Reviewing the Relationship between Dividend and Free Cash Flow of Non-Financial Firms of KSE 100

Muhammad Muddasir and Saad Ullah Mughal®

ABSTRACT

Dividend payments are the primary concern of short-term investors, while free cash flow is for long-term investors. In accordance with, the first aim of the study is to the measures of long term and short-term investments and secondly, we have checked whether the dividend payout of the small fifty and big fifty firms are indifferent or not regarding free cash flow. For this research, the sample size we took was all the non-financial listed companies in the KSE 100 Index of Pakistan Stock Exchange (PSX), between the time period starting from 2009 to 2018. We developed four regression models in total to examine our hypothesis and developed our models into two different series. In the end our results came out as expected and we have been able to concur with our defined objectives. We can conclude that, first, there is a strong relationship between long-term and short-term investments and when it comes to payment of dividends, the firms are different depending upon their size. It implies that investors are likely to consider both factors when making investment decisions. This could mean that investors will prioritize companies that demonstrate both strong long-term growth potential and short-term financial stability.

Key words: *Free Cash Flow, Dividend, KSE-100, Non-Financial Firms, Regression Analysis*

JEL Codes: G23, G11, F65, O16

1. INTRODUCTION

Investors are always on the lookout for the future cash flows that their investment will yield. Though better dividends should never be confused with a firm's performance, for that there is another measure which can reveal a great deal regarding the performance of a firm, and this can be done through calculating the Free Cash Flows of firm (FCF). Consequently, investors can be classified into two major classes; those investors who want to invest in the short term and those who are in the game for the long run. Short term investors might regard dividends as the main variable for their return on investment whereas long term investors like to evaluate a firm over its free cash flow.

Firm size modifies the relationship between FCF and dividend. In general, businesses with substantial FCF can raise dividends to give employees less power over how their money is used, which lowers agency costs. FCF does affect the dividend payout ratio, but it also relies on the size of the company. The findings of several investigations are inconsistent. FCF and dividend payment ratio were found to be positively correlated in certain studies, whereas they

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® Muhammad Muddasir, Master's Student in Finance, Anadolu University, Eskisehir, TR, 26170, (email: muhammadmuddasir@anadolu.edu.tr), Tel: +34643443733.

Saad Ullah Mughal2, Master's Student in Quantitative Finance, CAU KIEL University, Kiel, DE, 24118, (email: stu233042@mail.uni-kiel.de), Tel: +49176436426.

were not significantly correlated in other studies. Our core objective in this research is to evaluate the measures of long term and short-term investments.

There are two main goals for this study. In order to attain this, it is necessary to ascertain the relationship between FCF and Dividend. Briefly, we are evaluating the relationship between long-term and short-term investment. Second, we examine the idea of whether there is a difference in dividend payout between the Big 50 and Little 50 firms.

Free Cash Flows is something that is not taken into consideration by a rational investor instead these investors prefer the dividend payments, because it is something that is evident and is easy to understand, though the value of Free Cash Flows is more than mere numbers, it is something that requires precise and complex calculations. Also, investors who invest in short term focus mainly on dividend payments because Free Cash Flows always benefit in the long term and can be considered somehow useless in the short term. An investor who is willing to dig deeper, mostly institutions, brokerages and big financial firms, mostly take into account the value of FCF, mainly because the main functions of FCF usually are, a firm's capability to pay dividends, also an intent and short-term investment in non-operating asset, all important variables if seen from an investment perspective. The rare uses of FCF may include principal payback and share buyback, though these practices are infrequent and may not be preferred by the majority of investors.

The relationship between Free Cash Flows and Dividends is directly proportional in the majority of instances. It has been observed through research that an increase in the Free Cash Flow imparts a positive effect upon dividends of a company (Manning and Napier, 2016). Previous literature exists in which the relationship between Free Cash Flow has been examined against Agency Costs by numerous researchers (Jensen, 1986; Harford, 1999; Opler et al., 1999; Faulkender and Wang, 2006).

The agency cost theory can simply be defined as a relationship between the agent and the principal, each acting in their own self-interest. This in return creates indifferences among the company management and the stakeholders resulting in feuds and consequently financial losses.

According to free cash flow hypothesis, as stated by Jensen (1986), that managers of firms with high free cash flow, particularly with low growth opportunities, are likely to make value demolishing mergers. Also, debt allocation enables managers to successfully meet their free cash flow commitments.

The hypotheses of agency cost of free cash flow claims that when the managing committee of a company is left with excess cash i.e., the free cash flow after funding for all the required projects, there exists a possibility that this cash can get allocated to investments, that in the future might prove to be unprofitable, leading to the wastage of money.

If we ponder upon contemporary literature, not much would we able to find work that has been done to examine the direct relationship between Free Cash Flow and Dividend. More Research has been done to examine the relationship of free cash flow against Agency Costs, Dividend Policy and Corporate Ownership. Therefore, in order to fill the research gap that exists in this area, we have decided to conduct this research, to examine the direct relationship of Free Cash Flows against Dividends.

The main outcomes are that there are many businesses that, despite having negative free cash flow, are still able to distribute dividends to their shareholders. This is largely due to the fact that these businesses typically invest a large portion of their FCF in other high-yield projects, which, although they appear to have negative free cash flow, actually show a very different picture and allow the business to achieve significant long-term gains. We were able to get the conclusion that when it comes to market size, corporations differ in the dividend payments they make. Last but not least, there are companies that offer both short- and long-term investments. Our findings support the claim that there is a relationship between long- and short-term investments to some extent.

2. LITERATURE REVIEW

We have divided the papers discussed above into three broad groups after thoroughly reviewing them. The first category includes studies that have explored investment and free cash flow. As a result, the second classification is based on dividend and free cash flow, and the last classification we've come up with includes dividend and firm performance.

2.1. FCF and Dividends

Guizani (2018) has aimed to examine the impact of dividend payout on the relationship between the free cash flow level and internal governance mechanisms. The researcher has used the Linear regression models and has taken a sample of 207 non-financial firms listed on the Gulf Cooperation Council countries' stock markets for the period of 2009 and 2016. The Sobel examine has been used in order to evaluate the significance of the mediating effect. The findings show that the level of free cash flow increases through large managerial shareholdings and lower payout of dividends. Also, excess cash is retained by powerful managers to their personal interest.

Karpavičius and Yu (2017) have studied the process of shareholder wealth maximization and the supervision of company's major stakeholders through the indirect analysis of institutional investors. In order to examine the free cash flow hypothesis, the researchers have used a sample of thirty years ranging from 1980 to 2009. The least square regression method has been used in the computation of the results. The findings of the research conclude that debt and the dividend ratios of US industrial firms are adversely affected with substantial increment in the institutional ownership, during the sample period. A positive impact is evident upon the firm's value and cash holding from institutional ownership. These results are in line with the hypothesis of free cash flow.

Fuller and Blau (2010) have examined the relationship between the non-monotonic dividends and free cash flow hypothesis. To eliminate the free cash flow problem, dividends are paid by the higher quality firms, whereas the firms which are considered low-quality firms pay dividends to indicate future earnings and lower the free cash flow problem. The data that has been used consists of a sample of 2,197 AMEX, NYSE and NASDAQ listed dividend paying companies from 1980 to 2000 and the OLS Regression has been employed for estimations. The results show that larger firms pay low dividends whereas smaller firms pay higher dividends.

Kato et al. (2002) have worked on the Japanese firms. The study has provided proof in favor of Cash Flow Information (CFI) hypothesis. The data is comprised of a sample of 2356

newspaper announcements of dividends by the firms listed in the first section of the Tokyo Stock Exchange (TSE) from the period starting from January 1982 to April 1991. Furthermore, Multiple OLS Regression has been used to calculate the results. The results show that the investment behavior of the firms to some extent can be explained through the free cash flow hypothesis whereas the dividend policy doesn't play any substantial role in controlling the overinvestment problem.

Agrawal and Jayaraman (1994) have studied that dividends can be seen as an alternative for leverage in leveling the agency cost associated with the free cash flows. The researchers have taken into consideration all equity firms and have used regression analysis to generate results. Their findings disclose that payout ratios and dividend yield of all equity firms are substantially greater than those of levered firms. Also, both the median of dividend yields, and payout ratio are higher than the levered firms. Conclusively, it can be declared that managerial ownership and dividend act as an alternative mechanism to lower the agency cost of free cash flows in all equity firms.

Lang and Litzenberger (1989) have examined the cash flow signaling and free cash flow to measure the effect of dividend announcements over stock prices. The data that has been considered for examining the relationship consists of 429 dividend announcements over the period starting from 1979 to 1984. In their study, the researchers have divided the firms' sample into three groups: over investors, marginal over investors and a group of mixed value maximizers. The final results express that the overinvestment hypothesis over cash flow signaling hypothesis is supported by dividend announcements by firms.

2.2. Free Cash Flow and Investment

In a study conducted by Zhou et al. (2017), in which the sample has been taken from China. A total of 936 companies were selected and the time span was six years ranging from 2009 to 2014. The researchers have used the GMM method in order to evaluate the relationship between credit expansion and free cash flows against investment in enterprises. The results reveal that free cash flows and credit expansion have a substantial positive impact upon new investment, derived with the help of the dynamic and static model and similarly the same results were observed in case of over-investment where the Richardson's model was used.

Nguyen et al. (2017) have worked on how diversified firms and specialized firms attain their target cash balance by adjusting their cash flows. The researchers have used a sample of 34,869 US firms and the data range is from 1990 to 2009. Further, for the evaluation of hypothesis the regression analysis has been used. The final results indicate that specialized firms have lower free cash flows and higher investment in contrast with the diversified firms. Another important finding is that less reliance is placed by diversified firms on external financing as their measure contributes in saving less cash and also it puts these firms in a better position to invest.

Zhang et al. (2016) have studied the relationship among the free cash flow and overinvestment in the Chinese Energy Sector. They have worked on the argument that whether the Chinese energy firms, due to increasing free cash flows tend to misallocate resources. The authors have used a dynamic panel model for the Chinese energy related publicly listed firms from 2001–2012. Their results reveal that the hypothesis of FCF is valid in the Chinese energy-related firms and the most important factors in order to understand the agency problem are firm size, governance and ownership structure.

Chen et al. (2016) have explored how corporate governance characteristics and free cash flows have an impact upon firm level investments. Their sample size constituted of 865 Chinese listed firms and the data range is from 2001 to 2004. Regression analysis has been used by the researchers in order to estimate the results. The findings reveal that the sensitivity of current free cash flow of a firm is dependent of its over investment, and there exists a link between higher over investment and higher free cash flow. They have also suggested that in order to balance overinvestment, specific governance structures, such as a bigger board size of supervisors, can be deployed.

Deng et al. (2013) have studied the relationship among investment and dividends of Chinese listed firms under a condition of cash flow uncertainty. The period of data that has been used is from 2000 to 2010 and multiple models of regression have been employed to aid the results of the research. The final results show that Chinese firms maintain a very high level of investment in the presence of cash flow uncertainty and neither cut dividends nor cut investment. The only instrument through which the problem of cash flow uncertainty can be resolved is external financing. Given different levels of cash flow uncertainty, there exists a non-liner relationship between investment and dividends.

Richardson (2006) has examined the level of firm's over-investment of free cash flow. The author has employed an accounting-based framework to calculate free cash flow and overinvestment. The findings reveal that in the non-financial firms in the period 1988–2002, almost twenty percent of available free cash flow is invested by an average firm. Additionally, a major portion of the free cash flow is stocked in the form of financial assets. Also, another noticeable trend is that almost forty-one cents are retained over every additional dollar either in the form of cash or stocks. Subsequently, the distribution of dividends is comparatively less to external stakeholders which leads to the creation of the possibility of free cash flow to be overinvested in future.

Brush et al. (2000) have pondered upon the relationship of free cash flow hypothesis against sales growth and firm performance. The researchers have worked on the question of the agency argument that firms without free cash flow are more profitable than firms with free cash flow. The data sample that has been used for the computation ranges from 1988 to 1995 and Regression analysis has been used to examine the different relationships. Their final results show that firms without free cash flow gain more from sales growth than firms with free cash flow but the effect of governance conditions upon sales growth and firm's performance is different. Also, it is noticeable that the influence of free cash flow on performance is nullified by having significant stock ownership by the management.

2.3. Dividend and Firm Performance

Fatemi and Bildik (2012) have examined the dividend payout policy on a global scale. The data that has been taken consists of a sample of more than 17,000 companies from 33 different countries. The logit regression method has been used in order to estimate the results. The end results show that extensive proof is available that the tendency to pay dividends has declined globally. A major cause of this downfall is because of the payout policies of less profitable and smaller firms who have a range of investment opportunities. Also, the researchers have found that more dividends are rolled out by those companies, who have higher profitability and firms with low opportunities of growth.

Denis and Osobov (2008) have discussed the question that why firms pay dividends, additionally they have also worked on the determinants of dividend policy. Their sample includes six most developed economies all around the world and the period taken into consideration is from 1989 to 2002 and regression analysis has been used in order to evaluate the results. The results indicate that the tendency to issue dividends is more amidst bigger, higher profit generating companies, and those who have large fraction of total equity comprised by retained earnings. The researchers have further highlighted the fact the dividend payout might have decreased over the period nine years from 1994-2002 in the six countries, which were taken as sample.

Mougoue (2008) has researched further on the concept given by Miller and Modigliani, that under the condition of perfect capital markets, dividend decisions and financing decisions are not affected by investment decisions. A data sample of 417 companies has been taken for this research over the time frame ranging from 1962 to 2004. Two methods, linear and nonlinear causality, have been used to examine the relationship between dividend and investment. The final results reveal that separation principle is supported by linear causality examine whereas the results are exact opposite in the case of nonlinear causality examine because of strong relationship between investment and dividends.

DeAngelo et al., (2004) have elaborated the query whether the dividends are disappearing and have further discussed the concentration of dividends and consolidation of earnings. The period from 1978 to 2000 has been analyzed in this research. The findings of this study show that earnings concentration is linked directly linked with the supply of dividends. According to the researchers, the increasing trend in the supply of dividends is reflected in the earnings concentration.

After extensive review of the papers discussed above, we have derived three main categories, first, those researches in which the discussion has been done in relation with investment and free cash flow. Consequently, the second classification is based upon dividend and free cash flow and lastly, the final category that we have devised encompasses dividend and firm performance. Therefore, we have three major conclusions. First, we can emphasize upon the notion that with the increase in overinvestment, a negative trend is followed by free cash flow (Deng et al., 2013; Zhou et al., 2017). Secondly, we can say that there exists a positive relationship between dividend and free cash flow and also one related finding that we found is that larger firms pay less dividends than smaller firms. Also, there is no connection between FCF and Dividend Policy Payout (Fatemi and Bildik, 2012; Denis and Osobov, 2008). Finally, those firms with higher profitability and lower growth supposedly pay more dividends and also there exists a strong relationship between dividend and investment (Fuller and Blau, 2010).

Respectively, we were able to conclude the fact that not much research is available in which work has been done solely to examine the relationship between dividends and free cash flow. Secondly, we identified that most of the researches have worked upon complete market index rather than individual sectors and companies, we too, in our research have followed the same trend i.e., our data set is comprised from companies listed under the KSE 100 Index. Lastly, most of the research that has been conducted keeping profitability as the core measure for division of entities.

3. RESEARCH METHODOLOGY

For this research, we have two major objectives. First, we are considering the relationship between long term and short-term investment and in order to achieve this objective, it is required to determine the relationship between FCF and Dividend. If the relationship between FCF and Dividend is positive, this implies that there exists a connection among long term and short-term investors. Consequently, we look upon the notion that there exists a difference in the payout of dividends among the Big 50 and Small 50 firms. In order to verify this, we need to examine this through dummy variables.

3.1. Data

The Data that has been used in this research is Secondary Data. The main source of data collection is from Thomson Reuters and also some information has been collected from PSX Data Portal.

The sample that has been used for this research are the companies listed under the KSE 100 Index of Pakistan Stock Exchange (PSX). In this research, we have only considered the non-financial firms because there exists no valid method to calculate Free Cash Flow of Financial firms (Webster 2016). The frequency of the data is Annual. The time period of the data that has been used is between 2009 to 2018 i.e., 10 years data. Data from the aforementioned dates were chosen because, as of January 1, 2019, an updated accounting standard (IFRS-9) became effective. Moreover, a global financial crisis occurred in 2008.

The first thing we did was the computation of FCF and dividends, through the Income statement and balance sheet of the firms. There were many companies that had missing data, mostly were those companies that got listed after 2012 and several companies had not issued their financial statements of some years, for example, K- Electric, the data for this company was only available in time span from 2009 to 2016 and had 2 years of missing data, therefore we had to drop this company. Finally, we were left we 64 companies in the end, after refining. The method that we have used is the Panel Data analysis method (Sayar et al. 2020). The first model that we devised was among Free Cash Flow (FCF) and Dividend (DIV). The results we got were not encouraging and the relationship among the variables was weak.

In order to counter this problem, we shifted to log model for FCF and DIV but in return the values of FCF came out to be negative and for that reason we dropped this method. Furthermore, we tried with absolute values of FCF but using those values ended the variation of data and the results we got were insignificant. Finally, we again reopened the financial statements of the concerned companies, got the value of Total number of shares and arranged that data on yearly basis. Then using this number of share data, we converted FCF and DIV into per share. The results of Free Cash Flow Per Share (FPS) and Dividend Per Share (DPS) were better than all the previous results (Fig 1)

Figure 1. Volatility of FPS & DPS from 2018-2019
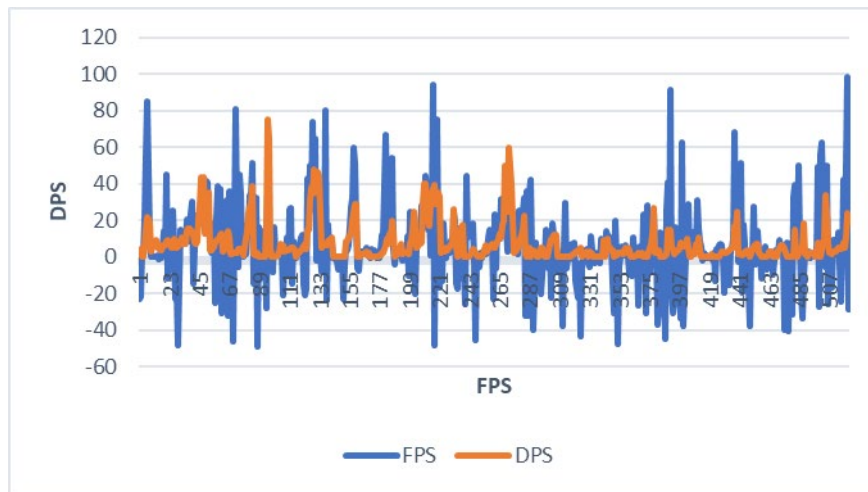
In Fig 1. We have computed the annual standard deviation of the FPS and DPS using daily returns and exhibit the volatility chart. It demonstrates the correlation between FPS and DPS. Brigham and Houston (2016) have described the method to compute Free Cash Flow in their book "Fundamentals of Financial Management". We, in our research, have used the same method to calculate Free Cash Flows, the method is;

FCF = (NOPAT+ Depreciation) – (Net investment in operating capital + Depreciation)
    = Operating cash-flow – Gross investment in operating capital
    = Operating cash-flow – Gross investment in long term operating assets – Investment in NOWC

In the case of dividends, we have used the annual dividend data from Thomson Reuters. After the completion of data collection, we structured the data in the panel data. Furthermore, in order to examine the relationships that we had defined we used the OLS Regression Analysis (Naudé and Saayman, 2005). The regression models that we have used in our research are as follows:

$$DPS_{it} = \beta_0 + \beta_1 FPS_{it} + \varepsilon_{it} \quad : \beta_0 > 0 \qquad (1)$$

The results that we got from the above model were not encouraging. Also, the relationship between DPS and FPS was insignificant. For that reason, we had to incorporate additional control variables.
The subsequent models incorporate control variables, SPS (Sales Per Share) and PPS (Profit After Tax Per Share):

$$DPS_{it} = \beta_0 + \beta_1 FPS_{it} + \beta_2 PPS_{it} + \varepsilon_{it} \qquad (2)$$
$$DPS_{it} = \beta_0 + \beta_1 FPS_{it} + \beta_2 SPS_{it} + \beta_3 PPS_{it} + \varepsilon_{it} \qquad (3)$$

After examining the relationship between Free Cash Flow and Dividend, we created another model incorporating dummy variables in order to examine the behavior of payment of dividends among our two groups (small fifty and big fifty), the model is as follows:

$$DPS_{it} = \beta_0 + \beta_1 FPS_{it} + \beta_2 PPS_{it} + \beta_3 PPS_{it} * D1_{it} + \beta_4 FPS_{it} * D1_{it} + \beta_5 D1_{it} + \varepsilon_{it} \quad : \beta_0 > 0$$
$$(4)$$

We examined the above four models without applying any additional effect and subsequently, we examined the models that did not have dummy variables with fixed effect.

3.2. Pre-Test Analysis

Before the analysis, the step taken was to run the Breusch-Pagan LM, Pesaran scaled LM and Pesaran CD test. All this was done in order to verify whether our data set is reliable or not. The tests aid in determining whether random or fixed effect is needed in order for a better fitted model.

The values that were obtained from these tests were approx. to zero which indicates that there is no evidence of heteroscedasticity of the models being tested or in other words the variance of the errors in the models is likely to be constant across all levels of the independent variables, which satisfies the assumption of homoscedasticity in regression analysis. This also indicates that there is no cross-sectional dependence (De Hoyos & Sarafidis, 2006).

3.2.1. Hausman Test

The Hausman test is done in order to determine whether random or fixed effect is applicable upon the regressing model. It consists of two hypotheses, Under the null, the random effect model is favorable whereas under the alternative, the fixed effect model (Greene, 2008). If the p-value falls below 0.05, the null hypotheses can be rejected or vice versa.

The results which we achieved; the p-value of our model (2) was less than 0.05 which means that the fixed effect model is significant.

3.2.2. Redundant Fixed Effect Model

The purpose of this test is to determine whether period fixed effect or cross-sectional fixed effect (or both) is significant. If the p-value returns less than 10%, then we can reject the null hypothesis and conclude that the effect being used is significant.

We tested all the three models with fixed effect. All the three models with respect to both cross sectional and period fixed effect returned to be significant. The parameters of intercept and all variables are same throughout the whole panel, cross section and period.

4. RESULTS AND DISCUSSION

Pooled regression is when all the data is put together and without having any difference among (time series and cross section) panel data and is succeeded by a regression analysis that uses ordinary least squares.

The table below shows the results of the series 1 models:

	MODEL 1	MODEL 2	MODEL 3	MODEL 4
FPS	0.1973*** (0.000)	0.0851*** (0.000)	0.0853*** (0.000)	0.0166 (0.2344)
SPS			0.0008 (0.5801)	
PPS		0.7054*** (0.000)	0.6973*** (0.000)	0.2594 *** (0.000)
D1				-7.6352*** (0.000)
FPS*D1				0.0703*** (0.000)
PPS*D1				0.5444*** (0.000)
CONSTANT	10.0424*** (0.000)	-3.3745*** (0.000)	-3.4918*** (0.000)	1.9882** (0.0333)
R-SQUARED	0.1794	0.7452	0.7453	0.8051
F-STATISTIC	125.5346	838.0254	558.1096	470.9371
S.E. OF REGRESSION	27.1318	15.1315	15.1407	13.2691
DURBIN-WATSON STAT	0.5143	1.0455	1.0401	1.1902

Table 1 Panel Regression Analysis of all models 1-4
*Note. The estimated results in the table are p-values; *, **, *** means significant at 10%, 5%, 1% level respectively.*

The table below shows the results of the series 2 models:

	MODEL 1	MODEL 2	MODEL 3
FPS	0.0827*** (0.000)	0.0564 *** (0.000)	0.0579 *** (0.000)
SPS			0.0227*** (0.000)
PPS		0.6410*** (0.000)	0.5410*** (0.000)
CONSTANT	10.7430*** (0.000)	-1.9115** (0.016)	-7.2682 *** (0.000)
R-SQUARED	0.7083	0.8454	0.8547
F-STATISTIC	19.3908	42.9065	45.3710
S.E. OF REGRESSION	17.1441	12.4938	12.1236
DURBIN-WATSON STAT	0.8248	1.5368	1.5722

Table 2 Panel Regression Analysis with Fixed effects of models 1-3
*Note. The estimated results in the table are p-values; *, **, *** means significant at 10%, 5%, 1% level respectively.*

The main purpose of dividing the models in two series is because of two different objectives that we have tested. Firstly, in series 1 models, we have tested how the large and small firms behave in terms of dividend payouts. Consequently, in the series 2 models we have observed the relationship between FCF and Dividends as a whole.

The significance can be calculated through P-values. In order for the variable to be significant the P-value should be less than 0.1. Now, let's discuss the significance of a model. The significance of the model is reflected in the R-squared and F-statistic of the model. The greater the value, the more the model is significant. Also, the Akaike information criterion (AIC) is a measure to evaluate the significance of a regression model. The lesser the value of AIC, the better the model or vice versa.

Furthermore, in this study we are using dummy variables to understand the behavior of dividend payouts of the big fifty and small fifty firms which gives the possibly to compare pooled regression against fixed regression.

4.1. Series 1 models

The Standard Error of Regression is measure which shows the error in a model. The lesser the value, the better the model. In model (1) the value of S.E is 27.13 and in model (3) the value is 15.14 whereas in model (2), the value is 15.13. This shows model (2) is better fitted as compared to both model (1) and (3).

The Durbin-Watson Statistic is a measure that detects the presence of autocorrelation. The Durbin Watson statistic will always have a value between 0 and 4 also a value of 2 means that there is no autocorrelation present in the model. In model (1), the value of this statistic is 0.51 and in model (3), the value is 1.0401 whereas the value in model (2) is 1.0455. The closer the value is to 2, this implies that there is lesser autocorrelation in the model therefore, we can say that the model (2) is the better one among the three models.

The value of AIC of model (2) is better as compared to models (1) and (3). We can conclude that model (2) is best fitted amongst the three models.

The FPS is an independent variable, which is present all across three models. This variable came out to be significant in all three models but had variable coefficient values. The highest value of FPS coefficient among the three models is in model (1). The value of FPS in models (2) and (3) is almost the same.

The value of constant is significant in all the three models. Model (1) is the only model where the value constant increases along with the value of DPS whereas in the other two models the case is completely opposite, that is if 1 unit of constant increase there will be a decrease in the value of DPS.

The PPS is a control variable present in model (2) and (3). PPS is significant in both the models. The coefficient value of PPS has an increasing trend in both the model with respect to DPS, though the PPS of model (2) is slightly higher than model (3).

The SPS is also a control variable which we have used only in model. The main reason behind incorporating this variable was that we wanted to get a better value of R-squared. After regressing the model, the value of SPS returned to be insignificant, which indicates that there is no requirement for an additional control variable.

Taking into consideration model (1), it is evident that the variable and the constant are both significant but if we have a look upon the R-squared value which is almost 18% and is thus negligible, therefore the overall significance of the model is very low. In order to increase the significance of our model, we added the control variables (SPS and PPS). The (2) model is the one with the control variable PPS, it is clear that all the variables being used in the model are significant including the constant and also if the overall significance of the model is taken into account, the R-squared is almost 75%. Similarly, in model (3), the value of R-squared is also almost 75%. Therefore, we can say that the model (2) and (3) are better fitted as compared to model (1).

4.1.1. Series 1 model (with dummy variable)

We constructed Model (4) to evaluate the change in behavior in the payment of dividends of the small fifty and the big fifty firms with regard to Free Cash Flow
If we ponder upon the table, it is apparent that the dummy variables (D1, PPS*D1, FPS*D1) are significant. Therefore, we can poise the fact that both group of companies (small fifty and big fifty) are different when it comes to payment of dividends in relation with FCF. The big fifty companies will payout dividend no matter the financial condition of the company whereas in the small fifty the case is completely the opposite (Redding, 1997). Our results prove this hypothesis that groups of companies are different in terms of payment of dividends. Due to their limited options for expansion in comparison to smaller businesses, large

corporations with well-established operations and a steady cash flow typically pay bigger dividends to their owners. Contrarily, small and developing businesses frequently reinvest their profits in the company for growth or research and development as opposed to paying large dividends. This isn't always the case, though; some big businesses may decide to hold onto their profits for potential future investments, and some small businesses may choose to pay substantial dividends if they have a reliable cash flow.

4.1. Series 2 models

In model (1) the value of S.E is 17.144 and in model (2) the value is 12.493 whereas in model (3), the value is 12.123. This shows model (3) is better fitted as compared to both model (1) and (2).

In model (1), the value of Durbin-Watson statistic is 0.824 and in model (2), the value is 1.536 whereas the value in model (3) is 1.572. Therefore, we can say that the model (3) is the better one among the three models.

The FPS came out to be significant in all three models but had variable coefficient values. The highest value of FPS coefficient among the three models is in model (1) which is 0.082 and the lowest value is in model (2) which is 0.056, even though the value in model (3) is 0.057, which is almost same. The highest increment of value is in model (1) which implies that if 1 unit of FPS is increased then 0.082 unit of DPS increase on average.

The value of constant is significant in all the three models, though model (2) is significant at 5% whereas model (1) and (3) are significant at 1%. Model (1) is the only model where the value constant increases along with the value of DPS whereas in the other two models the case is completely opposite, that is if 1 unit of constant increase there will be a decrease in the value of DPS.

The PPS is a control variable present in model (2) and (3) and SPS is also a control variable present in model (3) only. PPS is significant in both the models. The coefficient value of PPS has an increasing trend in both the model with respect to DPS, though the PPS of model (2) is slightly higher than model (3). Consequently, the SPS is also significant in model (3).

Taking into consideration model (1), it is evident that the variable and the constant are both significant but if we have a look upon the R-squared value which is almost 71%. In order to increase the significance of our model, we added the control variables (SPS and PPS). The (2) model is the one with the control variable PPS, it is clear that all the variables being used in the model are significant including the constant and also if the overall significance of the model is considered, the R-squared is almost 84.5%. Similarly, in model (3), the value of R-squared is also almost 85.4%. Therefore, we can say that the model (2) and (3) are better fitted as compared to model (1) but model (3) is the best fitted model amongst all the three models. There are many businesses that, despite having negative free cash flow, are still able to distribute dividends to their shareholders. This is largely due to the fact that these businesses typically invest a large portion of their FCF in other high-yield projects, which, although they appear to have negative free cash flow (Fuller and Blau, 2010), actually show a very different picture and allow the business to achieve significant long-term gains. We were able to draw the conclusion that when it comes to market size, corporations differ in the dividend payments they make. Last but not least, there are companies that offer both short-

and long-term investments. Our findings support the claim that there is a relationship between long- and short-term investments to some extent (Berglöf, 1994).

5. CONCLUSION

In this research, we have examined the relationship between long term and short-term investment. In contemporary times, investors are more concerned regarding how a firm is performing rather than its capability to just pay dividends. Furthermore, there are numerous firms who might have negative Free Cash Flow but are still able to roll out dividends to its shareholders, mainly because of the fact that these firms usually invest their major portion of FCF in other high rate of return projects which even though indicates a negative FCF but in reality, the picture is completely different, and company is able to make huge gains in the long term. For this research, the sample size we took was all the listed companies in the KSE 100 Index of Pakistan Stock Exchange. Additionally, we divided the firms into two groups as per their size (small fifty and big fifty) and our evaluation was totally done over non-financial firms. The reason for dividing the firms into groups was because we wanted to check the behavior of payment of dividends in relation with FCF. The frequency of our data was annual between the time period starting from 2009 to 2018. We developed four regression models in total to examine our argument. When we observed our model (1), the results were not much encouraging therefore we decided to incorporate control variables (SPS and PPS), the results of our model (2) and (3) got quite better after this addition and it proved that there exists a positive relation between free cash flow and dividend. After interpreting the results of model (4), we were able to conclude that firms are different in payment of dividends when it comes to market size. Lastly, there exist firms who cater to both short term and long-term investments, our results concur the same argument that there is a relation amongst long term and short-term investments up to some extent (Berglöf, 1994).

The findings of this study provide useful information and insight for investors to be capable of considering businesses with high free cash flow because it is known that these businesses tend to pay higher dividends, but even businesses with negative free cash flow that are still paying dividends can be good for long-term investments. In order to maximize the company's market price, management can use dividend premiums to determine investor demand for payouts. In order to improve the dividend policy, management must also produce more free cash flow.

The implications of a strong relationship between long-term and short-term investments, and the payment of dividends by firms of different sizes, can be significant across economic, political, social, and cultural domains. The effects of economic investments made both long and short term can affect financial stability, investment prospects, and economic progress. Businesses may be more likely to concentrate on short-term profitability than on long-term investments in R&D, infrastructure, or innovation if investors emphasize short-term returns above long-term growth. Government policies, rules, and incentives intended to foster long-term economic growth and stability are influenced by political considerations. Governments may need to step in to promote more long-term investment if short-term gains take precedence over long-term investments. Moreover, social issues including income inequality, employment stability, and sustainability may be impacted by the social domain. Businesses may have negative social effects if they put short-term profits ahead of long-term investments in their workforce, communities, or environmental sustainability. Lastly, a culture of quick gratification and an emphasis on short-term achievements rather than long-term objectives may be reinforced if short-term benefits are favored above long-term growth. The distribution

of dividends may also reflect societal expectations regarding the place of businesses in society and the duties that corporate executives have to their stockholders, employees, and communities.

Overall, the interaction between long-term and short-term investments as well as the distribution of dividends by businesses of all sizes can have significant effects on the economy, politics, society, and culture. Whether choosing an investment or creating laws and policies that support stable and sustained economic growth, it is crucial to take these ramifications into account.

In conclusion, our study's findings show that market sentiment has an impact on Pakistan's dividend policy, adding to the financial literature's discussion on dividend policy, particularly dividend pay-out. It confirms that there is a connection between FCF and dividend, particularly in Pakistan. Also, it adds to the body of knowledge that helps investors choose which businesses to invest in in order to get the best profits. This study can be used by management in decision-making, business management, and policymaking, particularly when it comes to corporate dividend policy, to help them understand the need of paying attention to premium dividends in order to draw in investors. Furthermore, it contributes to previous literature on dividend policy and dividend pay-out, as the researchers (Baker and Wurgler, 2004) discuss that firms are indifferent to paying dividends according to investors. On the contrary, we fill the literature gap by testing the firm's behavior on dividend payout depending on size.

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