Dividend Announcements and Stock Returns: An event study on Karachi stock exchange

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Abstract
The purpose of present study is to explore the effect of cash paid as dividend on share prices. Value relevance of cash dividend announcement is tested on a sample of around 100 corporate dividend announcements in Karachi Stock Exchange (KSE), during the period of 2005 to 2009. Market model with top three basic extensions i.e., Market, Mean, and Risk adjusted return models were used with the application of event study methodology on daily stock returns. Although there is a marginal bias, the results of all three methods are almost similar. The observed results advocated that dividend announcements are positively value relevant and rejected dividend irrelevance hypothesis in KSE. Strong preference for dividend supports the evidence of agency cost. Results also show the signs of insider traders in the market in the form of market activism in pre-event window. Finally the arbitrage opportunities are also visible from results.

Key Terms: Corporate announcements, Dividend, Return generating models, Event study, Insider traders, Arbitrage.

Introduction
Optimization of wealth of real owners of a corporation as well as the financial strength of the corporation can be judged by the performance of share price and variation in share price. A review of research carried out in finance discloses that share price and stock price volatility is very frequently addressed topic. A number of dimensions have been studied by different researchers and varied results are reported thereby. Corporate announcements and specially dividend announcement is one of these. Dividend announcement is a regular feature of profitable companies trading in Karachi stock exchange (KSE).

Shareholders are rewarded either by dividends, profit reinvestment and share buyback plans. From these, the main and important is dividend that means share given to the stock holders from existing or previous profits which are retained by the corporation. Dividends can be announced in a number of forms by a corporation.

Most frequent form of dividend announced is in the form of cash. When a corporation has either contained the ideas regarding better investment alternatives in its hands, or is suffering from liquidity crunch, the corporation will not think it wise to give cash to the share holders and the company will go for the other option i.e. scrip dividend or bonus shares.

Dividend payout announcement is one of the most important corporate announcement, as this announcement does not only entail cash flow from company to share holders but also send signals regarding company’s present and future plans and performance. Why companies pay dividend at all and incur double taxation? This issue had remained a great debate in the earlier financial Research. “Miller and Modigliani
**Objective of study**

The objective of study is to establish the level and magnitude of value relevance of dividend announcement for the guidance of investors. The study is significant in a way that it will fill the gap of literature on the value relevance of corporate announcement especially the dividend announcement in KSE.

**Methodology**

The purpose of study was to find out any relevance of dividend announced by the companies and to establish the direction of impact of such announcement on the share price. According to positive or adverse impact of announcement on stock return further dimensions like market efficiency and insider trading along with agency cost was to be established. Data collection sequences started from collection of corporate dividend announcements and then the stock returns. Around 100 dividend announcements were selected where adequate data for investigation and estimation window was available.

The rest of the research article is having following arrangement, Part 2 links the current research with past literature on value relevance of corporate announcements using event study and market model. Part 3 shows the data and data sources. Part 4 is meant to explain the Methodology used in study. Part 5 gives a brief account of

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**Sources and Resources**

Dolly, D. (1933). Method introduced by Dolly (1933) is used to frame the estimation and investigation window for research. Another distinguishing feature of study is use of daily stock returns from KSE. Capital assets pricing model in its basic form known as “Market model”, is used as analytical tool. Three main extensions of market model namely “Market adjusted model, mean adjusted model and Risk adjusted models” are used and results of the models are compared. It is established in conformity of past literature that all these methods show similarity of result direction in presence of suitable data.

Fama, E., Jensen, M., & Roll, R. (1969). The purpose of study was to find out any relevance of dividend announced by the companies and to establish the direction of impact of such announcement on the share price. According to positive or adverse impact of announcement on stock return further dimensions like market efficiency and insider trading along with agency cost was to be established. Data collection sequences started from collection of corporate dividend announcements and then the stock returns. Around 100 dividend announcements were selected where adequate data for investigation and estimation window was available.

Lintner, J. (1956). Lintner's work on dividend signaling hypothesis was further refined by Fama, Jensen and Roll (1969) and John and Williams (1987).

**Literature Review**

The objective of study is to establish the level and magnitude of value relevance of dividend announcement for the guidance of investors. The study is significant in a way that it will fill the gap of literature on the value relevance of corporate announcement especially the dividend announcement in KSE.

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**References**

Lang, R., & Litzenberger, R. (1989). Set forth that use of free cash flow for over investment in dividends increase the share price, whereas a decrease in dividend bring about opposite results. They used Tobin’s Q to differentiate between value increasing and overinvestment. According to them only over investors i.e., firms with less than unity Tobin’s Q are expected to have exceptional share price changes after dividend change announcements.

**KSE Research**

Karachi Stock Exchange is first, leading and above all most liquid security market of Pakistan, including local and foreign listing and domestic and foreign traders. KSE won the “Best performing stock exchange of the world award”, in 2002. Till year 2009 was over, 654 companies were on the KSE board showing the capitalization of KSE up to Pakistani Rupees. 8.561 trillion (120.5 billion United States Dollar). At that time the legal capital of Pakistan Rupees was 2805.873 billion (USD 40.615 billion). “KSE100 Index”, ended on 9645.71 on 19th of June, 2010. Till the fall of year 2010, the capitalization of KSE was near Pakistani Rs. 2.5(trillion) and three hundred and fifty billion United States Dollars. In the year 2006 and 2007 a great foreign investment was seen in Karachi Stock Exchange. According to Central Bank of Pakistan the amount of investment from abroad rose up to five hundred and twenty three Million United States Dollar in the said time. Report of KSE research indicated that twenty percent of the KSE index was contributed to investment from abroad. Story of KSE is very much negative and adverse due to law and order conditions, terrorism and decline in economic conditions. The role of global conspiracies cannot be ruled out when studies are carried out to know why the trend of 2006-07 was not upheld.

My article shall contribute in a number of ways to existing literature on this topic in Pakistan. First, it is experimented that either dividend announcement has relevance on market price of stock, and incremental change in security price is also tested. Second, we tried to found the elements influencing the informational substance of dividend in KSE. Finally, I have tested the impact of dividend announcement on the stock price with a focus on the trend of equity transaction as a result of dividend announcement on the part of stock traders.
consequences of price and degree reaction to dividend announcement. Part 6 deals with conclusion and main inferences along with research limitations and future research avenues.

2. Literature Review

The method used for finding out abnormal security returns in this study is event study which as first of all used by Dolly (1933) for finding out abnormal share returns in a stock split study. Stock split was a new issue at that time in the field of accounting and financé. Since then it has been endorsed by researchers that this method is quite simple but it is second to none in producing comprehensive results to establish the value relevance of corporate announcements and events. In the recent past McKinley (1997) a well renowned scholar noted the contribution of

In the last century “Ball and Brown (1968)” and “ Fama Jensen and Roll (1969)” were key source persons to even study’s methodology. The introduced some stat of the art methods for analysis and these tools are workable in contemporary setting too. “Brown and Warner (1980-1984)”, focused on models used for return generating and compared five main models and used return data which was composed of daily and monthly basis. It was also pointed out by them that how important is it to use the correct method and how the results can be misleading if the method is not according to data suitability and contextual setting.

According to “Scholes and William(1977) some inferential confusion is caused by non synchronous transactions and this type of error can be more fatal if the data on daily basis is used for analysis. “Brown and Warner (1985)”, emphasized on simplicity of methodology by observing its benefit in the form ease of use as well as power of test in most of the settings and contexts.

Dividend is not only meant for providing cash to the owners but it is also used for sending signals regarding the performance of company’s profitability and liquidity. This preposition is generally know as “Signaling hypothesis of dividend”. The main contributor to this concepts were “Lintner(1956), Fama at el, (1969) and Ambarish at el, (1987). “Samuelson (1965), Fama(1970) and (1991)” contributed in a way that they established that stock returns are not capable of being forecasted on the grounds of normally available data only as the chances of arbitrage cuts down such tends immediately and efficiently.

As for as the studies of less developed countries are concerned, the main contributor as are Frank at el,(2004), contributed and established that Ghana is in weak market efficiency form. His study was based on correlation analysis including the cross sectional along with serial models. The return patterns used by him were from shortest like daily to longest like yearly including monthly as well as per quarter. The similarity of results of basic Return models was also noted by him in both tests based on parameters and non parametric approach. “Fernando K.G.K and Guneratne, P.S.M (2008)”, worked on bonus shares issuance announcement in “Colombo Stock Exchange”, for sixteen years starting form 1991and found that such announcements have a favorable impact on stock prices.

In Pakistani setting different researchers have worked on different angle of dividend and have used different models. Ahmed(1999) observed that there is no relationship in share prices and spending in sub continent specially in Pakistan. “Hussain and Uppal (1998)” come up with findings that share prices have a positive trend and the mean is also positive in KSE. Uppal in 1994 researched about stochastic characteristics of Pakistani stock prices and concluded that Pakistani markets are in weak form of efficiency. Farid and Ashraf (1995) tested the size and volatility effect on share prices in KSE with small sample. Salman and Mustifa (2001) carried research on the form of market efficiency and found KSE in week form. Hameed and Ashraf(2006) worked on weak form of market efficiency by GARCH model. Haijra at el, (2007) observed the effect of macroeconomic variables on share prices.

3. Data

Research data for this study basically focus on the impact of dividend announcements. Impact of dividend is found out with the help of two variables; i.e. actual stock return and “KSE all share price index”. The data of company announcements and share prices was extracted from KSE website, commercial websites www.khistocks.com and www.businessrecorder.com. Data includes observations from January, 2005 to December, 2009. Main variable of interest were actual stock price and KSE all index which used to compose the relevant returns for analysis based on company announcements during the pre and post event window for analysis and investigation.
4. Methodology

Basic research method used in this study is event study method. This is a commonly used method to find out the relevance and magnitude of a certain event which is dividend announcement in this case on the security return by comparing actual and benchmark stock returns. For calculation of abnormal returns a pre event time frame is used for calculation of estimation parameters known as estimation window and on and after event another time frame is used which is meant for actual investigation of results and is known as investigation window. Event study is important in practical as well as theoretical sense, on first part it is the basis of strategy formulating and on the second it gives ideas about the market efficiency.

Can different return generation method influence the result? different scholars provided different answer to this question. Some says that results are more or less similar while other of the view that method can manipulate the results. “Brown and Warner (1980)”, found that it is data suitability which can spoil the results and not the method itself. “Dyckman et al, (1984)”, researched and arrived on the conclusion that all main RGMs when used for event study produce very similar results in most of the cases in the form of resulting abnormal security returns. This study combined three main RGMs for calculation of abnormal returns. The results of three methods are then observed to find out reliability of research. Use of three methods on one hand can potentially point out any research discrepancy and on other hand contribute to discussion regarding the similarity or difference of results in main RGMs.

Event study normally begins with establishing the event of interest, which is considered to be the source of abnormal returns. Dividend announcement is benchmarked as event of interest and the date of dividend announcement is the event date1.

For calculation of parameters estimation is done before the event date and to know the results time frame is chosen before and after the event date for accounting for all the factors like insider trading, market efficiency, heard behavior and market corrections. In Pakistani context an estimation window2 of 250 is suitable to cover all yearly booms and falls and investigation window of 51 days (from -20th to +30th day) is suitable to take care of insider trading to book closer to see the relevance of event day which is denoted by day 0 in the study.

After setting the estimation and event window a return generating method is to be applied. Out of main return generating methods, mean and risk adjusted method need estimation window for parameters to be used in identifying the abnormal returns. This time frame needs to be suitable enough to cover all statistical inferences needed for the research. A typical estimation window starting from -270th to -21 day covering a total of 250 days.

Abnormal return is the difference in actual security return and expected returns. This difference is transformed in the form of equation(01)below by the use of market model.

4.1 The Market Model

Market Model is mathematical form used for finding out abnormal returns by comparing the actual and expected returns by using the parameters of estimation window which are used for estimation. On time line this model can be used as follows:

\[ AR_{it} = R_{it} - (\alpha + \beta_i R_{mt}) \]

Market model equation is composed of following variables;

Where,

\[ AR_{it} = \text{abnormal return of stock } i \text{ observed on day } t \]
\( i \) = stock under observation  
\( t \) = Represents event date  
\( R_i \) = the return for stock \( i \) at day \( t \),  
\( R_m \) =the return of market on day \( t \),  
\( \alpha, \beta \) = estimation parameters for based on estimation window  
Market model can assume different forms according to the values of \( \alpha \) and \( \beta \) parameters.

Peterson (1989) noted the standard span of the estimation period can be from 100 to 300 days.

4.1.1 Market Adjusted Return Generating Model:  
Basic assumption of this model is that market wide factors impact all stocks being traded in the market. This employ that expected returns security under consideration shall be equal to the market return. Therefore the expected return of stock shall be a constant and equal to market return. In equation (01) the value assumed by \( \alpha \) and \( \beta \) for this model extension are set equal to 0 and 1 respectively.

The model is useful as it take into account all the market factor and events impacting the market as a whole and do not investigate the stock in isolation. Studies conducted by DeBont in(1985) as well as Salon(1987) and Barnas and Ma(200) has narrated concrete evidences of utility of this model in the studies carried out via event study. This method do not take into account the past trends of market and stock and simply infer the result on the basis of data available in investigation window. It is also observed that this method is useful in the situation were data is restricted for estimation. The equation 01 is as follows:

\[
AR_i = R_i - (\alpha + \beta R_m)
\] (02)

4.1.2 The Mean-Adjusted Return Generating Model  
In this model the expected returns of stock are held equal to the average of stock prices in the estimation window. The average stock return comes to 1. Mean adjusted model considers the expected returns equal to mean return of the stock. For the purpose of this model the value of estimation parameters \( \alpha \) and \( \beta \) are taken as mean return and zero respectively. The studies of Avner and Loewenstein (1985) as well as Macklinley (1997) had been based on the same model without any change. Peterson 1989 used the same model with slight change in the mean adjustment in his research. For the sake of comparison between all three models, I have used this model without any change.

For implementation of this model the equation is being re composed as follows:

\[
AR_i = R_i - (1 \times \alpha + 0 \times R_m)
\] (03)

4.1.3 The Risk-Adjusted Return Generating Model  
This model is different in calculation as compared to above mentioned models as well as is more comprehensive in a sense that it uses the regression based estimated parameter for finding out abnormal returns in the investigation window. The benefit of regressed parameter is that both company specific as well as market oriented factors are covered by this model. The calculation of parameters alpha (\( \alpha \)) and beta (\( \beta \)) is carried through very simple ordinary least square regression model. Security returns and market returns are taken as exogenous and endogenous variables respectively in estimation time frame of 250 days. The regression beta is then used for calculation of abnormal returns.

The basic equation will take the following form to adjust for this method;

\[
AR_i = R_i - (\text{OLS estimated value of } \alpha + \text{OLS estimated value of } \beta R_m)
\] (04)

The application of these three model generated abnormal returns on the basis of which the average and cumulative abnormal returns for shares of companies making dividend announcement were found out. Abnormal returns calculated under three RGMs are translated in to AARS and CAARS as follows:
Average Abnormal Returns for Sample (AARs)

\[ \text{AAR}_s = \frac{1}{N} \sum_{t=1}^{N} \text{AR}_t \]  

(05)

Cumulative Abnormal Returns for Sample (CAARs):

\[ \text{CAAR}_{(T_1,T_2)} = \sum_{t=1}^{T_2} \frac{1}{N} \sum_{t=1}^{N} \text{AR}_t \]  

(06)

Equation for calculation of actual stock returns of each security in above discussed models in investigation window is as follows:

\[ \text{AR}_i = (P_t - P_{t-1})/P_{t-1} \]  

(07)

Where

\( \text{AR}_i \) = Actual security Returns
\( P_t \) = Ending price of security \( i \) at day
\( P_{t-1} \) = the ending price of stock \( i \) on the previous date

Equation for calculation of markets returns is given as follows:

\[ R_{mt} = (M_t - M_{t-1})/M_{t-1} \]  

(08)

Where

\( R_{mt} \) = Market return on day \( t \)
\( M_t \) = Market index value today
\( M_{t-1} \) = Market index value of last day

4.2 Test of Significance:

Average Abnormal Returns and Cumulative Average Abnormal returns arrived at via Abnormal Returns are meaningful when a statistical test of significance is applied. Many parametric and non parametric test can be applied to check out the significance. Due to simplicity of application and calculation t test is applied on abnormal returns. t-test assumes data to be normally distributed. The data used for finding out value relevance of dividend announcement is in the time and security wise, therefore, so the normality of distribution is biased for sample. But researchers like, Dyckman et al (1984) and Jain(1986) has used t-test when the sample size is more then 30. The calculation of t statistic is as follows

\[ t = \frac{AR_0}{\text{Standard Deviation of (AR)_0}} \]  

(09)

Where:

AR= Abnormal returns and
Standard Deviation of (AR) = Standard Deviation of Average/Cumulative Abnormal Returns.

5. Empirical Results

It has been observed that direction and magnitude results of three return generating model is almost similar. The slight difference has specific reasons. Mean adjusted model shows relatively better results due to use since the returns in investigation window are being compared with own past mean performance. However the risk adjusted method results can be considered as most reliable as it incorporate all security specific as well as market based factors and uses OLS based Alpha and Beta estimators.
Appendix-1 table shows the resulting AARs calculated on the basis of event of dividend announcement by using all three return generating methods. The table indicates the AARs, CAARs, standard deviation and t statistics and dates with significant abnormal returns in the investigation window based on the sample of 100 dividends announcements during 2005-09 time periods.

Results for dividend announcement event indicate an increasing tendency in AARs and CAARs from day -18 to +14. Announcement data and next day indicates highest AARs. CAARs also remain positive in the above mentioned time period and highest CAARs are observed on day +10 after which signs of market correction are visible.

Figure 1(KARACHI STOCK EXCHANGE All share price index from Jan 2003 - Dec 2009)

Figure 2 (KARACHI STOCK EXCHANGE All share price daily fluctuation Jan 2003- Dec2009)
Presence of abnormal returns from day -18 is a sign of insider traders showing leakage of dividend announcement and tries of capitalizing on arbitrage opportunities. Abnormal returns after event date shows weak form of market efficiency and heard behavior prevailing after which market corrections took place. Day +14 is probable ex-dividend date as after this date AARs and CAARs slopes down to be negative. After this date the arbitrage opportunities ends. The results show that dividend announcements are value relevant and have positive value relevance on stock returns.

6. Conclusions

Results of study segregate the conclusions in two areas. First one covers the use of different RGMs and Market performance of KSE as a whole, while second part concludes the value relevance of corporate announcements in specific.

Behavioral aspect of the market and research methodology reveals that KSE is in weak form of efficiency and information asymmetry prevails over here. Non availability of reliable data stream is main hindrance to stock based research. In some cases the date for 301 days exceeds much longer than one year period. KSE is much more different from established stock markets. Therefore the fundamental and technical analysis are not the basis of stock price valuation in KSE, instead political and law and order conditions are more influential. The family companies and vital role of few market makers is also special about KSE. These factors resulted in slight variation from past empirical results.

Data analysis based on event study by using three main extensions of market model resulted in almost identical result trends. These results support the previous researches which indicates that model is simply the choice of researcher and if suitable data is available and reliable all methods produce same type of results.

Dividend irrelevance hypothesis and Dividend theory of Miller and Modigliani stated that divided announcement should not result in abnormal returns. Since these economic theories are subject to citrus Paribas, these theories do not hold around the globe. According to the results of research the dividend is a very attractive announcement and there is a strong attraction attached with dividend announcement, which in turn generate abnormal returns.

Positive abnormal returns in pre event window show the signs of insider trading. Positive returns in post event window are evidences of weak form of market efficiency and also arbitrage profit opportunities. Results also confirm the positive value relevance of dividend announcements.

Further research is possible subject to more refined data streams. Although research on value relevance of corporate announcements is very rare in Pakistan further research can be done by use of other parametric and non parametric tests of significance.
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**End notes:**

1 For event study it is routine to expand the time of interest afar occurrence days to arrest full volatility behavior. For this reason multiple days before event, the event day and number of days after the occurrence are incorporated in the event window”

2 Peterson (1989) noted the standard span of the estimation period can be from 100 to 300 days.

3 t-test is only pertinent to mean and risk adjusted return generating models, in current study t test is not applied as such. Jain(1986) and Fernando (2009) proposed that as stated in research of Snedecor and Cochran (1970, p60) that “difference in t-distribution with more than 30 degree of freedom and standard normal distribution is identical for research motivation”.