (2006) have presented evidence for the US stock market. This evidence stated that the greater the proportion of earnings paid out as dividends, the greater the subsequent real earnings growth. Their study is considered as an extension to the previous literature which examined whether there is a similar relation in 11 global stock markets. In doing so, this literature takes into consideration the role of payout ratio in accounting for the real dividends and returns growth. The reasoning is that high payout ratios result in high real growth of earnings, but do not result in high real growth of dividends.

Further, Vivian (2006) found a strong positive association between the payout ratio and earnings growth across twenty industries in the UK. Both mean reversion in earnings and the cash flow signaling hypothesis failed to explain this relationship, with the lagged earnings growth variable unable to subsume the power of the payout ratio, while the lagged dividend growth variable was insignificant in explaining future earnings growth.

Flint et al (2010) used the payout ratio to forecast the growth of future earnings of the company through examining both the listed and non-listed firms on the Australia stock market over the period from 1989 to 2008. He provided evidence that the dividends payout ratio is positively correlated to the growth of future earnings.

On the other hand, Zhou and Ruland (2006) examined large sample of companies over a 50-year time period on company-by-company level instead of using aggregate market level as Arnott and Asness (2003) did. Because aggregate results may not apply at the company level, Zhou and Ruland (2006) tests also show that high–dividend–payout companies tend to experience strong not weak future earnings growth.

Zhou and Ruland (2006) company level analysis complements the aggregate level analysis of Arnott and Asness (2003). Both studies found that high payout is related to high future earnings growth and thereby challenge conventional wisdom. Arnott and Asness (2003) results bear on the valuation of the overall market and Zhou and Ruland (2006) results shed light on the valuation of individual stocks.

3. The Egyptian Stock Market

Formal Stock market activity in Egypt dates back to 1888 when the Alexandria Stock Exchange was inaugurated. The Cairo Stock Exchange was established in 1903. Trading was very active during the 1940s, with the Egyptian Exchange ranking fifth most active in the world during that period. However, due to the Socialist policies adopted by the government, which led to a major nationalization program that started in 1959, a drastic reduction in activity occurred from 1961 till 1991. The two exchanges remained operating during that period but trading on the floor was effectively dormant. In 1990/1991, the government started its major economic reform program towards free market mechanism and privatization. One of the major dimensions of this program was the revival of the Capital market through the enactment of the Capital Market Law No. 95/1992. The law provided great momentum to the market and the market capitalization increased dramatically as the reform and privatization progressed (Azab 2002).

The Egyptian exchange has several indices that track its performance, EGX 30, EGX 70, EGX 100 (Al-Jafari, Altaee 2002). EGX 100 tracks the performance of the 100 active companies, including both the 30 constituent-companies of EGX 30 Index and the 70 constituent-companies of EGX 70 Index. EGX 100 index was retroactively computed as of 1 January 2006. EGX 70 Price Index tracks the performance of the 70 active companies, after excluding the 30 most active constituent-companies of EGX 30 Index. EGX 70 index was retroactively computed as of 1 January 2008.

EGX 30 index is designed and calculated by Egyptian Stock Market. EGX started disseminating its index on 2 February 2003 via data vendors, its publications, web site, newspapers etc. The start date of the index was on 2/1/1998 with a base value of 1000 points. EGX 30 index value is calculated in local currency terms and denominated in US dollars. So, we will use EGX 30 in this paper since it covers the tested period.

EGX 30 Index is weighted by market capitalization and adjusted by the free float. Adjusted Market capitalization of a listed company is the number of its listed shares multiplied by the closing price of that company multiplied by the percent of freely floated shares. For a company to be included in EGX 30 index, it must have at least 15% free float. This ensures market participants that the index constituents truly represent actively traded companies and that the index is a good and reputable barometer for the Egyptian market.

4. Aggregate Market Analysis:

Because of the Egyptian revolution that occurred in Jan 25, 2011, we will examine the stock dividend behavior in Egypt during the period from 2005 to 2010 that led to trading halt for weeks and followed by misrepresenting unreliable trading activity data.

4.1 Model and data

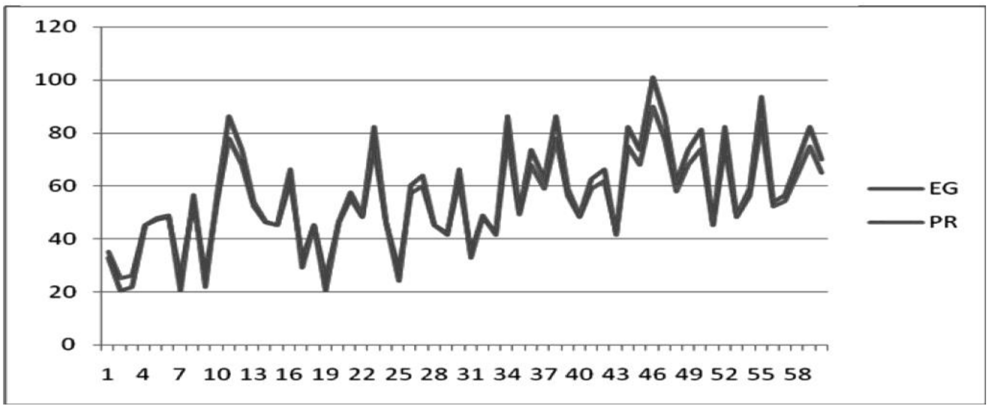
Following Arnott and Asness (2003), when calculating the growth of real earnings, we started with calculating real earnings for an index portfolio, as follows:

1. We used EGX 30 index as a total return index for stocks for the period from 2005 to 2010.
2. Then, we subtracted the monthly paid dividend, this in turn give us index of stock prices.
3. We divided this by Consumer Price Index (CPI) in order to get the time series of real stock prices.
4. We multiplied the time series of real prices by earnings-yield data. This process will generate a history of EPS of the EGX 30 index.

4.2 Empirical Results

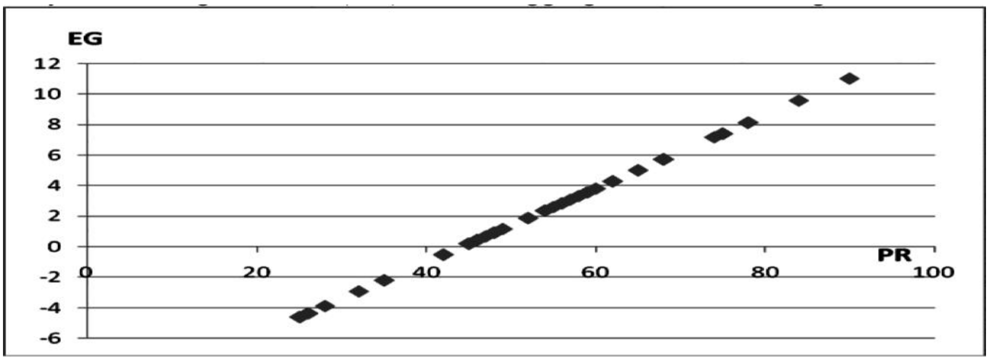
The payout ratio can be calculated via dividing trailing dividends of the last year by trailing earnings of the last year. Dividends tend to lag behind earnings, that is, increases in earnings are followed by increases in dividends and decreases in earnings sometimes by dividend cuts (i.e. dividends are sticky). Dividends are "sticky" because firms are typically reluctant to change dividends; in particular, firms avoid cutting dividends even when earnings drop. With dividends slow to respond to changes in earnings, temporarily high earnings would be associated with a low dividend payout ratio, resulting in a direct relationship between the dividend payout ratio and earnings growth (Kapoor, 2009). Besides, these dividends can fall actually during high inflation periods. More to the point, the payout ratios are relatively volatile although they are far less volatile than before and this is due to that earnings are more volatile than dividends. Figure (1) illustrates the payout ratio during the period from 2005 to 2010 and real earnings growth. Figure (2), shows the relation of current dividends payout to the growth of future earnings is positive.

Figure (1)
Relationship between Payout Ratio (PR) & Subsequent 5- Year Earnings Growth (EG) for Aggregate Market during the Period



Source: the researcher based on statistical analysis

Figure (2)
Scatter Diagram the Relationship between Payout Ratio (PR) & Subsequent 5-year Earnings Growth (EG) for the Aggregate Market during the Period



Source: the researcher based on statistical analysis

Figure (1) & Figure (2) shows that the relationship between Payout Ratio (PR) & subsequent 5-Year Earnings Growth (EG) during the period is a positive relationship where the higher the value of Payout Ratio (PR) the better the value of Earnings Growth (EG) and vice versa.

The model used to estimate values of Subsequent 5-years Earnings Growth (EG) using Payout Ratio (PR) values is represented in Table (1):

Table (1)
Subsequent 5-Year Earnings Growth as a Function of Payout Ratio*

Regression Span	A	b	Adjusted R-squared
2005-2010	**- 10.6** **(- 7.2)**	**0.24 PR** **(8.6)**	**75.32 %**

Source: the researcher based on statistical analysis

*The Regression equation is (EG) = -10.6 + 0.24 (PR) (T-statistics in parentheses)

Table (1) illustrates the monthly regression model meeting figure (1) in terms of the growth of real earnings of EGX 30 during 5-years period on starting dividends payout ratio. The relation is in plots and regression is compelling as it sends the wrong sign.

From Table (1); it is clear that the coefficient of the regression model (b) is significant, where the value of t-statistic is significant. It is noted that the value of coefficient (PR) is positive. Therefore, the relationship between (PR) & (EG) is a positive relationship. The value of the constant (a) is negative meaning that if the value PR equals 0%. The value of (EG) will be negative and still negative until the value of PR equals 44.16%, then, the value of (EG) will become zero. After that, the value of (EG) will be positive with the increase value of (PR). The previous model that is set out in Table (1) explains 75.32% of the changes that occur in the value of (EG).

Table (2) shows comparison between subsequent 5-years earnings growth (EG) & payout ratio (PR) using comparisons of the four levels for payout ratio.

Table (2)
Quartile Comparisons of Payout Ratio & Subsequent 5-years Earnings Growth

Starting Payout Quartile	Average	Worst	Best
1 (Low)	- 3.2 %	- 9.2 %	+1.3 %
2	+ 3.2 %	- 4.1 %	+5.3 %
3	+ 4.3 %	- 1.1 %	+8.3 %
4 (High)	+ 6.17 %	+ 1.9 %	+12.8 %

Source: the researcher based on statistical analysis

It is noted from Table (2) that the best value for (EG) when (PR) in the first level equals to +1.3% which is lower than the worst value for (EG) when (PR) in the fourth level where the value of (EG) equals to + 1.9 %. It is also noted from Table (2) that the best value for (EG) when (PR) in the second level equals to 5.3% which is lower than the average value for (EG) when (PR) in the fourth level where the value of (EG) Equals to + 6.17%.

4.3 Using ARMA & ARIMA Models in Analyzing Values of (PR) & (EG).

ARMA (p, q) model is used in estimation and prediction of the values of the stationary time series. ARIMA (p, d, q) model is used in estimation and prediction of the values of the non-stationary time series. We have to study wither the time series is stationary or not. To determine this we use the unit root test.

4.3.1 The Time Series of the Payout Ratio (PR)

The time series of the payout ratio (PR) is the series of monthly values of the payout ratio during the period from 2005 to 2010 over the total market level in the Egyptian stock market.

4.3.1.1 Key Statistical Characteristics of the Time Series of the Payout Ratio (PR)

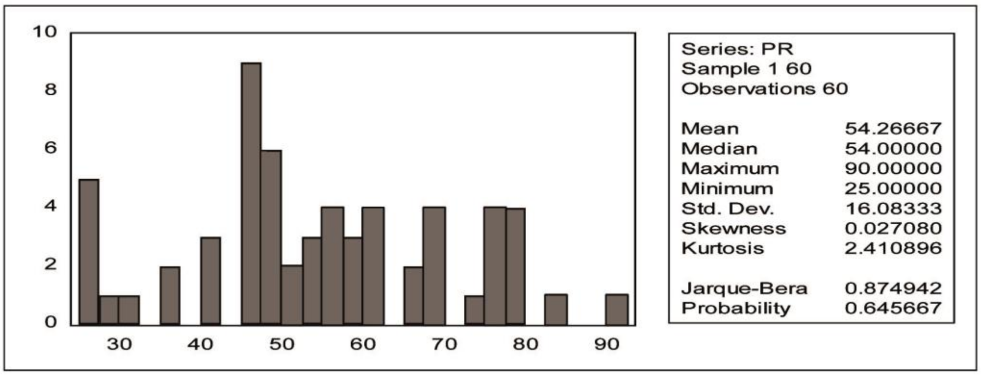
By studying the statistical characteristics of the payout ratio (PR) time series, it is clear that the value of the coefficient of skewness is positive and equal to 0.027, which means that the distribution of the chain is not symmetric and the right tail is much longer than the normal distribution. Also, the value of coefficient of Kurtosis is 2.411, which is less than the value of coefficient of kurtosis of the normal distribution. To test that the data follow the normal distribution, we will use the Jarque-Bera (1987) test, where the statistical assumptions for this test is as follows:-

H_0: data is normally distributed

H_1: data is not normally distributed

The probability value of the Jarque-Bera (1987) coefficient indicates the possibility of accepting the null hypothesis that the time series of the payout ratio (PR) is a normally distributed.

Figure (3)
Statistical Characteristics of the Payout Ratio (PR) Time Series



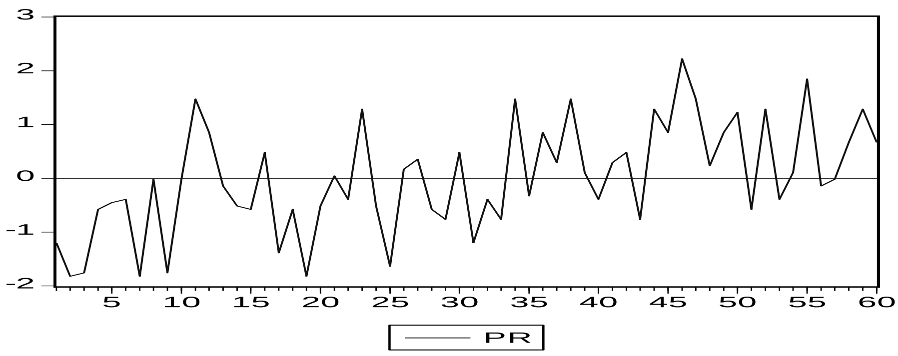
Source: the researcher based on statistical analysis

4.3.1.2 Signing Graph of the Payout Ratio (PR) Time Series

The most important characteristics of this time series is non-stationary trend “existence of unit root”. According to Stock (2004) and Engel and Grangr (1987), the use of non-stationary time series in the estimation of the parameters of any relationship regardless of the estimation method used may lead to false estimates of parameters. Figure (4) illustrates that the values of the payout ratio (PR) deviates from the zero mean in some way and because of the first characteristics of stationary time series is that they fluctuate around the zero mean, thus we can say that the time series of the payout ratio (PR) is a stationary time series during the study period.

Figure (4)

The Signing Graph of the Time Series of the Payout Ratio (PR)



Source: the researcher based on statistical analysis

4.3.1.3 Augmented Dickey-Fuller (ADF) Test for the Payout Ratio (PR) Series

The Augmented Dickey-Fuller (ADF) test (Dicky, Fuler, 1981), also called unit root test, tests the null hypothesis of the existence of unit root (non stationary) against hypothesis of the non existence of unit root (stationary) for the trend of the time series by estimating the following equation:-

$$Y_t = \rho Y_{t-1} + x_t`\delta + \varepsilon_t \qquad (6)$$

Where the statistical hypotheses for this test are as follows:-

H_0: ρ=1: The time series is non-stationary (i. e. existence of unit root)

H_1: ρ<1 or |ρ|≥1: The time series is stationary (i. e. non existence of unit root)

The following two tables illustrates summary of the results of unit root test for the time series of the payout ratio using the Augmented Dickey Fuller test.

Table (3)

The Augmented Dickey-Fuller (ADF) test Results with Constant for (PR)

Null Hypothesis: PR has a unit root Exogenous: Constant Lag Length: 0 (Automatic based on SIC, MAXLAG=10)		
Prob.*	t-Statistic	
0.0000	-5.805654	Augmented Dickey-Fuller test statistic
	-3.546099	1% level Test critical values:
	-2.911730	5% level
	-2.593551	10% level

Source: the researcher based on statistical analysis

Table (4)
Augmented Dickey-Fuller (ADF) Test Results with Constant and Linear Trend for (PR)

Null Hypothesis: PR has a unit root Exogenous: Constant, Linear Trend Lag Length: 0 (Automatic based on SIC, MAXLAG=10)		
Prob.*	t-Statistic	
0.0000	-7.577898	Augmented Dickey-Fuller test statistic
	-4.121303	1% level Test critical values:
	-3.487845	5% level
	-3.172314	10% level

Source: the researcher based on statistical analysis

The results of the Augmented Dickey Fuller (Dicky, Fuler, 1981) test in each of table (3) & table (4) shows that the payout ratio time series does not include the unit root, because the absolute value of Tau (τ) equals 5.805 which is greater than the absolute critical value of Tau (τ) that equals 3.546 in the absence of time. Because the absolute value of Tau (τ) 7.778 which is greater than the absolute critical value of Tau (τ) that equals 4.121 in the presence of time. Thus, we reject of the null hypothesis and accept the alternative hypothesis that the time series of the payout ratio (PR) is stationary time series.

4.3.1.4 Auto Regression Moving Average Models ARMA (p, q)

Auto regression moving average models ARMA (p, q) is used in estimating and predicting the values of variable with the lagging values of the same variable.

4.3.1.4.1 Description of ARMA (p, q) Model.

With regard to the significance test of the auto regression model of lagging p (AR (p)), the statistical hypotheses to test the significance of AR (p) is as follows:

H_o: prob. ≥ 0.05 then, AR (p) is not significant.

H_1: prob. < 0.05 then, AR (p) is significant.

Where p is the number of lagging periods of the variable under study in the auto regression equation,

As well as the statistical hypotheses to test the significance of the moving average model of lagging q (MA (q)) can be calculated as follows:

H_o: prob. ≥ 0.05 then, MA (q) is not significant.

H_1: prob. < 0.05 then, MA (q) is significant.

Where, q is the number of lagging periods of the error term in the auto regression equation.

It should be noted that we can apply the model ARMA (p, q) only on the stationary time series.

4.3.1.4.2 Durbin – Watson Statistic

the Durbin–Watson statistic is a statistic test used to detect the presence of autocorrelation (a relationship between values separated from each other by a given time lag) in the residuals (prediction errors) from a regression analysis. It is named after James Durbin and Geoffrey Watson (1951). The (DW) test is a test for the hypotheses that $\rho = 0$ in the following equation:

$$Y_t = \rho Y_{t-1} + \varepsilon_t \qquad (7)$$

The statistical hypothesis for this test is as follows:

H_0: $\rho = 0$

H_1: $\rho \neq 0$

In the absence of the serial correlation between each successive pairs of the residuals values of the time series, the value of (DW) is close to (2). In case of positive serial correlation, the value of (DW) is less than (2) and close to zero. In case of negative serial correlation, the value of (DW) lies between (2) and (4).

4.3.1.4.3 Autocorrelation Function (ACF)

This function gives the amount of correlation between Y_t, Y_{t-k}. After taking the impact of the correlation of the variables $\{Y_t, Y_{t-k}, \ldots, Y_{t-k+1}\}$ into consideration, it is symbolized by ρ_k at the lagging period (K).

Characteristics of Autocorrelation Function are as follows:

1. $\boldsymbol{\rho_0 = 1}$
2. $\boldsymbol{\rho_{-k} = \rho_k}$
3. $\boldsymbol{|\rho_k| \leq 1}$

4.3.1.4.4 Partial Autocorrelation Function (PACF)

This function gives the amount of correlation between Y_t, Y_{t-k}. After removing the impact of the correlation of the variables $\{Y_{t-1}, Y_{t-2}, \ldots, Y_{t-k+1}\}$, it is symbolized by $\emptyset_{kk}$ at the lagging period (K).

We can use the coefficient of autocorrelation function (ACF) and the partial autocorrelation function (PACF) in determining the rank of ARMA(p, q) model as shown in table (5):

Table (5)

Determining the rank of (ARMA) model using Autocorrelation function (ACF) and Partial Autocorrelation (PACF)

The model	(ACF)	(PACF)
AR(p)	Decreases geometrically after ρ_P	zero after $\emptyset_{kk}$
MA(q)	Zero after ρ_1	Decreases geometrically after $\emptyset_{qq}$
ARMA(1,1)	Decreases geometrically after ρ_1	Decreases geometrically after $\emptyset_{11}$
ARMA(p, q)	Decreases geometrically after ρ_p	Decreases geometrically after $\emptyset_{qq}$

Source: the researcher based on statistical analysis

From the results of the Augmented Dickey-Fuller (ADF) test in table (3) & table (4), we will use auto-regression moving average models ARMA (p, q) in estimation and prediction of the values of the payout ratio (PR) in the future.

from table (6), we find that each value of (ACF) & (PACF) are decreases geometrically after the second lagging, then, we find that the appropriate model for the time series of the payout ratio (PR) is ARMA (2, 2).

Table (6)

Results of Estimating ACF & PACF for (PR)

Sample: 1 60
Included observations: 60

Prob.	Q-Stat	PAC	AC	Lagging
0.037	4.3692	0.263	0.263	1
0.014	8.5453	0.200	0.255	2
0.012	11.028	0.099	0.195	3
0.010	13.317	0.087	0.186	4
0.012	14.589	0.031	0.137	5
0.011	16.554	0.080	0.169	6
0.018	16.872	-0.041	0.067	7
0.010	20.041	0.153	0.210	8
0.017	20.073	-0.150	-0.021	9
0.012	22.671	0.161	0.187	10

Source: the researcher based on statistical analysis

By estimating ARMA (2, 2) model for payout ratio (PR) time series via using OLS in EViews 5-1 Program, we get the following results illustrated in the table (7).

Table (7)

The Results of Estimating of ARMA (2, 2) Model for (PR)

				Method: Least Squares Sample (adjusted): 3 60
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	6.010325	11.82666	71.08210	C
0.0000	24.24688	0.038950	0.944408	AR(2)
0.0000	-24.62198	0.038885	-0.957430	MA(2)
55.10345	Mean dependent var		0.297759	R-squared
15.66837	S.D. dependent var		0.272223	Adjusted R-squared
8.073744	Akaike info criterion		13.36667	S.E. of regression
8.180318	Schwarz criterion		9826.727	Sum squared resid
11.66034	F-statistic		-231.1386	Log likelihood
0.000060	Prob(F-statistic)		1.905715	Durbin-Watson stat
	-.97		.97	Inverted AR Roots
	-.98		.98	Inverted MA Roots

Source: the researcher based on statistical analysis

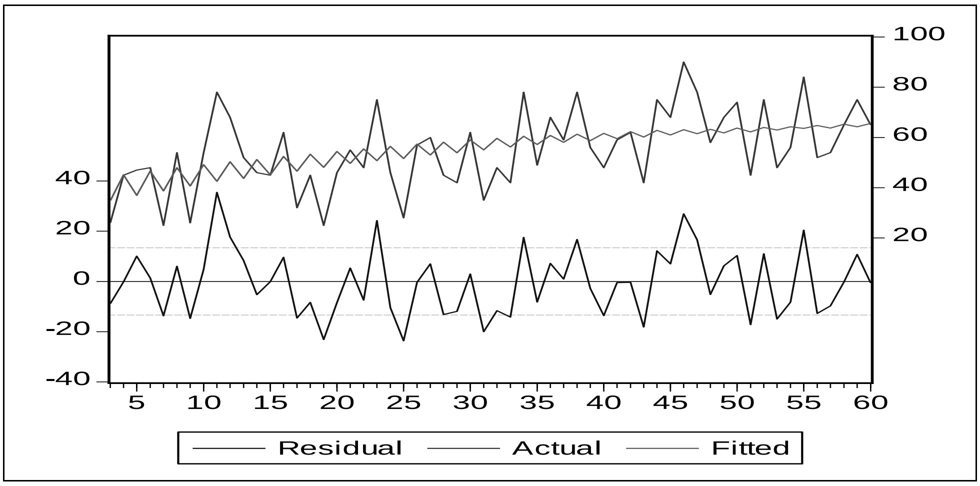
From table (7), we find that AR (2) & MA (2) are significant. From the same table (7) we found that:-

- **R-squared = 0. 0.297759**
  This means that the model ARMA (2, 2) explains about 29.77% of the changes that occur in the dependent variable in this model.
- **Adjusted R-squared = 0.272223**
  A modified version of R-squared, which avoids its disadvantages, value means that the model ARMA (2, 2) explains about 27.22% of the changes that occur in the dependent variable in this model.

- **Durbin-Watson stat = 1.905715**
  It means that the value of (DW) indicate that there is no serial correlation between the consecutive values of the error term of model ARMA (2, 2).

Figure (5) shows that the residual, actual and fitted values of the payout ratio (PR) time series are all stationary time series during the studied period.

Figure (5)
Signing Graph of Residual, Actual and Fitted Values of the Payout Ratio (PR) Time Series



Source: the researcher based on statistical analysis

Then we can say that the model ARMA (2, 2) is the appropriate model to estimate and forecast the values of the (PR) in the future.

4.3.2 Time Series of the Earnings Growth (EG)

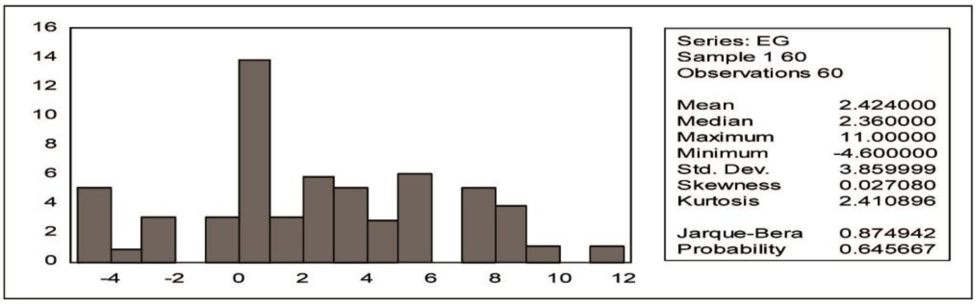
The time series of the earnings growth (EG) is the time series of monthly values of the earnings growth (EG) during the period from 2005 to 2010 over the aggregate market level in the Egyptian stock market.

4.3.2.1 Key Statistical Characteristics of the Earnings Growth (EG) Time Series

By studying the statistical characteristics of the earnings growth (EG) time series, it is clear that the value of the coefficient of Skewness is positive and equals to 0.027, which means that the distribution of the chain is not symmetric and the right tail much longer than the normal distribution. The value of coefficient of Kurtosis is 2.411 (i. e. less than the value of coefficient of kurtosis of the normal distribution). To test whether the data follow the normal distribution or not, we use the Jarque-Bera measure. It is clear from the probability value of the Jarque-Bera coefficient the possibility of accepting the null hypothesis that the earnings growth (EG) time series is normally distributed.

Figure (6)

The Statistical Properties of the Earnings Growth (EG) Time Series



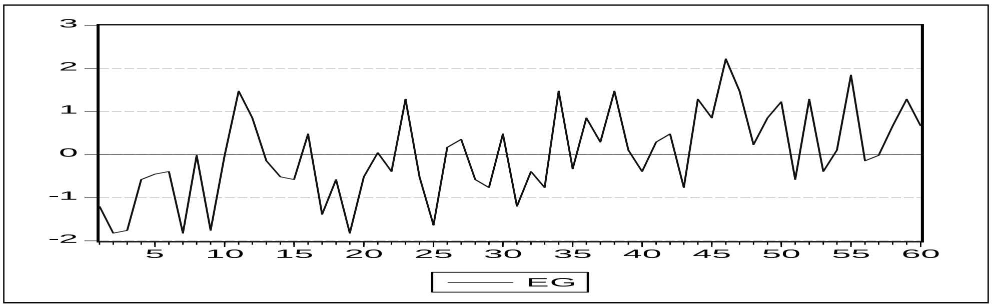
Source: the researcher based on statistical analysis

4.3.2.2 The signing graph of the Earnings Growth (EG) time series

Figure (7) shows that the values of the earnings growth (EG) deviates from the zero mean in some way. Thus we can argue that the earnings growth (EG) time series is stationary time series during the studied period.

Figure (7)

The Signing Graph of the Earnings Growth (EG) Time Series



Source: the researcher based on statistical analysis

4.3.2.3 The Augmented Dickey-Fuller (ADF) Test for the Earnings Growth (EG) Time Series

The results of Augmented Dickey Fuller (ADF) test are illustrated in table (8) & (9). Both tables show that the earnings growth (EG) time series does not include the unit root, because the absolute value of Tau (τ) equals 5.805 which is greater than the absolute critical value of Tau (τ) that 3.546 in the absence of time. Moreover, because the absolute value of Tau (τ) equals 7.778 which is greater than the absolute critical value of Tau (τ) 4.121 in the presence of time. Thus, we reject the null hypothesis and accept the alternative hypothesis that the earnings growth (EG) time series is stationary time series.

Then we access to the decision that we will use auto regression moving average models ARMA (p, q) in estimating and prediction the earnings growth (EG) in the future.

Table (8)
The Augmented Dickey-Fuller (ADF) test results with Constant for (EG)

Null Hypothesis: EG has a unit root Exogenous: Constant Lag Length: 0 (Automatic based on SIC, MAXLAG=10)			
Prob.*	t-Statistic		
0.0000	-5.805654	Augmented Dickey-Fuller test statistic	
	-3.546099	1% level	Test critical values:
	-2.911730	5% level	
	-2.593551	10% level	

Source: the researcher based on statistical analysis

Table (9)
Augmented Dickey-Fuller (ADF) test results with Constant and Linear Trend for (EG)

Null Hypothesis: EG has a unit root Exogenous: Constant, Linear Trend Lag Length: 0 (Automatic based on SIC, MAXLAG=10)			
Prob.*	t-Statistic		
0.0000	-7.577898	Augmented Dickey-Fuller test statistic	
	-4.121303	1% level	Test critical values:
	-3.487845	5% level	
	-3.172314	10% level	

Source: the researcher based on statistical analysis

From table (10), we find that values of (ACF) & (PACF) decrease geometrically after the second lagging, then, we find that the appropriate model for the series of the earnings growth (EG) is ARMA (2, 2).

Table (10)
The Results of Estimating of ACF & PACF for (EG)

Date: 12/30/11 Time: 00:07
Sample: 1 60
Included observations: 60

Prob	Q-Stat	PAC	AC	lagging
0.037	4.3692	0.263	0.263	1
0.014	8.5453	0.200	0.255	2
0.012	11.028	0.099	0.195	3
0.010	13.317	0.087	0.186	4
0.012	14.589	0.031	0.137	5
0.011	16.554	0.080	0.169	6
0.018	16.872	-0.041	0.067	7
0.010	20.041	0.153	0.210	8
0.017	20.073	-0.150	-0.021	9
0.012	22.671	0.161	0.187	10

Source: the researcher based on statistical analysis

By estimating ARMA (2, 2) model for the earnings growth (EG) time series via using OLS in EViews 5-1 Program, we get the following results illustrated in the table (11).

Table (11)
Results of Estimating of ARMA (2, 2) model for (EG)

		Method: Least Squares Sample (adjusted): 3 60		
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0269	2.273087	2.843132	6.462687	C
0.0000	24.24905	0.038948	0.944449	AR(2)
0.0000	-24.61613	0.038895	-0.957436	MA(2)
2.624828	Mean dependent var.		0.297759	R-squared
3.760409	S.D. dependent var.		0.272223	Adjusted R-squared
5.219511	Akaike info criterion		3.208000	S.E. of regression
5.326085	Schwarz criterion		566.0194	Sum squared resid.
11.66034	F-statistic		-148.3658	Log likelihood
0.000060	Prob. (F-statistic)		1.905738	Durbin-Watson stat
	-.97		.97	Inverted AR Roots
	-.98		.98	Inverted MA Roots

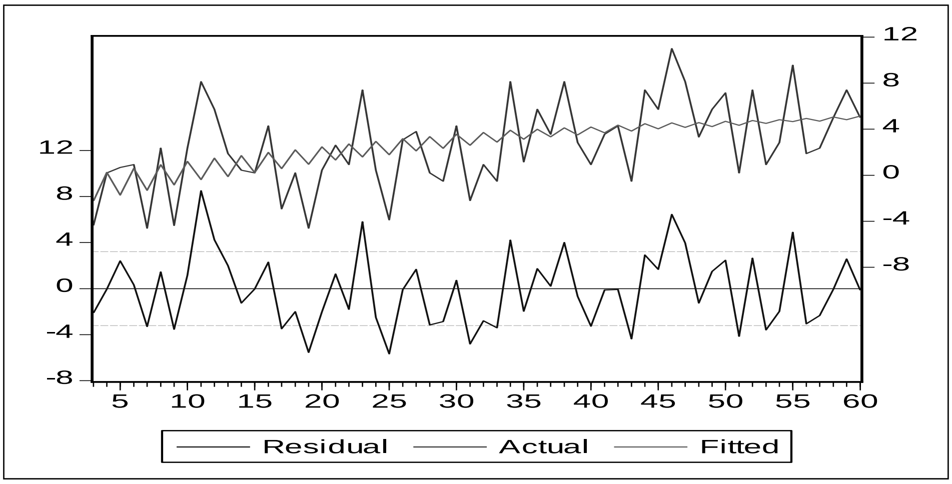
Source: the researcher based on statistical analysis

From table (11) we find that each of AR (2) & MA (2) are significant. From the same table (11) we found that

- **R-squared = 0. 0.297759**
  This means that the model ARMA (2, 2) explains about 29.77% of the changes that occur in the dependent variable in that model.
- **Adjusted R-squared = 0.272223**
  This means that the model ARMA (2, 2) explains about 27.22% of the changes that occur in the dependent variable in that model.
- **Durbin-Watson stat = 1.905715**
  It means that the value of (DW) indicate to no serial correlation between the consecutive values of the error term of model ARMA (2, 2).

Figure (8) shows that the residual, actual and fitted values of the time series of the earnings growth (EG) they are all stationary time series during the study period.

Figure (8)
The Signing Graph of the Residual, Actual and Fitted Values of the Earnings Growth (EG) Time Series



Source: the researcher based on statistical analysis

Thus, we can conclude that the model ARMA (2, 2) is an appropriate model to estimate and forecast the values of the earnings growth (EG) in the future. Thus, there is a very strong relationship between payout ratio (PR) & earnings growth (EG).

Finally from table (1), we find that the value of the Adjusted R-squared equals 0.7532, then, we can argue that the regression model in table (1) is more appropriate to estimate and forecast the values of the (EG) in the future and from ARMA (2, 2) model.

5. Company-by-Company Analysis

5.1 Model

The analysis of both Arnott and Asness (2003) has straight and essential implications for the valuation of the aggregate equity market. Is there also a relation between the high dividends and high growth at the company level? This question is essential for evaluating individual stocks, but the answer to this question is not clear as it is possible not to apply the aggregate results at the company level. There are differences between the aggregate market results and company level results because the EGX 30 composite is capital weighed, therefore, the overall results may be dominated by dividends' policies and performance of few large companies in the index. However, company level analysis deals with all companies alike; accordingly, it helps to reduce the potentiality that few huge companies may dominate the results (see, Zhou and Ruland (2006)).

There are two recent studies which shed some light on this idea. Fama and French (2001) argued that there is a sharp decrease since 1978 in the percentage of US public companies which pay dividends. That's why, at the company level, companies began to pay lower dividends than before. However, DeAngelo, DeAngelo and Skinner (2004) revealed, in a more recent study, that the overall dividends ratios increased since 1978 as dividends became more centered in few large companies.

The following regression model follows the same method of Zhou and Ruland (2006). This model is used for purposes of comparisons in the Egyptian stock market.

$$EG_{it\,1,3,5} = \alpha + \beta 1 Payout_{it} + \beta_2 Size_{it} + \beta_3 ROA_{it} + \beta_4 E/P_{it} + \beta_5 LEV_{it} + \beta_6 PEG_{it\,-1,3,5} + \beta_7 AG_{it} + e_{it} \quad (8)$$

Where:-

Item	Definition	Remarks
$EG_{it1,3,5}$	Earnings growth, measured as compounded annual earnings over one, three and five years. Earnings are first divided by the total shares outstanding to obtain earnings per share. This removes the effect of capitalization changes on earnings growth. The geometric return is calculated by adding 1 to each periodic return (r), multiplying these values and taking the n^{th} root of this product.	
$Payout_{it}$	The dividend payout ratio, calculated as year zero annual reported dividends (DIV0) divided by year zero annual reported earnings (EARN0). A negative coefficient on Payout would support the conventional wisdom that low earnings growth follows high payout.	$Payout = \frac{DIV_0}{EARN_0}$
$Size_{it}$	In accordance with other studies such as Fama and French (2000), Chan, Karceski and Lakonishok (2003) and Zhou and Ruland (2006), firm size is calculated as the natural logarithm (ln) of the firm's market value of equity (MVE) at the end of year zero. The market value of equity is calculated	$Firm\ Size = \ln[MVE_0]$

	as the end of year share price multiplied by the number of outstanding shares. Firm size is expected to be an acceptable determinant of the company decision to pay dividends to its shareholders We controlled for size because large companies are more established and mature than small companies and thus less likely to exhibit stronger growth. Consequently, we expected to observe an inverse relationship between company size and future earnings growth	
LEV_{it}	Leverage (LEV0) is a firm's book value of debt (BVD0) divided by the firm's total assets (TA0) at the end of year zero. Leverage level can affect a firm's decision to pay dividend and the level of payout ratio (Bouresli, Abdulsalam 2005). The leverage control was based on the expectation that companies with high leverage will tend to have large investment, as suggested by Fama and French (2000) and Zhou and Ruland (2006), and thus higher earnings growth. Hence, we predicted a positive relationship between leverage and earnings growth.	$LEV_0 = \frac{BVD_0}{TA_0}$
ROA_{it}	Return on assets is calculated as the end of year zero earnings (EARN0) divided by end of year zero total assets (TA0).	$ROA = \frac{EARN_0}{TA_0}$

	We controlled for return on assets because when profitability is already high, other factors being equal, companies should find it difficult to demonstrate strong earnings growth. Thus, we expected ROA also to be negatively associated with earnings growth.	
EP_{it}	The earnings yield is calculated as the firms annual earnings for year zero (EARN0) divided by the firm's end of year market value of equity (MVE0). Following Zhou and Ruland (2006) and Arnott and Asness (2003), we also controlled for earnings yield and past earnings growth. We expect that investors pay more for one unit of money of current earnings if future earnings growth is high (i.e., higher P/E). Thus, we predicted that E/P (the inverse of P/E) would be negatively related to future earnings growth.	$\frac{E}{P}=\frac{EARN_0}{MVE_0}$ $r=\frac{EARN_t}{EARN_{t-1}}-1$
$PEG_{it1,3,5}$	Past earnings growth is measured as compounded annual earnings from time –t to time 0. The growth rates will be calculated over one, three and five years to match the growth rate in future earnings.	
$AG_{it1,3,5}$	Compounded annual growth in total assets for year 1, 3, 5	

5.2 Data

As defined in the previous section, the sample necessarily includes only companies that paid dividends and reported positive earnings in the year under examination.

The descriptive statistics of those variables can be summarized in the following table:

Table (12)
Descriptive Statistics

Variable	Mean	Standard Deviation	25th Percentile	Median	75th Percentile
A. Dependent variables					
EG (0,1)	0.325	0.621	- 0.042	0.142	0.342
EG (0,3)	0.245	0.325	-0.013	0.102	0.342
EG (0,5)	0.124	0.162	0.009	0.082	0.172
B. Independent variables					
Payout	0.415	0.213	0.104	0.213	0.521
Size	6.041	3.012	4.012	6.012	8.250
ROA	0.101	0.033	0.031	0.072	0.142
Leverage	0.521	0.152	0.210	0.325	0.601
E/P	0.123	0.047	0.054	0.101	0.230
PEG (-1.0)	0.325	0.471	- 0.061	0.111	0.215
PEG (-1.3)	0.155	0.340	- 0.009	0.119	0.204
PEG (-1.5)	0.102	0.124	0.040	0.124	0.213

Source: the researcher based on statistical analysis

It is clear from Table (12) that the value of median of (EG) ranging from 14.2% (for one year data) to 8.2% (for five years data). It is also clear that the value of the 75^{th} percentile equals five times the value of equal 25^{th}.

5.3 Tests of Normality for the Data Under Study:

To verify that the data follow the normal distribution, we make a test of normality, which has statistical assumptions as follows:

H_0: The Data is normally distributed

H_1: The Data is not normally distributed

We accept the null hypothesis (the data follow the normal distribution) if the value of Sig. is greater than or equal to 0.05 and we reject the null hypothesis and accept alternative hypothesis (the data do not follow the normal distribution) if the value of sig. is less than 0.0 this is done at 95% degree of confidence.

When the test was performed for the data of the study in the three periods (one year, three years, five years) the results were as follows:

Table (13)

Tests of Normality for Data of One Year

	Shapiro-Wilk			Kolmogorov-Smirnov		
	Sig.	df	Statistic	Sig.	df	Statistic
Subsequent 1- Year Earnings Growth	0.154	68526	0.960	0.201	68526	0.153

Source: the researcher based on statistical analysis

It is clear from the results of table (13) that the values of sig. are greater than 0.05 for data of one year. Thus, we urge that these data follow the normal distribution.

Table (14)

Tests of Normality for Data of Three Years

	Shapiro-Wilk			Kolmogorov-Smirnov		
	Sig.	df	Statistic	Sig.	df	Statistic
Subsequent 3-year Earnings Growth	0.204	68526	0.975	0.321	68526	0.520

Source: the researcher based on statistical analysis

It is clear from the results of table (14) that the values of sig. are greater than 0.05 for data of three years. Thus, we urge that these data follow the normal distribution.

Table (15)

Tests of Normality for Data of Five Years

	Shapiro-Wilk			Kolmogorov-Smirnov		
	Sig.	df	Statistic	Sig.	df	Statistic
Subsequent 5-year Earnings Growth	0.342	68526	0.985	0.412	68526	0.610

Source: the researcher based on statistical analysis

It is clear from the results of Table (15) that the values of sig. are greater than 0.05 for data of five year and. Thus, we urge that these data follow the normal distribution.

5.4 Empirical Results:

The data suggest that companies with high current dividend payout tend to have high future earnings growth but relatively low past earnings growth because earnings growth tends to revert to the mean. The positive relationship between payout and future earnings growth may be explained by the low past earnings growth of high-payout companies. We controlled for this possibility in our multivariate analysis. Regression results for the multivariate for each of the three earnings growth observation periods are illustrated in Table (18). Using the Fama and MacBeth (1973) and Zhou and Ruland (2006) procedures, we estimated regression coefficients for each year to control for cross-sectional dependence. Payout coefficients of correlation are all positive and highly significant for all three measurement periods.

The following table shows the correlation coefficients between the Payout & EG (0, 1), EG (0, 3), EG (0, 5). Further, the significance of correlation coefficients is being tested, where the statistical assumptions for this test are as follows:

H_0: There is no a significant correlation between the two variables.

H_1: There is a significant correlation between the two variables.

We accept the null hypothesis (That there is no significant correlation between the two variables) if the value of sig. is greater than 0.05, we reject the null hypothesis and accept alternative hypothesis (That there is a significant correlation between the two variables) if the value of sig. is less than 0.05. This is done at 95% degree of confidence.

Table (16)
Correlations between Dividend Payout and Future Earnings Growth

	Payout	**EG (0,1)**	**EG (0,3)**	**EG (0,5)**
Payout	1			
EG (0,1)	0.754 (0.001)	1		
EG (0,3)	0.740 (0.004)	0.542 (0.010)	1	
EG (0,5)	0.704 (0.009)	0.510 (0.013)	0.625 (0.007)	1

Source: the researcher based on statistical analysis

It is clear from the table (16) that the correlation between each of the Payout & EG (0, 1), EG (0, 3), EG (0, 5) is significant.

The correlation between each pair of pairs of future earnings growth is significant. Table (17) illustrates the results of that test as follows:

Table (17)
The Results of the Significant Test for Correlation Coefficients

Variables	Sig. Value	The Statistical decision
EG (0,1) & Payout	(0.001)	Accept the alternative hypothesis
EG (0,3) & Payout	(0.004)	Accept the alternative hypothesis
EG (0,5) & Payout	(0.009)	Accept the alternative hypothesis
EG (0,3) & EG (0,1)	(0.010)	Accept the alternative hypothesis
EG (0,5) & EG (0,1)	(0.013)	Accept the alternative hypothesis
EG (0,5) & EG (0,3)	(0.007)	Accept the alternative hypothesis

Source: the researcher based on statistical analysis

The estimate of the multiple-regression model and the study of the significance of all coefficients of this model, which has the general formula as shown in equation (8), is illustrated in table (18):-

Table (18)
Future Earnings Growth as a Function of Dividend Payout

Variable	One- Year EG		Three- Year EG		Five- Year EG	
	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.123	8.015*	0.098	7.625*	0.078	7.012*
Payout	0.624	11.250*	0.231	12.230*	0.098	10.250*
Size	- 0.124	-7.210*	-0.071	-8.130*	-0.018	- 6.140*
ROA	-3.142	-12.040*	- 1.050	-10.017*	-0.084	-9.140*
E/P	-1.041	-10.251*	-0.785	-9.720*	-0.421	-8.051*
Leverage	0.098	9.172*	0.084	8.870*	0.065	7.056*
PEG	0.015	8.014*	-0.084	- 6.012*	-0.120	10.659*
Adj. R^2	29.35%		42.21%		58.18%	

Source: the researcher based on statistical analysis

*Significant at the 5% Percent level in a two-tailed test.

From the above tables, we find that there is a significant relationship among future earnings growth and the following parameters: payout, size, ROA, E/P, leverage and PEG for the three periods.

Our company-level analysis in Egyptian stock market found that high payout is related to high future earnings growth and, in this manner, challenge conventional wisdom.

6. Factor Analysis of Earnings Growth (EG)

Factor analysis is used to study the significance of impact of factors as well as studying the significance of interactions between them on the phenomenon under study.

6.1 Phenomena Under Study:

The value of the earnings growth (EG) at the various combinations of the levels of the factors that affect it at three periods (one year, three years, five years).

6.2 Factors that Affect on The Value of the Earnings Growth (EG):

A : Payout D : E/P

B : Size E : Leverage

C : ROA F : PEG (-3,0)

Each one of the above mentioned factors has three levels (low, medium, high).

6.3 Treatments:

The combinations of the levels of the factors are 3^6 (i. e. 729) treatments.

6.4 Units of the Experiment:

The experiment units are the values of the earnings growth (EG) at three periods (one year, three years, five years) for 30 companies at the 729 treatments. The number of the experiment units at each period equals 30 × 729 (i. e. 21870) units.

6.5 The Study of Significance for Each Factor and Each Interaction Between the Factors Under Study:

To study this we will use the test of portion of variance (F-test) as follows:

H_0: The factor is not significance.

H_1: The factor is significance.

We accept the null hypothesis (i. e. the factor is not significance) if $F_{calculated} < F_{(\alpha, r, d)}$. We reject the null hypothesis and accept the alternative hypothesis (i. e. the factor is significance) if $F_{calculated} > F_{(\alpha, r, d)}$. The value of $F_{(\alpha, r, d)}$ can be obtain from the table of portion of variance at a level of significance α=0.01.

6.6 Results of Factorial Analysis of Earnings Growth (EG).

By using the values of the earnings growth (EG) at the three periods (one year, three years, five years) and by applying ordinary least squares (OLS) method, we find that the results of

ANOVA for each period in table (19), (20), (21), (22), (23), (24) illustrated in the Appendix.

The results of the tables (19), (20) shows that the six factors have a significant effect on the values of (EG). For one year, we find that all interactions of two, three and four of these factors have a significant effect, where all the interactions of five and six of these factors had no significant effect.

The results of the tables (21), (22) shows that the six factors have a significant effect on the values of (EG). For three years, we find that all interactions of two, three and four of these factors have a significant effect, where all the interactions of five and six of these factors had no significant effect.

The results of the tables (23), (24) shows that the six factors have a significant effect on the values of (EG). For five years, we find that all interactions of two, three and four of these factors have a significant impact, where all the interactions of five and six of these factors had no significant effect.

7. Potential Explanations of Results

Many hypotheses might explain the, in contrary to conventional theory, positive relationship between current dividend payout ratio and future real earnings growth. The following list represents a beginning effort to explain this phenomenon:-

7.1 Management confidence may play a role in dividend policy. That is, companies that pay high dividends are generally confident in their ability to provide strong earnings growth in the future (i. e. the high confidence is the management of the company about its future earnings growth; the high payout ratio is sustained). So, high payout ratio indicates managerial confidence in the stability and growth of future earnings and low payout ratio suggests the opposite (see, Arnott and Asness (2003)). This confidence (or lack of it) might be based on public information but also private information (see, for example, Miller and Rock 1985).

7.2 Corporate managers are loath to cut dividends (Lintner, 1956). According to a recent report from US mutual fund manager Fidelity Investments, "Companies are loath to cut dividends, even during hard times, out of fear that reducing or eliminating the payment will cause investors to flee their stock" (Fidelity.com, 2010).

7.3 Arnott and Asness (2003) suggested that high earnings retention and a low dividend payout may signal an attempt at empire-building by current management (Jensen 1986). In order to develop a larger enterprise and the higher executive compensation that often goes with that, management may engage in developmental projects that do not represent the best interest of stockholders. While this is not always the case, it happens often enough to capture investors' attention. One need only look at the evidence on corporate divestitures and spin-offs of unwanted divisions to realize that many prior empire-building mistakes by management have to be corrected at a later date. Alternatively, the facts also fit a world in which low payout ratios lead to inefficient empire building, the funding of less-than-ideal projects and investments, leading to poor subsequent growth, while high payout ratios lead to more carefully chosen projects with relatively high returns.

7.4 Perhaps the positive relationship is driven by sticky dividends (see, Lintner, 1956) combined with mean reversion in more volatile earnings. Temporary peaks and troughs in earnings, subsequently reversed, could cause the payout ratio to be positively related with future earnings growth (i.e., temporarily low earnings today cause a high payout ratio, thus forecasting the earnings tomorrow). The testable difference between this hypothesis and the first two is.

7.5 A firm that will never pay cash benefits to stockholders would have zero value. Firms need to pay excess capital (Free Cash Flow to Equity or FCFE) out to the stockholders. FCFE is defined as the surplus after-tax cash flow that is left over after all positive NPV projects has been taken. As described by Jensen (1986) and others, free cash flow theory suggests that the managers of companies with abundant free cash flows have incentives to overinvest. Thus, the low dividend-low growth relationship may be a result of overinvestment on the part of low-payout companies (i. e. the positive relationship between dividend payout and future earnings growth is more prominent for companies with limited growth opportunities or a tendency toward overinvestment).

8. Results Impact

The finding of this paper indicates that high dividend payments lead to strong future earnings. This finding is at variance with traditional thought and, at least, forces the growth-oriented investor to consider investing in stocks that pay moderate to high dividends. We illustrate hereinafter some implications of this finding:-

8.1 Impact on Stock Options

While the math behind options-pricing models may seem daunting, the underlying concepts are not. The variables used to come up with a "fair value" for a stock option are the price of the underlying stock, volatility, time, dividends and interest rates. The first three deservedly get most of the attention because they have the largest effect on option prices. But it is also important to understand how dividends and interest rates affect the price of a stock option. These two variables are crucial to understanding when to exercise options early (Investopedia 2010).

It's easier to pinpoint how dividends affect early exercise. Cash dividends affect option prices through their effect on the underlying stock price. Because the stock price is expected to drop by the amount of the dividend on the ex-dividend date, high cash dividends imply lower call premiums and higher put premiums.

While the stock price itself usually undergoes a single adjustment by the amount of the dividend, option prices anticipate dividends that will be paid in the weeks and months before they are announced. The dividends paid should be taken into account when calculating the theoretical price of an option and projecting probable gain and loss when graphing a position. This applies to stock indices as well. The dividends paid by all stocks in that index (adjusted for each stock's weight in the index) should be taken into account when calculating the fair value of an index option.

Cash dividends issued by stocks have big impact on their option prices. This is because the underlying stock price is expected to drop by the dividend amount on the ex-dividend date. Meanwhile, options are valued taking into account the projected dividends receivable in the coming weeks and months up to the option expiration date. Consequently, options of high cash dividend stocks have lower premium calls and higher premium puts (Gul, 2012).

Because dividends are critical to determining when it is optimal to exercise a stock call option early, both buyers and sellers of call options should consider the impact of dividends. Whoever owns the stock as of the ex-dividend date receives the cash dividend, so owners of call options may exercise in-the-money options early to capture the cash dividend. That means early exercise makes sense for a call option only if the stock is expected to pay a dividend prior to expiration date (Investopedia 2010).

On the other hand, concerning the effect on put option pricing, put options gets more expensive due to the fact that stock price always drop by the dividend amount after ex-dividend date.

The issuance of executive stock options is that they may provide an incentive to managers not to pay dividends, because dividends reduce the stock price on which their options are valued. As mentioned in potential explanations part of this paper, some executive managers may engage in unproductive empire building when they do not pay out sufficient dividends. The potential risk of such behavior when combined with the disincentives to pay dividends that might accompany executive stock options is as apparent as it is vexing.

8.2 Impact on Mutual Funds Investment Strategies

Mutual funds are a popular vehicle to invest in securities. Because mutual funds can offer built-in diversification and professional management, they offer certain advantages over purchasing individual stocks and bonds. Mutual Funds provide services to investors that will help them achieve their short-term and long-term financial objectives.

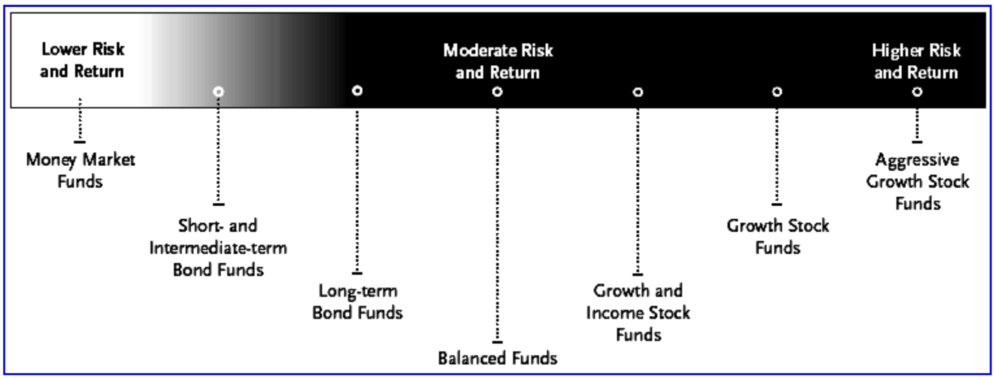
Mutual funds are organized into categories by asset type (stocks, bonds and cash) and then further categorized by style, objective or strategy. Learning how mutual funds are categorized helps an investor choose the best funds for asset allocation and diversification purposes.

Stock funds are next categorized according to their objective, which will primarily be divided into balanced funds, growth funds, income funds, growth and income, index funds, sector funds, …etc.

According to traditional thought, If investor objective is capital growth, then the suitable fund type is growth fund, consequently, this fund invest primarily in common stocks with long-term growth potential. In this case, the potential capital appreciation is ranged from high to very high, whereas, it's potential current income is very low.

According to this paper results, which is in contrary to conventional theory, If investor objective is capital growth, then the suitable fund type is growth fund, consequently, this fund invest primarily in high –dividend –paying stocks since stocks with high payout ratio leads to high future earnings growth in both aggregate level and company level as well. This result is valid too with aggressive growth funds. Figure (9) illustrates mutual funds categories while table (19) illustrates impact on mutual funds investment strategies.

Figure (9)
Mutual Funds Categories



Source: the researcher.

Table (25)
Impact on Mutual Funds Investment Strategies

Investment Objective	Fund Type	Potential Funds' Investments		Potential Capital Appreciation	Potential Current Income	Potential Risk
		According to Traditional Thought	According to Our Results			
Maximum Capital Growth	Aggressive Growth	Common stocks with potential for very rapid growth. May employ certain aggressive strategies.	High – dividend – paying stocks. May employ certain aggressive strategies.	Very high	Very low	High to very high
High Capital Growth	Growth Specialty	Common stocks with long-term growth potential.	high – dividend – paying stocks	High to very high	Very low	High
Current Income & Capital Growth	Growth & Income	Common stocks with potential for high dividends and capital appreciation.	same	Moderate	Moderate	Moderate to high
High Current Income	Fixed Income. Equity Income	Both high – dividend – paying stocks and bonds.	same	Very low	High to very high	Low to moderate
Current Income & Protection of Principal	General Money Market Funds	Money market instruments.	same	None	Moderate to high	Very low

Source: the researcher.

8.3 Impact on Shareholder's Value

Dividends are commonly defined as the distribution of earnings (past or present) in real assets among the shareholders of the firm in proportion to their ownership (Frankfurter and Bob, 2003). Dividend policy connotes to the payout policy, which managers pursue in deciding the size and pattern of cash distribution to shareholders over time. Managements' primary goal is shareholders' wealth maximization, which translates into maximizing the value of the company as measured by the price of the company's common stock (Nippel, 2008).

Dividend policy of a firm has implication for investors, mangers and lenders and other stakeholders (more specifically the claimholders). For investors, dividends – whether declared today or accumulated and provided at a later date are not only a means of regular income, but also an important input in valuation of a firm. Similarly, managers' flexibility to invest in projects is also dependent on the amount of dividend that they can offer to shareholders as more dividends may mean fewer funds available for investment. Lenders may also have an interest concerning the dividend policy a firm follows, as the less dividend payout ratio the more the available money for servicing and redemption of their claims. Accordingly dividend policy can be used as a mechanism to reduce agency costs. The payment of dividends reduces the discretionary funds available to managers for perquisite consumption and investment opportunities. This requires managers to seek financing in capital markets. This monitoring by the external capital markets may encourage the mangers to be more disciplined and act in owners' best interest (Kapoor, 2009).

Many topics in finance urged whether financial managers' actions can maximize shareholder wealth, and dividend policy is no exception (Laux, 2011). The optimal dividend policy of a firm may be defined as the best dividend payout ratio the firm can adopt. But, what does “best” mean in this concept? Since the objective of the firm is to increase the wealth of its stockholders, the best dividend policy is the one that increases shareholders wealth by the greatest amount. It is therefore necessary, to understand the nature of the relationship between dividend and value of the firm (Adefila et. al, 2011). Baker and Powell (1999) conducted a survey on dividend policy. Most respondents think dividend policy affects firm value and also it has effect on shareholder’s wealth (Khan, 2010).

Corporate dividend policy is an important issue for at least two reasons. First, there may be conditions where a change in dividend policy can alter the value of the firm. Second, if dividend policy can alter the market value of the firm or its asset, it might also affect the value of its new capital projects. If dividend policy does affect the value of capital projects, the net present value of a given capital project will be different for a company with different dividend policy (Edward, 2005). In the rest of this section, we will study the relationship between dividend policy and shareholders' wealth.

8.3.1 Phenomena Under Study

The Phenomena under study is the relationship between dividend policy and shareholders' wealth for the period from 2005 to 2010 in the Egyptian Stock Market.

Dependent variable: Market Price Per Share (MPSit) of companies under study.

Independent variables: Dividend Per Share (DPSit), Retained Earnings per share (REit), Lagged Price Earnings Ratio (PEit-1) and Lagged Market Price (MPSit-1).

8.3.2 Hypotheses of the Study:

H_0:"There is no significant impact of dividend policy on shareholders' wealth in the Egyptian stock market."

H_1:"There is a significant impact of dividend policy on shareholders' wealth in the Egyptian Stock Market."

8.3.3 The Equations Used for the Study:

Following (Azhagaiah, 2008), the equations used for the study are given below:

$$MPS_{it} = a + b\ DPS_{it} + e_{it} \quad (9)$$

$$MPS_{it} = a + b\ DPS_{it} + c\ RE_{it} + e_{it} \quad (10)$$

$$MPS_{it} = a + b\ DPS_{it} + c\ RE_{it} + PE_{it-1} + e_{it} \quad (11)$$

$$MPS_{it} = a + b\ DPS_{it} + c\ RE_{it} + MPS_{it-1} + e_{it} \quad (12)$$

Where;

MPS_{it}: Market Price per Share.
DPS_{it}: Dividend Per Share.
RE_{it}: Retained Earnings per share.
PE_{it-1}: Lagged Price Earnings ratio.
MPS_{it-1}: Lagged Market Price per Share.

5. Tools Used for Analysis of Data

To analyze the data, the statistical tools that have been used are multiple regression technique and stepwise regression method to ascertain best fitted model for predicting the dividend policy impact on shareholder's wealth. The significance of various explanatory variables has been tested by computing t-values.

To determine the proportion of explained variation in the dependent variable, the coefficient of determination (R-squared) has been worked out. The significance of (R-squared) has also been tested with the use of F-Value.

6. Analysis and Results:

Table (26) shows the regression results for the period from 2005 to 2010 with regard to impact of initiating dividend payout on shareholders' wealth. Results indicates that the fit of all four models is significant at 1% level $F = 19.77$, $p < 0.01$ for model (1), $F = 13.77$, $p < 0.01$ for model (2), $F = 9.32$, $p < 0.01$ for model (3) and $F = 53.69$, $p < 0.01$ for model (4).

Among the four models, F value for model (4) is very high. Further, the coefficients of (DPS) in all four models are highly significant at 1% level and positive in sign $\beta = 82.68$, $t = 7.58$, $p < 0.01$ in model (1); $\beta = 78.21$, $t = 6.14$, $p < 0.01$ in model (2); $\beta = 69.54$, $t = 6.17$, $p < 0.01$ in model (3); and $\beta = 29.39$, $t = 5.11$, $p < 0.01$ in model (4).

Besides, from the adjusted R-squared values, it is clear that the explanatory variables in the model (4) could together explain 89.29% of the variance in market value, whereas explanatory variables in model (1), (2) and (3) could, together, explain 49.56 per cent, 65.13% and 60.31% respectively of the variance in dependent variable Hence, model (4) is the appropriate one for the final interpretation.

Captivatingly, the coefficient of (DPS) in model (4), though statistically significant, has declined considerably in the presence of (RE) and lagged (DPS), even though the coefficients of those variables are insignificant. Also, the intercepts, which are insignificant in the first three models, become significant in model (4).

Consequently, we reject hypotheses H_0:"There is no significant impact of dividend policy on shareholders' wealth in the Egyptian stock market." along with, we accept H_1:"There is a significant impact of dividend policy on shareholders' wealth in the Egyptian stock market."

Table (26)

Regression Results in the Egyptian Stock Market for the Period (2005-2010) *

Dependent Variable: Market Price of Share (MPS)

independent Variables	Regression models			
	(1)	(2)	(3)	(4)
Intercept	63.12 (1.20)	56.23 (1.12)	52.12 (.96)	51.13* (6.32)
Dividend per share (DPS)	82.68* (7.58)	78.21* (6.14)	69.54* (6.17)	29.39* (5.11)
Retained Earnings per share (RE)		23.15 (1.03)	19.56 (.98)	25.23* (6.12)
Lagged Price Earnings Ratio (PE_{t-1})			13.21 (0.68)	
Lagged Market Price (MPS_{t-1})				0.63* (7.12)
R^2	0.5104	0.6812	0.6521	0.9251
Adjusted R^2	0.4956	0.6513	0.6031	0.8929
F value	19.77*	13.77*	9.32*	53.69*
Degrees of freedom	53	52	51	51

Source: the researcher based on statistical analysis

Figures in parentheses show t-values.

***Significant at 1 %.**

Accordingly, higher dividend increases the market value of the share and vice versa. Shareholders prefer current dividend to future income so, dividend is considered as an important factor which determines the shareholders' wealth. This is normally true in case of salaried individuals, retired pensioners and others with limited incomes. Dividend has information content and the payment of dividend indicates that the company has a good earning capacity (Fouzia, 2010).

Dividend policy affects the value of the firm for two reasons. First, tax rates on capital gain are usually different from tax rates on dividend. If the company could reduce taxes by transforming dividend into capital gains, shareholders might value the firm at a correspondingly higher level. A second reason why dividend policy might affect the value of the firm is that it could provide valuable information to shareholders. For example, suppose that a firm has important information about the profitability of new investment opportunities that it wishes to convey to shareholders without disclosing details that might be useful to competitors. Changing the level of dividends might be an effective method of signaling favorable developments, helping to ensure that the market value of the firm reflects fully all information that is available to management (Edward, 2005).

9. Conclusion

This paper has investigated the role that the payout ratio has in explaining future real earnings growth in the Egyptian Stock Market. Evidence is found in the Egyptian Stock Market that a positive relationship exists between real earnings growth and payout ratio, or to put it differently, higher retained earnings are not found to lead to higher earnings growth. Accordingly, high payout ratio firms respond to the high growth of future earnings. This does not support conventional theory which claims that firms which are retaining large part of their earnings (i. e. low payout ratio) have strong growth potential of future earnings, but is consistent with Arnott and Asness (2003), Stephen et al (2004), Parker (2005), Gwilym et al (2006), Vivian (2006) and Flint (2010) concerning the aggregate market level. Our company-level analysis complements the aggregate level and though consistent with the US evidence presented by Zhou and Ruland (2006). The finding of this paper has a significant impact on stock options, mutual funds investment strategies and shareholders' wealth.

10. Recommendations

10.1 Each company has to study the factors that affect the price of its stock market, especially the impact of dividends per share and its retained earnings, to reach the appropriate dividend policy.

10.2 Authorities have to restrict companies' measures to exceed retained earnings in exaggeration if there is no sufficient justification for this.

10.3 Mutual funds managers, financial analysts, stock option traders, individual and institutional investors should consider the finding of this paper while managing their portfolios as illustrated in depth in this paper.

10.4 Increase the role of universities in the revitalization of the financial market, and through the establishment of educational courses for investors to increase the scope of their reliance on financial and non-financial information in the rationalization of their decisions.

10.5 The need to inform investors and traders in the financial market in advance of the reasons that push management to make decisions related to cause changes in the dividend policy. In this way the organization can manage to avoid the negative response by investors of these changes, and thus avoid a negative impact on stock prices in the financial market.

11. Future Research

11.1 A limitation of the study, results from the calculation of the payout ratio, which did not include share repurchases due to a lack of data availability. If data permits, follow up research may examine the impact of both dividends and repurchases on earnings.

11.2 Re-conduct this study on another sample and add new variables while maintaining the same variables adopted by the study.

11.3 We focused in this study on both aggregate level and company level, so we advice to re-conduct a study on different sectors to test the relationship between payout ratio and earnings growth on a sectoral level.

12. References

Adefila, J. J., Oladipo , J. A. and Adeoti, J.O, (2011). **The Effect of Dividend Policy on the Market Price of shares in Nigeria**. Department of Business Administration, University of Ilorin.
Amani K. Bouresli and Fayez A. Abdulsalam (2005), **Exploring Determinants of Dividend Payout Policies: Evidence from Kuwait Stock Exchange**, Arab Journal of Administrative Sciences, Volume No: 12 Issue No : 2.

Arnott, Robert D. and Asness, Clifford S. (2003), **Surprise! Higher Dividends = Higher Earnings Growth**. Financial Analysts Journal, Vol. 59, No. 1, January/February, Available at SSRN: http://ssrn.com/abstract=390143.

Al-Jafari, Mohamed Khaled, Altaee, Hatem H. Abdulkadhim (2011), **Testing the Random Walk Behavior and Efficiency of the Egyptian Equity Market**, Journal of Money, Investment and

Banking, ISSN 1450-288X, Issue 22. Available at EuroJournals Publishing Inc. http://www.eurojournals.com/JMIB.htm

Azab, Bassam I. (2002), **The Performance of the Egyptian Stock Market**, The University of Birmingham, The Birmingham Business School, thesis.

Azhagaiah, R. Priya, Sabari (2008), **Predicting Future Earnings Growth: A Test of the Dividend Payout Ratio in the Australian Market**, EuroJournals Publishing Inc., ttp://www.eurojournals.com/finance.htm

Black, Fischer (1976), **The Dividend Puzzle**, Journal of Portfolio Management, Vol. 2, No. 2, pp. 5-8.

Borges, Maria Rosa (February 15, 2009), **Is the Dividend Puzzle Solved?**, Available at SSRN: http://ssrn.com/abstract=1343782 or http://dx.doi.org/10.2139/ssrn.1343782.

Brealey, Richard A., Stewart C. Myers (2002), **Brealey & Myers on Corporate Finance: Capital Investment and Valuation**, McGraw-Hill; 1st edition.

Chan, L., Karceski, J., and Lakonishok, J. (2003), **The level and persistence of growth rates**, Journal of Finance, 58, 643-84.

Christie, W.G. (1990), **Dividend Yields and Expected Returns: The Zero Dividend Puzzle**, Journal of Financial Economics, vol. 28, nos. 1-2 (November/December):95-125.

DeAngelo, H., DeAngelo, L., and Skinner, D. (1992), **Dividends and losses**, Journal of Finance, 47, 1837–1863.

Dicky, David A. and Fuler, W.A. (1981), **Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root**, Econometrica, 49, pp: 1057-1072 .

Durbin, J., and Watson, G. S. (1951), **Testing for Serial Correlation in Least Squares Regression**, Biometrika 38, 159–179.

Edward, Oswald Timothy. (2005), **A STUDY ON DIVIDEND POLICY AND VALUE OF THE FIRM: MANAGERIAL PERSPECTIVES IN MALAYSIA**, Thesis in finance, Institute Penyelidikan, Pembangunan dan Pengkomersilan, Universiti Teknologi MARA.

Engle. R. F, and Granger C.W.J., (1987), **Conintegration and Error Correction Representation, Estimatino and Testing**, Econometrica, 55, pp: 251-276.

Fama, E. F., and French, K. R. (2000), **Forecasting Profitability and Earnings**, The Journal of Business, 73, 161-175.

__________________________. (1996), **Multifactor Explanations of Asset Pricing Anomalies,** Journal of Finance, vol. 51, no. 1 (March):55-84.

Fama E., MacBeth J. (1973), **Risk, Return, and Equilibrium: Empirical Tests**, Journal of Political Economy, Vol. 81, Issue 3, pp. 607-636.

Flint, Anthony, Tan, Andrew and Tian, Gary Gang (2010), **The Impact of Dividend Policy on Shareholders' Wealth, The International Journal of Business and Finance Research**, Vol. 4, No. 2, pp. 43-58, 2010, Available at SSRN:
http://ssrn.com/abstract=1667076

FRANKFURTER, G.M., PHILIPPATOS, G.C. (1992).
Financial Theory and the Growth of Scientific Knowlidge: From Modigliani and Miller to "an Organizational Theory of

Capital Structure. International Review of Financial Analysis, Vol 1, Nro 1, 1–15.

Frankfurter, M. George, Wood Bob ,G (2003), "**Dividend Policy Theory and Practice**", Academic Press.

Gordon, Myron J. (1962). **The Investment, Financing and Valuation of the Corporation,** Homewood, IL: R. D. Irwin.

Gul, Sajid. Sajid, Muhammad. Razzaq, Nasir . Iqbal, Muhammad Farrukh and Khan, Muhammad Bilal (2012), **The Relationship between Dividend Policy and Shareholder's Wealth - Evidence from Pakistan**, Available online at http://www.businessjournalz.org/efr.

Gwilym, Owain ap., Thomas, Stephen and Seaton, James (2004), **Dividends, Earnings, the Payout Ratio and Returns: A Century of Evidence from the US and UK**, Discussion Papers in Accounting and Finance, University of Southampton, Number AF04-14.

Gwilym, Owain ap., Seaton, James, Suddason, Karina, and Thomas, Stephen (2006), **International Evidence on the Payout Ratio, Earnings, Dividends, and Returns,** Financial Analysts Journal, CFA Institute, Volume 62, Number 1.

Ibbotson, R.G., Chen, P. (2003), **Long-run Stock Returns: Participating in the Real Economy,** Financial Analysts Journal, vol. 59, no. 1 (January/February):88-98.

Investopedia. (2010), **Dividends, Interest Rates And Their Effect On Stock Options**, Available at http://www.investopedia.com/articles/optioninvestor/03/121003.asp#ixzz0Qk8BWsgb

Jarque, Carlos M.; Bera, Anil K. (1987), **A test for normality of observations and regression residuals**, International Statistical Review, 55 (2): 163–172. JSTOR 1403192.

Lintner, John. (1956). **Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes**. American Economic Review, 46: 97-113.

Laux, Judy. (2011), **Topics in Finance, Part VII: Dividend Policy**, Department of Economics and Business, Colorado College, Working Paper 2011-05.

Kapoor, Sujata. (2009), **Impact of dividend policy on shareholders' value: a study of Indian firms,** doctoral thesis of philosophy in management, Jaypee Institute of Information Technology, Noida.

Kowerski, Mieczyslaw Stanislaw, **Does the Lower Ratio of Company Market to Book Value of Assets Always Mean Higher Propensity to Pay Dividends?** (2012). Available at SSRN: http://ssrn.com/abstract=2057714 or http://dx.doi.org/10.2139/ssrn.2057714

Khan, Fouzia Iram (2010), **The Impact of Dividend Policy on Shareholders Wealth**. Available at SSRN: http://ssrn.com/abstract=1545749 or http://dx.doi.org/10.2139/ssrn.1545749

Keim, D.B. (1985), **Dividend Yields and Stock Returns: Implications of Abnormal January Returns**, Journal of Financial Economics, vol. 14, no. 3 (September):473-489.

Lakonishok, J., Schleifer, A., Vishny, R.W. (1993), **Contrarian Investment, Extrapolation and Risk**, Journal of Finance, vol. 49, no. 5 (December):1541-1578.

Martin, J.D., J.W. Petty, A.J. Keown, and D.F. Scott, (1991), **Basic Financial Management**. 5th ed., Englewood Cliffs, NJ, Prentice-Hall.

McManus, Ian D., Ap Gwilym, Owain and Thomas, Stephen (2004), **The Role of Payout Ratio in the Relationship between Stock Returns and Dividend Yield**. Journal of Business Finance & Accounting, Vol. 31, No. 9-10, pp. 1355-1387, November 2004. Available at SSRN: http://ssrn.com/abstract=618307.

Miller, M. H. and Modigliani, F. (1961), **Dividend Policy, Growth and the Valuation of Shares**, Journal of Business, 34, 411-33.

Miller, M.H., 1986, "**Can Management Use Dividends to Influence the Value of the Firm?**" in J.M. Stern and D.H. Chew Jr., Eds., The Revolution in Corporate Finance, New York, NY, Basil Blackwell, 299-303.

Morgan, G., and Thomas, S.H. (1998), **Taxes, Dividend Yields and Returns in the UK Equity Market,** Journal of Banking and Finance, vol. 22, no. 4 (May), 405-423.

Nippel, Peter, **The Impact of a Firm's Payout Policy on Stock Prices and Shareholders' Wealth in an Inefficient Market** (2008). 21st Australasian Finance and Banking Conference 2008 Paper. Available at SSRN: http://ssrn.com/abstract=1253662 or http://dx.doi.org/10.2139/ssrn.1253662

Parker, K. C. (2005), **Do higher dividends lead to higher earnings growth?**, Working Paper, Simon Fraser University.

Stock, J.H. (1994), **Unit Roots, Structural Breaks, and Trends**, Handbook of Econometrics, Volume 4. Amsterdam: North-Holland.

Zhou, Ping and Ruland, William (2006), **Dividend Payout and Future Earnings Growth,** Financial Analysts Journal, Vol. 62, No. 3, pp. 58-69, June, Available at SSRN: http://ssrn.com/abstract=918109.

Vivian, A. (2006), **The Payout Ratio, Earnings Growth Returns: UK Industry Evidence**, Working Paper, University of Durham, School of Economics, Finance and Business.

Vojtech, Cindy M., **The Relationship Between Information Asymmetry and Dividend Policy** (2012). FEDS Working Paper No. 2012-13. Available at SSRN: http://ssrn.com/abstract=2051018 or http://dx.doi.org/10.2139/ssrn.2051018

1. Appendix

Table (19)
ANOVA for Earnings Growth (EG) One-Year Data

Source of variation	Sum of squares	Degrees. of freedom	Source of variation	Sum of squares
A	599.98	2	299.99	12.32
B	703.22	2	351.61	14.44
C	742.68	2	371.34	15.25
D	566.38	2	283.19	11.63
E	506.96	2	253.48	10.41
F	751.44	2	375.72	15.43
AB	801.6	4	200.4	8.23
AC	706.16	4	176.54	7.25
AD	888.28	4	222.07	9.12
AE	831.8	4	207.95	8.54
AF	706.16	4	176.54	7.25
BC	878.56	4	219.64	9.02
BD	883.4	4	220.85	9.07
BE	899.96	4	224.99	9.24
BF	736.36	4	184.09	7.56
CD	803.56	4	200.89	8.25
CE	686.68	4	171.67	7.05
CF	782.12	4	195.53	8.03
DE	488.96	4	122.24	5.02
DF	420.76	4	105.19	4.32
EF	498.68	4	124.67	5.12
ABC	718.816	8	89.852	3.69
ABD	827.92	8	103.49	4.25
ABE	812.32	8	101.54	4.17
ABF	827.92	8	103.49	4.25
ACD	693.488	8	86.686	3.56
ACE	827.92	8	103.49	4.25
ACF	759.72	8	94.965	3.90
ADE	648.688	8	81.086	3.33
ADF	582.456	8	72.807	2.99
AEF	535.704	8	66.963	2.75
BCD	555.184	8	69.398	2.85
BCE	541.544	8	67.693	2.78
BCF	559.08	8	69.885	2.87
BDE	524.016	8	65.502	2.69
BDF	555.184	8	69.398	2.85
CDE	496.744	8	62.093	2.55
CDF	516.224	8	64.528	2.65
DEF	518.168	8	64.771	2.66
ABCD	911.664	16	56.979	2.34

ABCE	938.944	16	58.684	2.41
ABCF	892.192	16	55.762	2.29
ABDE	989.584	16	61.849	2.54
ABDF	997.376	16	62.336	2.56
BCDE	1016.864	16	63.554	2.61
BCDF	1005.168	16	62.823	2.58
CDEF	853.232	16	53.327	2.19
ABCDE	794.784	32	24.837	1.02
ABCDF	771.424	32	24.107	0.99
BCDEF	693.504	32	21.672	0.89
ABCDEF	561.024	64	8.766	0.36
ERROR	520262.1	21366	24.35	-------
TOTAL	557072.656	21870	---------	-------

Table (20)
Significance of Factors and the Interactions Between them for One-Year Data

Source of variation	F calculated	F (α, r, d)	Statistical decision
A	12.32	4.61	Reject the null hypothesis
B	14.44	4.61	Reject the null hypothesis
C	15.25	4.61	Reject the null hypothesis
D	11.63	4.61	Reject the null hypothesis
E	10.41	4.61	Reject the null hypothesis
F	15.43	4.61	Reject the null hypothesis
AB	8.23	3.32	Reject the null hypothesis
AC	7.25	3.32	Reject the null hypothesis
AD	9.12	3.32	Reject the null hypothesis
AE	8.54	3.32	Reject the null hypothesis
AF	7.25	3.32	Reject the null hypothesis
BC	9.02	3.32	Reject the null hypothesis
BD	9.07	3.32	Reject the null hypothesis
BE	9.24	3.32	Reject the null hypothesis
BF	7.56	3.32	Reject the null hypothesis
CD	8.25	3.32	Reject the null hypothesis
CE	7.05	3.32	Reject the null hypothesis
CF	8.03	3.32	Reject the null hypothesis
DE	5.02	3.32	Reject the null hypothesis
DF	4.32	3.32	Reject the null hypothesis
EF	5.12	3.32	Reject the null hypothesis
ABC	3.69	2.51	Reject the null hypothesis
ABD	4.25	2.51	Reject the null hypothesis
ABE	4.17	2.51	Reject the null hypothesis
ABF	4.25	2.51	Reject the null hypothesis
ACD	3.56	2.51	Reject the null hypothesis
ACE	4.25	2.51	Reject the null hypothesis

ACF	**3.90**	**2.51**	**Reject the null hypothesis**
ADE	**3.33**	**2.51**	**Reject the null hypothesis**
ADF	**2.99**	**2.51**	**Reject the null hypothesis**
AEF	**2.75**	**2.51**	**Reject the null hypothesis**
BCD	**2.85**	**2.51**	**Reject the null hypothesis**
BCE	**2.78**	**2.51**	**Reject the null hypothesis**
BCF	**2.87**	**2.51**	**Reject the null hypothesis**
BDE	**2.69**	**2.51**	**Reject the null hypothesis**
BDF	**2.85**	**2.51**	**Reject the null hypothesis**
CDE	**2.55**	**2.51**	**Reject the null hypothesis**
CDF	**2.65**	**2.51**	**Reject the null hypothesis**
DEF	**2.66**	**2.51**	**Reject the null hypothesis**
ABCD	**2.34**	**2.04**	**Reject the null hypothesis**
ABCE	**2.41**	**2.04**	**Reject the null hypothesis**
ABCF	**2.29**	**2.04**	**Reject the null hypothesis**
ABDE	**2.54**	**2.04**	**Reject the null hypothesis**
ABDF	**2.56**	**2.04**	**Reject the null hypothesis**
BCDE	**2.61**	**2.04**	**Reject the null hypothesis**
BCDF	**2.58**	**2.04**	**Reject the null hypothesis**
CDEF	**2.19**	**2.04**	**Reject the null hypothesis**
ABCDE	**1.02**	**1.70**	**Accept the null hypothesis**
ABCDF	**0.99**	**1.70**	**Accept the null hypothesis**
BCDEF	**0.89**	**1.70**	**Accept the null hypothesis**
ABCDEF	**0.36**	**1.47**	**Accept the null hypothesis**

Table (21)
ANOVA for Earnings Growth (EG) Three-Year Data

Source of variation	Sum of squares	Degrees. of freedom	Source of variation	Sum of squares
A	**657.054**	**2**	**328.527**	**12.467**
B	**770.118**	**2**	**385.059**	**14.613**
C	**813.318**	**2**	**406.659**	**15.433**
D	**620.254**	**2**	**310.127**	**11.769**
E	**555.19**	**2**	**277.595**	**10.534**
F	**822.918**	**2**	**411.459**	**15.615**
AB	**877.848**	**4**	**219.462**	**8.328**
AC	**773.32**	**4**	**193.33**	**7.337**
AD	**972.78**	**4**	**243.195**	**9.229**
AE	**910.916**	**4**	**227.729**	**8.642**
AF	**773.32**	**4**	**193.33**	**7.337**
BC	**962.116**	**4**	**240.529**	**9.128**
BD	**967.448**	**4**	**241.862**	**9.178**
BE	**985.58**	**4**	**246.395**	**9.350**
BF	**806.384**	**4**	**201.596**	**7.650**
CD	**879.984**	**4**	**219.996**	**8.349**
CE	**751.984**	**4**	**187.996**	**7.134**

CF	856.516	4	214.129	8.126
DE	535.456	4	133.864	5.080
DF	460.792	4	115.198	4.371
EF	546.12	4	136.530	5.181
ABC	787.184	8	98.398	3.734
ABD	906.648	8	113.331	4.301
ABE	889.584	8	111.198	4.220
ABF	906.648	8	113.331	4.301
ACD	759.448	8	94.931	3.602
ACE	906.648	8	113.331	4.301
ACF	831.984	8	103.998	3.946
ADE	710.384	8	88.798	3.369
ADF	637.848	8	79.731	3.025
AEF	586.656	8	73.332	2.783
BCD	607.984	8	75.998	2.884
BCE	593.056	8	74.132	2.813
BCF	612.256	8	76.532	2.904
BDE	573.856	8	71.732	2.722
BDF	607.984	8	75.998	2.884
CDE	543.984	8	67.998	2.580
CDF	565.32	8	70.665	2.681
DEF	567.456	8	70.932	2.691
ABCD	998.368	16	62.398	2.368
ABCE	1028.24	16	64.265	2.438
ABCF	977.04	16	61.065	2.317
ABDE	1083.712	16	67.732	2.570
ABDF	1092.24	16	68.265	2.590
BCDE	1113.568	16	69.598	2.641
BCDF	1100.768	16	68.798	2.610
CDEF	934.368	16	58.398	2.216
ABCDE	870.368	32	27.199	1.032
ABCDF	844.768	32	26.399	1.001
BCDEF	759.424	32	23.732	0.900
ABCDEF	614.336	64	9.599	0.364
ERROR	562994.1	21366	26.35	-------
TOTAL	603305.6	21870	---------	-------

Table (22)
Significance of Factors and the Interactions Between them for Three-Year Data

Source of variation	F calculated	F (α, r, d)	Statistical decision
A	12.467	4.61	Reject the null hypothesis
B	14.613	4.61	Reject the null hypothesis
C	15.433	4.61	Reject the null hypothesis
D	11.769	4.61	Reject the null hypothesis
E	10.534	4.61	Reject the null hypothesis
F	15.615	4.61	Reject the null hypothesis
AB	8.328	3.32	Reject the null hypothesis
AC	7.337	3.32	Reject the null hypothesis
AD	9.229	3.32	Reject the null hypothesis
AE	8.642	3.32	Reject the null hypothesis
AF	7.337	3.32	Reject the null hypothesis
BC	9.128	3.32	Reject the null hypothesis
BD	9.178	3.32	Reject the null hypothesis
BE	9.350	3.32	Reject the null hypothesis
BF	7.650	3.32	Reject the null hypothesis
CD	8.349	3.32	Reject the null hypothesis
CE	7.134	3.32	Reject the null hypothesis
CF	8.126	3.32	Reject the null hypothesis
DE	5.080	3.32	Reject the null hypothesis
DF	4.371	3.32	Reject the null hypothesis
EF	5.181	3.32	Reject the null hypothesis
ABC	3.734	2.51	Reject the null hypothesis
ABD	4.301	2.51	Reject the null hypothesis
ABE	4.220	2.51	Reject the null hypothesis
ABF	4.301	2.51	Reject the null hypothesis
ACD	3.602	2.51	Reject the null hypothesis
ACE	4.301	2.51	Reject the null hypothesis
ACF	3.946	2.51	Reject the null hypothesis
ADE	3.369	2.51	Reject the null hypothesis
ADF	3.025	2.51	Reject the null hypothesis
AEF	2.783	2.51	Reject the null hypothesis
BCD	2.884	2.51	Reject the null hypothesis
BCE	2.813	2.51	Reject the null hypothesis
BCF	2.904	2.51	Reject the null hypothesis
BDE	2.722	2.51	Reject the null hypothesis
BDF	2.884	2.51	Reject the null hypothesis
CDE	2.580	2.51	Reject the null hypothesis
CDF	2.681	2.51	Reject the null hypothesis
DEF	2.691	2.51	Reject the null hypothesis
ABCD	2.368	2.04	Reject the null hypothesis
ABCE	2.438	2.04	Reject the null hypothesis
ABCF	2.317	2.04	Reject the null hypothesis

ABDE	2.570	2.04	Reject the null hypothesis
ABDF	2.590	2.04	Reject the null hypothesis
BCDE	2.641	2.04	Reject the null hypothesis
BCDF	2.610	2.04	Reject the null hypothesis
CDEF	2.216	2.04	Reject the null hypothesis
ABCDE	1.032	1.70	Accept the null hypothesis
ABCDF	1.001	1.70	Accept the null hypothesis
BCDEF	0.900	1.70	Accept the null hypothesis
ABCDEF	0.364	1.47	Accept the null hypothesis

Table (23)
ANOVA for Earnings Growth (EG) Five-Year Data

Source of variation	Sum of squares	Degrees. of freedom	Source of variation	Sum of squares
A	794.116	2	397.058	14.025
B	930.81	2	465.405	16.439
C	983.042	2	491.521	17.362
D	749.654	2	374.827	13.240
E	670.988	2	335.494	11.850
F	994.636	2	497.318	17.567
AB	1060.944	4	265.236	9.369
AC	934.696	4	233.674	8.254
AD	1175.728	4	293.932	10.382
AE	1100.944	4	275.236	9.722
AF	934.696	4	233.674	8.254
BC	1162.86	4	290.715	10.269
BD	1169.228	4	292.307	10.325
BE	1191.14	4	297.785	10.518
BF	974.568	4	243.642	8.606
CD	1063.62	4	265.905	9.392
CE	908.836	4	227.209	8.025
CF	1035.208	4	258.802	9.141
DE	647.164	4	161.791	5.715
DF	556.84	4	139.210	4.917
EF	660.032	4	165.008	5.828
ABC	951.384	8	118.923	4.200
ABD	1095.848	8	136.981	4.838
ABE	1075.208	8	134.401	4.747
ABF	1095.848	8	136.981	4.838
ACD	917.752	8	114.719	4.052
ACE	1095.848	8	136.981	4.838
ACF	1005.4	8	125.675	4.439
ADE	858.384	8	107.298	3.790
ADF	770.736	8	96.342	3.403

AEF	709.08	8	88.635	3.130
BCD	734.808	8	91.851	3.244
BCE	716.72	8	89.590	3.164
BCF	739.904	8	92.488	3.267
BDE	693.536	8	86.692	3.062
BDF	734.808	8	91.851	3.244
CDE	657.3576	8	82.1697	2.902
CDF	683.088	8	85.386	3.016
DEF	685.632	8	85.704	3.027
ABCD	1206.672	16	75.417	2.664
ABCE	1242.352	16	77.647	2.742
ABCF	1180.688	16	73.793	2.606
ABDE	1309.616	16	81.851	2.891
ABDF	1319.808	16	82.488	2.913
BCDE	1345.792	16	84.112	2.971
BCDF	1330	16	83.125	2.936
CDEF	1129.216	16	70.576	2.493
ABCDE	1051.744	32	32.867	1.161
ABCDF	1020.16	32	31.880	1.126
BCDEF	917.216	32	28.663	1.012
ABCDEF	741.888	64	11.592	0.409
ERROR	604871.5	21366	28.31	-------
TOTAL	653587.7	21870	---------	-------

Table (24)
Significance of the Factors and the Interactions Between them for Five-Years Data

Source of variation	F calculated	F (α, r, d)	Statistical decision
A	14.025	4.61	Reject the null hypothesis
B	16.439	4.61	Reject the null hypothesis
C	17.362	4.61	Reject the null hypothesis
D	13.240	4.61	Reject the null hypothesis
E	11.850	4.61	Reject the null hypothesis
F	17.567	4.61	Reject the null hypothesis
AB	9.369	3.32	Reject the null hypothesis
AC	8.254	3.32	Reject the null hypothesis
AD	10.382	3.32	Reject the null hypothesis
AE	9.722	3.32	Reject the null hypothesis
AF	8.254	3.32	Reject the null hypothesis
BC	10.269	3.32	Reject the null hypothesis
BD	10.325	3.32	Reject the null hypothesis
BE	10.518	3.32	Reject the null hypothesis
BF	8.606	3.32	Reject the null hypothesis
CD	9.392	3.32	Reject the null hypothesis
CE	8.025	3.32	Reject the null hypothesis
CF	9.141	3.32	Reject the null hypothesis

DE	**5.715**	**3.32**	**Reject the null hypothesis**
DF	**4.917**	**3.32**	**Reject the null hypothesis**
EF	**5.828**	**3.32**	**Reject the null hypothesis**
ABC	**4.200**	**2.51**	**Reject the null hypothesis**
ABD	**4.838**	**2.51**	**Reject the null hypothesis**
ABE	**4.747**	**2.51**	**Reject the null hypothesis**
ABF	**4.838**	**2.51**	**Reject the null hypothesis**
ACD	**4.052**	**2.51**	**Reject the null hypothesis**
ACE	**4.838**	**2.51**	**Reject the null hypothesis**
ACF	**4.439**	**2.51**	**Reject the null hypothesis**
ADE	**3.790**	**2.51**	**Reject the null hypothesis**
ADF	**3.403**	**2.51**	**Reject the null hypothesis**
AEF	**3.130**	**2.51**	**Reject the null hypothesis**
BCD	**3.244**	**2.51**	**Reject the null hypothesis**
BCE	**3.164**	**2.51**	**Reject the null hypothesis**
BCF	**3.267**	**2.51**	**Reject the null hypothesis**
BDE	**3.062**	**2.51**	**Reject the null hypothesis**
BDF	**3.244**	**2.51**	**Reject the null hypothesis**
CDE	**2.902**	**2.51**	**Reject the null hypothesis**
CDF	**3.016**	**2.51**	**Reject the null hypothesis**
DEF	**3.027**	**2.51**	**Reject the null hypothesis**
ABCD	**2.664**	**2.04**	**Reject the null hypothesis**
ABCE	**2.742**	**2.04**	**Reject the null hypothesis**
ABCF	**2.606**	**2.04**	**Reject the null hypothesis**
ABDE	**2.891**	**2.04**	**Reject the null hypothesis**
ABDF	**2.913**	**2.04**	**Reject the null hypothesis**
BCDE	**2.971**	**2.04**	**Reject the null hypothesis**
BCDF	**2.936**	**2.04**	**Reject the null hypothesis**
CDEF	**2.493**	**2.04**	**Reject the null hypothesis**
ABCDE	**1.161**	**1.70**	**Accept the null hypothesis**
ABCDF	**1.126**	**1.70**	**Accept the null hypothesis**
BCDEF	**1.012**	**1.70**	**Accept the null hypothesis**
ABCDEF	**0.409**	**1.47**	**Accept the null hypothesis**