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Dividend Payout Policy and Financial Crisis: Evidence from the Life Cycle Theory

Rehana Kouser (Corresponding author)
Department of Commerce, Bahauddin Zakariya University Multan, Pakistan
Email: rehanaakouser@bzu.edu.pk

Rabia Luqman
Department of Commerce, Bahauddin Zakariya University Multan, Pakistan
Email: rabialukman07@gmail.com

Asif yaseen
Department of Commerce, Bahauddin Zakariya University Multan, Pakistan
Email: rehanaakouser@bzu.edu.pk

Muhammad Azeem
Department of Commerce, Bahauddin Zakariya University Multan, Pakistan
Email: ranamuhammadazeem@gmail.com

Abstract

Study aims to check the impact of financial crisis on the dividend payout policy by using the life cycle variables. To check this relationship, logit model is used to predict the probability to pay the dividend. Sample selected of 285 companies of non-financial sector listed at KSE by using the method of Fama and French (2001). Panel data is used to check this relationship for the period of 2001 to 2011. Results are analyzed through SSPS which shows that dividend has been changed significantly during the crisis. This research has shown that firms tend to maintain the high liquidity in the time of crisis.

Keywords: Dividends, Dividend policy, Recession, Financial crisis, Life-cycle model

1. Introduction

The purpose of the firm is to maximize the shareholders wealth and for the achievement of this goal managers have to make many decisions. Two types of decisions are most important ; first is capital budgeting that how much assets firm should maintain and second is about the financial decisions that from which source firm should finance their assets i-e- by issuing the equity or by increasing the debt ratio. To increase the value of the firm, managers are concerned about the payout ratio and retention ratio that either firm should distribute the profit to the shareholders in the form of dividends or should reinvest it in the assets for the maximization of wealth. If firm reinvests the profit in the assets that will lead to the price appreciation of the firm's stock in future and shareholders receive the capital gain when they will sell the shares. But many shareholders purchase the shares for the purpose of income which they receive in the form of dividends and if firm will not issue the dividends then this leads the firm toward the down fall in share price. This is the firm's

crucial decision either to invest in the assets again or to distribute the profit to the shareholders. Firm maintains a balance between the payout ratio and retention ratio for the purpose of the maximization of the shareholders wealth.

Dividend is the part of value given to shareholders by the firm. It may be in the form of Cash dividend, stock dividend, and share repurchase. Wool ridge (1982) defines the dividend as the portion of profit that is earned by the entity and distributed among the shareholders. Investors consider this portion of profit as an incentive because of their ownership in the company.

According to the Okafor and Mgbame (2011), dividend is the cash that received from the company as the portion of profit towards their share in company. Companies pay dividends quarterly, semiannually and annually.

The term 'dividend policy' refers to "the practice that management follows in making dividend payout decisions or, in other words, the size and pattern of cash distributions over time to shareholders" (Lee et al., 2000, p.29).

1.1 Dividend Payout and Life Cycle Theory

Fama and French (2001) & Lease et al (2000) work on the life cycle theory and explain about the life cycle stages of the firm and firm behave differently according to their existing stage Developed and developing countries focused more on the life cycle theory but there are few researches on the life cycle theory by the small markets. Fama and French (2001), Grullon et al. (2002) and DeAngelo et al. (2006) focused on the life cycle theory and they concluded that dividend policy contains the information about the cuurent earnings and have ability to forecast the prospect earnings (e.g. DeAngelo et al., 1992; Pandey, 2003).

Furthermore, there are three factors that affect the dividend paying decision which are size, investment opportunities and profitability. Large and profitable firms pay dividends more likely than small firms (e.g. Fama and French, 2001; De Angelo et al., 2006; Denis and Osobov, 2008; Afza and Mirza, 2010; Al-Ajmi and Abo Hussain, 2011).

Mature firms pay dividends more likely than the growing firms because they have less investment opportunities than growing firms so they retain their profit or distribute in the form of dividends (e.g. Fama and French, 2001; De Angelo et al., 2006; Denis and Osobov, 2008; Al-Ajmi and Abo Hussain, 2011). Fargher and Weigand (2006) and Stacescu (2006) concluded the same results that the firms will pay dividends more likely if they have low market to book ratio, high profits and cash levels. Moreover, there is negative a negative relation among debt ratios and dividends paying ability. (e.g. Higgins, 1972; McCabe, 1979; Stacescu, 2006; Al-Ajmi and Abo Hussain, 2011).

2009 financial crisis was the worst for the companies which pay dividends because they were not able to pay the dividends to the investors. Many companies cut their dividends in the year 2009 and investors suffer a lot because their income depends on the dividend which they receive from the company. In this study, I specifically want to check that either company's dividend policy changed due to global financial crisis 2009 or not. The main reason of the financial crisis are the mortgage problems that arise due to banks policies so government took different steps to save this financial sector and restrict the financial companies to pay the dividends .so I exclude the financial sector from my study and

empirically test the impact of financial crisis on the dividend policy from the non-financial sector.

Dividend payout policy can be checked by the DeAngelo et al (2006) life cycle model which is also named as DDS model. Life cycle theory provides the support that the firms have a financial life cycle. At the maturing stage, firms have high profitability and less investment opportunities so they have higher tendency to pay the dividends. But as the firm at younger or introductory stage has low level of earnings as they have ample investment opportunities so they focus more on retention of earnings than distribution, hence, these firms have lower tendency to pay the dividends.

DDS model (2006) use the logistic regression that specify the profitability to pay the dividends depends on the earned equity of the firm and other life cycle variables also. I use the DDS model (2006) for checking the probability of paying the dividends of the firms of non-financial sector and test the change in the dividend payout policy prior and after the financial crisis. As according to the sources, companies have changed their dividend payout policy in financial crisis because firms were not able to pay the dividends from the income which they are generating at that time. DDS model (2006) also captures the effects of cash which firms preserve for the recession on the probability to pay the dividends. Investors anticipate the dividend cut during the financial crisis but this study answer the question that either firm's dividend payout ratio increased or decreased as reflected by the company's financial position. As companies financial position reflect the higher tendency to pay the dividends then firm will pay the dividend. Or if firm's financial conditions show the lower tendency to pay the dividends then firm will not pay the dividend. So, there is no change in dividend policy. But if the firm's probability to pay the dividend will not match with the firm's financial conditions then there is shift in the dividend policy due to the financial crisis.

In Pakistan, there are researches on the effects of dividends (Khan I.K., 2012), Dynamics and determinants of dividend policy in Pakistan (Ahmad & Javid, 2009) and Dividend Payment Practices (Roomi M. A., 2011) but no study focuses on the life cycle model. But this study just not focus on the probability of the firms to pay the dividend by using the DDS model but also check the impact of financial crisis on the dividend payout. In this study, I will test the dividend payout probability of the firm that either it is changed due to financial crisis or not. In this study I will use the logistic regression for the analysis. Results show that the dividend policy changed due to financial crisis and firms with the low cash ratios having the less probability to pay the dividend. Due to crisis firms liquidity also get affected and firms focus more on cash management. I use the life cycle model to check the firm's probability to pay the dividend. The panel logistic regression results in this research consider the firm cluster effects as well as the correlation structure of the firm clusters.

1.2 Research Question

Research study is proposed to answer the following research questions:

- Do life cycle theory factors determine dividend payout significantly?
- Whether there is some impact of financial crisis on relationship between dividend payout and its determinants based on life cycle theory?

2. Literature Review

The most controversial issue in the finance literature is dividend policy dynamics but still it is the most important matter for the researchers in both developed and developing markets. Several researches aim to reveal the matter regarding the dynamics and determinants of dividend policy but still there is no adequate justification for the movements of dividends (Black, 1976; Allen and Michaely, 2003 and Brealey and Myers 2005).

First concept about the dividend is given by Litner (1956), and in his research results have shown that investors perception about the company's profitability depends upon the dividend payout ratio as if company pay dividends to the shareholders than they see it as good signal and as if firm will not pay out the dividends then they see it as bad signal or company is going to be less profitable. In this research, Litner (1956) did not develop any model about the dividend policy but conclude about the companies that they try to avoid the dividend omission because it transfers the bad signal about the company's performance. This provides the basis for the signaling theory. Further work on the dividend payout policy is by the Modigilani & Miller (1961). He gives the irrelevancy theory that dividend does not affect the firm's value under the certain assumptions like there are no taxes, no transaction cost, no agency costs, equal information to all and participants are price takers in market. Firm's value gets affected only by its investment policies and current & future earnings. Black & Scholes (1973), Gao, Chen & Firth (2002), Chowdhury & Uddin (2005) and Okwong & Adesola (2009) also strengthen the dividend irrelevancy theory. If taxes are high on the dividend income than capital gain then firm's clienteles will be changed. Some clienteles prefer the low dividend income and some prefer the high so according to their needs they buy and sell their shares. So, there comes change in only the clienteles of the firm not in the value of firm. It is fact that investors face high taxes on the dividend income rather than the capital gain. A study by the Miller and Scholes (1978) strengthen the irrelevancy theory of dividends and provide a method to change their dividend returns to capital gains returns. Interest amount on the debt will be deducted before applying the taxes, in this way high risk which comes from the high borrowing can be set off by investing these funds in any risk free project, so when firm pay high amount of interest then taxable income will be low, this tax shield can be used to set off the high amount of taxes on the dividends.

But in reality there are taxes on the dividends and market is not efficient so agency conflict arises. And dividends payout policy changes also affect the value of the firm as it transmits the signal about the firm's performance. And many researchers support this argument that dividend payouts affect the firms value Gordon (1963), Michaely & Benartzi (1997), DeAngleo & DeAngleo (2007) and Rahman & Rashid (2009). There exist the strong relationship between the dividend announcement and firms share prices Easton (1991). According to the Liljeblom's (1989) there is strong impact of dividends either in the form of cash or stock splits or stock dividend on the firms share prices.

Study by the Theobald's (1978) concluded that managers hesitate to decrease the dividend payments and strengthen the work of Linter 1967, Babiak & Fama 1968 and Ang 1975. Many researchers have shown that dividend announcements about the increase or decrease

affect the firms share prices as if company announces that dividend payment will be increase then it mean that company is in better position or performance is good and transmits the signal about the firm and shows the insider information which managers have about the company. So, firms try to continue the regular dividend as it pays before Watson & Thomson (1989), Theobald (1978), and Green & Fox (1992).

Cash flows and earnings of the firm affect the value of the firm, if company will pay dividend continuously then its mean that firm have the good future earnings or cash flows. So when company announce about the dividends, investors make their perceptions about the firm's future earnings and cash flows. However studies have shown the strong relationship between the dividend payout and firms value French and Fama (1992), Puckett & Friend (1964), Baskin (1989), Ball et al. (1979), Mullin & Asquith (1983), Rock & Miller (1985) and Born et al. (1984).

Jensen and Meckling (1976) theory based on the argument among managers and shareholder and dividend policy is just affected by the managerial ownership. Easterbrook (1984) explains the agency cost in two forms 1) cost of monitoring 2) risk aversion cost of mangers and shareholders. Bhattacharya (1980) and John Williams (1985) explains the signaling theory in the perspective of dividends if firm will pay dividend it will be the positive signal for a firm and if firm will not pay dividend it will be the negative signal for the firm.

Miller and Scholes (1978) empirically test the tax preferences of dividends on the consumers and concluded that different tax rates on dividends will lead to the different consumers. Customer analyze the return on the stock that by investing in this company will give me favorable return according to preferences and if customer bear high tax on dividend then they will invest in the firm having the low payout ratios.

Jensen (1988) give the cash flow hypothesis that if firm has high earnings and hence more free cash flows then firm will pay dividend by its cash flows that will leads toward the price appreciation of the firm and gain high return but if firm will not pay it as dividend then invest in the projects that will not produce the sufficient returns leads toward the decrease in the value of the firm.

Wurgler and Baker (2004) gave the catering theory that clienteles choose the company according to their preferences, if clienteles need cash on regular basis they will invest in the firms that give the high payout ratios as if clientele's prefer capital gain then they will invest in the firms having the low payout ratios. This argument also supports the dividend irrelevancy theory.

This dilemma remains unsolved because dividend irrelevancy theory poses the different assumptions which can be fulfilled in only the perfect markets but if one or more assumptions are not fulfill then it makes this issue more complex because different factors affect the dividend payout policy. According to the Narender & Mishra's (1996), firms usually do not follow the linter's model. Firms follow the policies issued by the Government regarding the dividend payments as in the time of recession government took measures to stop the dividend and financial institutions have to follow these guidelines so investors would not behave according to linter's model.

2.1 Dividend and Life Cycle Theory

Young firms have relatively high investment opportunities so, their payout ratio is low and retention ratio is high as compared to mature firms that have low investment opportunities so, their payout ratio is high and retention ratio is low. Several researches used the life cycle theory to measure the dividends payout ratio (Fama and French (2001), Grullon et al. (2002), and DeAngelo (2006) that focus on the exchange between the reward in the form of saving the flotation cost and loss in the form of the cost of retention e.g. agency cost.

According to Fama and French (2001), firms having the high profitability and low growth are better candidate to pay dividends than the firms having the low profitability and high growth rate because these firms invest more and pay less to the shareholders in the form of dividends.

Earned capital towards the total equity capital is theoretically different from the recent and immediate profitability, so it affects the decision of dividend payment (Lintner 1956). This is the more suitable proxy for the life cycle stage for a firm as compared to the cash because dividend paying decision is also affected by the resource by which cash is generated e.g. excessive cash amounts represents the earnings from the current equity issue and if the firm have the less proportion of retained earnings towards the total equity it will show that firm is on growing stage rather than maturity stage.

Based on the literature, it is clear that there is strong positive correlation between the probability to pay the dividends and the amount of earned equity. Retained earnings as the proportion of the total equity have the prime importance in determining the dividend payout ratio by controlling the life cycle and other variables like cash balances, total equity, growth, dividend history, current and prior year's profitability and firm size. Studies have shown the significant positive correlation between the firm's probability to pay the dividends and the proportion of retained earning towards the total equity by using the Logistic regression model. And they also disclose the strong positive correlation between the firm's probability to pay the dividends and the firm's size, growth and profitability and reveal the highly significant relationship between the firm's probability to pay the dividends with the proportion of retained earnings toward its total equity (Fama and French, 2001).

DDS model (2006) basically constructed on the Fama and French (2001) model but it includes the retained earnings toward the total equity, cash, lagged dividend, current and prior year profitability and concluded that RE/TE has the significant impact on the dividend payout ratio. To include the prior year dividend as the independent variable became challenging as according to Fama and French (2001) if lagged dividend variable will be used then it will be very close to the dependent variable but DeAngeloet al.(2006) had concluded in his research that there is strong significant relation of the prior year dividend with the probability to pay the dividend in current year. Same results have been shown in the Lintner's (1956) study which concluded that firms feel reluctance to stop the dividend payments if they have paid before. These findings are also confirmed by the by Graham and Harvey (2001).

DeAngeloet al (2008) provide the basis to measure the dividend payout by the life-cycle model and this is also confirmed by the number of studies. Life cycle models are not just used for the dividend payout policy but it also use for controlling the agency cost for a firm. Furthermore, Bravet al.'s (2005) study shows that company's management objective is not to cut their dividends because it may transmit the negative signal for the firm. However, companies maintain their dividends payout ratios if these companies are facing the problem of agency clashes (Leary and Michaely 2011).

Based on the literature it is clear that company managers resist to stop the dividends or do not want to increase in dividends cuts but now it's important to identify the time period in which dividends probability to pay the dividends decreased or the dividends cuts become larger. To measure the dividends cut I will use the DeAngelo et al. (2006) model.

3. Data and Methodology

The study used total 10 variables of study: one dependent and nine independent. The dependent variable is dividend payout which takes the value of 1 if firm will pay the dividend otherwise zero. The independent variables are firm size (log natural of total assets), profitability (ROA, ROAL1), RE/TE, TE/TA, CA/TA, D07, D08, D09 and Sales growth ratio (DeAngelo et al. 2006). To check the impact of financial crisis on the dividend payout, time dummies are used. So, study uses the dummies D07, D08, D09, Prior year dummy of dividend and to assess the further changes DAFTER dummy is used. DAFTER is the before and after time dummy of crisis which takes the value of 1 after the crisis and zero otherwise.

Sample is selected for the analysis is the all listed companies at Karachi stock exchange and the financial companies are excluded due to their different regulatory policies which they adopt in the time of financial crisis. Financial companies did not pay dividend in the time of crisis because government issues the policies relating to the dividend payment. As far as non-financial firms, they have liability to pay the dividend if they paid before the crises so I selected 285 companies for the analysis for the period 2001 to 2011 and this sample is selected on the basis of (Fama and French (2001) and DeAngelo et al. (2006) sample method. In this study I will use the logistic regression for the analysis.

3.1 Econometric Model

To check the impact of financial crisis on the dividend payout policy by using the firms life cycle variables as control variables, use the Logistic regression to draw the inferences on the basis of sample (Fama and French 2001, DeAngelo et al. 2006 & Fauver & Naranjo 2010).

First, study use only the life cycle variable as the regressors and estimation equation is

3.1.1 Equation 1

$$\text{Ln(Odds)} = \beta_0 + \beta1\ (\text{RE/TE}) + \beta2\ (\text{TE/TA}) + \beta3(\text{ROA}) + \beta4(\text{ROAL1}) + \beta5(\text{SGR}) + \beta6(\text{LNTA}) + \beta7(\text{CA/TA}) + \beta8(\text{Divdum}) + \epsilon$$

In this equation, ln(odds) is the dependent variable and RE/TE, TE/TA, ROA, ROAL1, SGR, LNTA, CA/TA, and Divdum are the life cycle variables and β_0 is the intercept of the equation and $\beta1$, $\beta2$, $\beta3$, $\beta4$, $\beta5$, $\beta6$, $\beta7$ and $\beta8$ are the slope coefficients of the equation.

ODDS ratio shows the firms probability to pay the dividend to the firms probability do not pay the dividend. When regression gives the results that will be equal to ln(ODDS) then we take the anti-log of it and obtain the ODDS ratio that is Pi/1-Pi where Pi is the probability to pay the dividend. So, study obtains the Pi from the results which is the probability to pay the dividend.

In a major change from the Fama and French (2001) and DeAngelo et al. (2006) procedures, I pool the data over the 2001-2011 time periods into a single data set. This pooling of multiple years in a single data set enables the inclusion of the time dummy variables in the logistic regression. Inclusion of the time dummy variables yields the following logistic regression equation.

3.1.2 Equation 2

$$Ln(\text{ odds}) = \beta_0 + \beta1(RE/TE) + \beta2(TE/TA) + \beta3(ROA) + \beta4(ROAL1) + \beta5(SGR) + \beta6(LNTA) + \beta7(CA/TA) + \beta8(Divdum) + \beta9(D07) + \beta10(D08) + \beta11(D09) + \epsilon$$

Where D07, D08, and D09 are the defined time dummy variables which take on the value of one for the corresponding year and zero otherwise. Divdum is the prior year dummy which takes the value of 1 if firm paid dividend in the previous year otherwise zero.

3.1.3 Equation 3

To further assess how dividend policy may have changed during the financial crisis; the interaction of the DAFTER (which was equal to 1 after the financial crisis and zero otherwise) time dummy with the financial variables was included into a logistic regression model.

$$Ln(odds) = \beta_0 + \beta1(RE/TE) + \beta2(TE/TA) + \beta3(ROA) + \beta4(ROAL1) + \beta5(SGR) + \beta6(LNTA) + \beta7(CA/TA) + \beta8(Divdum) + \beta9(RE/TE)(DAFTER) + \beta10(TE/TA)(DAFTER) + \beta11(ROA)(DAFTER) + \beta12(ROAL1)(DAFTER) + \beta13(SGR)(DAFTER) + \beta14(LNTA)(DAFTER) + \beta15(CA/TA)(DAFTER) + \beta16(Divdum)(DAFTER) + \epsilon$$

4. Analysis and Empirical Findings

4.1 Logistic Regression Results

Study uses the logistic regression for analyzing the sample data and to draw the inference about the population. Results are analyzed through the SSPS 20. Logistic regression is used to predict the dividend paying ability of the firm by using the model 1:

$$Ln(odds) = \beta_0 + \beta1(RE/TE) + \beta2(TE/TA) + \beta3(ROA) + \beta4(ROAL1) + \beta5(SGR) + \beta6(LNTA) + \beta7(CA/TA) + \beta8(Divdum) + \epsilon$$

Table 1: Results of Model 1by using Panel Data Regression

Variables	B	S.E.	Wald	Df	Sig.	Exp(B)
RETE	.012	.009	17.70	1	.001	1.012
TETA	.055	.016	11.597	1	.001	1.057
ROA	.033	.004	63.424	1	.000	1.033
ROAL1	.013	.004	12.492	1	.000	1.013
SGR	-.012	.000	.201	1	.o554	1.000
LNTA	.361	.033	122.927	1	.000	1.435
CATA	1.502	.352	18.259	1	.000	4.492
Divdum	2.518	.101	625.536	1	.000	12.399
Constant	-4.129	.225	335.911	1	.000	.016

Results of the model 1 show that RE/TE and all explanatory variables are highly significant at the 1% significance level. Sales growth ratio is negatively significantly related with the dividend paying probability and negatively related with the dividend paying ability its mean that firms having high growth ratio have less tendency to pay the dividends. Firm's profitability is measured through the return on assets and return on assets lagged one year and these both are highly significant at the 1% significance level. Size is measured through the log natural of total assets and it is also the positively related to the firm's dividend paying probability. TE/TA and cash ratio are also significant and positively related with the log natural of odds. Cox & Snell R Square is the ratio of the likelihoods reflects the improvement of the full model over the intercept model and if there is the small ratio then it shows the greater improvement. Model 1 Cox & Snell R Square is 41% and shows the fitness of statistical model. These results are consistent with DDS model (2006) which is used to analyze the results. If we include also the time dummies in the model 1 then we get the model 2 and that is

$$\text{Ln(odds)} = \beta_0 + \beta1(\text{RE/TE}) + \beta2(\text{TE/TA}) + \beta3(\text{ROA}) + \beta4(\text{ROAL1}) + \beta5(\text{SGR}) + \beta6(\text{LNTA}) + \beta7(\text{CA/TA}) + \beta8(\text{Divdum}) + \beta9(\text{D07}) + \beta10(\text{D08}) + \beta11(\text{D09}) + \epsilon$$

Table 2: Results of Model 2 by using Panel Data Regression

Variables	B	S.E.	Wald	Df	Sig.	Exp(B)
RE/TE	.013	.009	2.030	1	.014	1.013
TE/TA	.062	.016	14.275	1	.000	1.064
ROA	.032	.004	62.397	1	.000	1.032
ROAL1	.015	.004	16.461	1	.000	1.015
SGR	.000	.000	.163	1	.686	1.000
LNTA	.395	.034	137.682	1	.000	1.485
CA/TA	1.491	.359	17.219	1	.000	4.442
Divdum	2.507	.102	601.560	1	.000	12.269
year07	-1.017	.183	30.906	1	.000	.362
year08	-.801	.190	17.775	1	.000	.449
year09	-.207	.181	1.311	1	.022	.813
Constant	-4.179	.229	332.880	1	.000	.015

This model shows the time effect on the dividend paying ability that either in the time of financial crisis, dividend payout has changed or not. After analyzing the result, this shows that there are small changes in the regression coefficients but the coefficients of D07, D08, and D09 are negatively related with the log natural of odds. This shows that these years have significant impact on the decision to pay the dividend. To clearly investigate the dividend policy changes I use the model 3:

$$\text{Ln(odds)} = \beta_0 + \beta1(\text{RE/TE}) + \beta2(\text{TE/TA}) + \beta3(\text{ROA}) + \beta4(\text{ROAL1}) + \beta5(\text{SGR}) + \beta6(\text{LNTA}) + \beta7(\text{CA/TA}) + \beta8(\text{Divdum}) + \beta9(\text{RE/TE})(\text{DAFTER}) + \beta10(\text{TE/TA})(\text{DAFTER}) + \beta11(\text{ROA})(\text{DAFTER}) + \beta12(\text{ROAL1})(\text{DAFTER}) + \beta13(\text{SGR})(\text{DAFTER}) + \beta14(\text{LNTA})(\text{DAFTER}) + \beta15(\text{CA/TA})(\text{DAFTER}) + \beta16(\text{Divdum})(\text{DAFTER}) + \epsilon$$

Table 3: Results of Model 3 by using Panel Data Regression

Variables	B	S.E.	Wald	Df	Sig.	Exp(B)
RETE	.013	.011	1.385	1	.239	1.013
TETA	.076	.024	9.786	1	.002	1.079
ROA	.033	.005	37.001	1	.000	1.034
ROAL1	.017	.005	10.492	1	.001	1.017
SGR	.000	.001	.055	1	.815	1.000
LNTA	.388	.036	116.858	1	.000	1.474
CATA	1.267	.470	7.274	1	.007	3.550
Divdum	2.058	.119	300.218	1	.000	7.831
RETEDAFTER	-.010	.045	.045	1	.532	.991
TETADAFTER	-.039	.032	1.502	1	.020	.961
ROADAFTER	-.004	.008	.209	1	.047	.996
ROAL1DAFTER	-.011	.008	1.842	1	.017	.990
SGRDAFTER	.001	.001	.857	1	.035	1.001
LNTADAFTER	-.097	.023	17.488	1	.000	.908
CATADAFTER	.058	.707	.007	1	.035	1.059
DIVIDUMDAFTER	1.528	.239	40.797	1	.000	4.607
Constant	-4.051	.232	304.846	1	.000	.017

Results of the model shows that all explanatory life cycle variables are significant than the sales growth ratio and RE/TE these two are not significantly related with the dividend paying probability. Study use the interaction dummy that takes the value of 1 after the financial crisis but takes value of zero before the time of financial crisis. By making the interaction with other variables, it also shows the significant results. By the results, study states that there are significant effect of financial crisis on the dividend paying probability of the firm. So, it is concluded that firm's dividend paying decision not only depends on the firm's maturity or firm life cycle stage but also on the firm's financial position. These three models result are the same as given by the DeAngeloet al. (2006) . Regression coefficients are little different in each model as compared to the standard error of the models. As standard error increases its mean that these variables are not statistically related.RE/TE becomes insignificant in model 3 than in model 1& 2. Based on the results, study concludes that there is shift in the dividend payout policy in the year 2007, 2008 and 2009.

5. Conclusion

Study uses the panel logistic regression to analyze the shift in the dividend payout policy during financial crisis and takes the sample of 285 companies for the year 2001 to 2011.

Year 2007, 2008 and 2009 are considered as the time period for the crisis and results clearly make the difference about dividend paying ability of the firm. Study uses the models to predict the dividend paying ability of the firm. Results show that there comes a shift in the probability due to the financial crisis because firm dividend payer percentage decreased to the 32% from the 52%. At the time of financial crisis firms uses the conservative strategy and focus more on to retain the cash rather than distribution so study concludes that firms dividend paying decision depends not only on the firms life cycle stage of the firm but it also depends on the financial position of the firm.

This study uses the DDS life cycle model (2006) and suggests that one can also include the other firm specific factors in the model because there may be other factors that affect the firm's dividend paying decision. Study states that cash is also the most important factor in making the decision to pay the dividend. Study also extends the DDS model to find the probability to cut the dividend and one can use it in other dimensions as well.

Further research can also be done to determine the factors other than that affect the dividend payout policy. As this study provide the evidence that cash ratios are also important to determine the dividend paying ability of the firm. Mostly firms tend to decrease their dividend paying probability in the time of financial crisis. Because firms try to maintain the high cash ratios than distributing as in the form of dividends (dittmar 2008). Further research can be done on the factors that increase the risk of the firm and bring the change in dividend policy and firms value.

Our main findings indicate that dividend payouts depend on the macroeconomic context (before and during the financial crisis). The Fama and French (2001) characteristics– larger, more profitable and low growth firms tend to pay more dividends. Findings still support the agency argument that dividends compensate for the need for monitoring and also support the signaling argument that dividends work as a signal of future growth opportunities, although only during the financial crisis.

Our findings shed light on the dividend payout of firms in a unique macroeconomic setting that spans a period before and during the 2007–09 financial crisis and in which the industry foresaw major shifts in the regulatory landscape. The regulatory reforms currently being put into place impose a capital conservation mechanism by constraining dividend payouts for firms whose capital buffers fall within a range close to the minimum requirements. Inability to use these governance mechanisms may reduce the potential to attract external financing, both debt and equity. The level up to which regulators may want to allow signaling and agency mechanisms to function is an issue that deserves serious attention from academics and regulators alike.

Since the methodology of this research assumes the DDS model is a valid model, an alternate possibility is that the DDS model (2006) has an omitted firm-specific variable. It is possible that some omitted firm characteristics changed during the crisis. However, the economic importance of any omitted variable from the DDS model is likely to be minor as the DDS "propensity to pay" model correctly classifies the dividend policy for over 98 percent of the observations. However, the extension of the DDS model to the "propensity to cut the dividend" merits additional future research. While dividend cuts tend to be rare events, the results indicate that the propensity to cut the dividend increased during the financial crisis, even after accounting for the DDS explanatory variables.

These findings raise several important directions and questions for future research. For example, what are the underlying factors that cause firms to change their dividend policy during financial crisis? This paper finds evidence that cash ratios affect the decision to cut a dividend after the crisis, and recent research by Dittmar (2008) shows that firms raise cash ratios when facing increasing risk. This suggests that increasing the cash ratio is more important than maintaining the dividend policy during financial crisis and increased financial risk.

This study has certain limitations as it uses the DDS model and this model does not include the macro economic variables but I use this model as it provides the authentic results about the dividend paying ability of the firm. This study uses the data of 285 sample companies comprises from the non-financial sector of Pakistan, one can extend it across the national boundaries.

Future research could address if these risk factors are transient or long lasting and if these shifts in dividend policy have any implications on firm value. Our results also have important implications for some general themes in corporate finance. First, standard corporate financial theory suggests that, under general conditions, investment and financing decisions are independent. However, we identify another avenue through which investment decisions and financing decisions are linked. Specifically, the combination of assets chose by the firm impacts the firm's optimal dividend policy.

Second, standard corporate financial theory suggests that managers, when evaluating potential projects, should consider only the project's systematic risk. Our results indicate that both systematic and non-systematic components of risk impact dividend policy. As a result, managers may wish to consider the effect of adding a potential project on the total volatility of a firm’s asset portfolio and the resultant impact on its optimal dividend policy.

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