Do Mature Companies Pay More Dividends? Evidence from Pakistani Stock Market

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Abstract *Dividend policy is among the most important unresolved issues in modern corporate finance. Several researches have tried to solve the dividend puzzle yet, the results are inconclusive as to what determines the optimal dividend policy. Present study has analyzed the impact of firm's age on its dividend policy. Using the financial data of 120 companies listed at Karachi Stock Exchange (KSE), Pakistan during 2002 to 2007, this study has explored the non-linear relationship of company's age with dividend policy. A cubic form of model has been designed by using age, age-square and age-cube as independent variables while controlling for leverage and profitability. The estimated results are consistent with maturity hypothesis and free cash flow hypothesis. The study also supports the impact of trade cycle on dividend policy of listed companies of Pakistan. The results are robust to the alternative proxy of dividend policy i.e. dividend intensity.*

Keywords: *Dividend Policy, Maturity hypothesis, non-linear regression, cubic model.*

1. Introduction

Despite comprehensive theoretical and empirical explanations, dividend policy and it determinants is yet a puzzle to be fixed in corporate finance. Every company desires to enhance its market value and in doing so, managers have to take fundamental decisions regarding product development and marketing, investment portfolios, financing and more importantly distribution of company's' earnings. Thus, knowledge about dividend policy determinants helps financial researchers in explaining the impact of company specific factors on corporate value. Dividend policy's decoding contributes not only at the micro level but also to the analysis of several macroeconomic issues, as cash dividends constitute a part of national income and any variation in corporate dividend payouts may affect the corporate propensity to save and reinvest. Therefore, corporate payout policy is of great importance not only for the corporation itself but also for the economy as a whole.

Existing literature on perceived importance of dividend policy in maximization of company's' value provides inconclusive results. The empirical findings about the determinants of dividend policy are continuously providing mixed and many times inconclusive results therefore, the financial researchers do not seem to have any consensus regarding the impact of company specific factors on payout policy. During the last fifty years of debate on dividend policy researchers have mainly focused either on the factors related to company's performance or ownership structure and analyzed the impact of these factors on corporate dividend policy. Lintner (1956) published a seminal study which argued that managers conservatively smooth past and current earnings changes in to the level of the company's dividend. Thus changes in dividends only partially adjust to the changes in earnings. Other studies like Fama and Babiak (1968) also reported evidences supporting Lintner's partial adjustment model. Miller and Modigiliani (1961) however, challenged the common belief of a positive association of dividend

payouts and companys' value and argued that corporate dividend policy is irrelevant under the perfect market assumptions. In their seminal work they emphasized that corporate investment and dividend decisions are independent, but in the presence of market imperfection such as taxes, flotation costs and agency costs both dividend and investment decisions might relate closely to each other. This implies that given the market imperfections, companies' with high growth and investment opportunities will require the internal sources of finance to support such investments and thus such companies' are expected to pay dividends at a lower rate. The important issue to be noted here is the contrast of growth hypothesis with free cash flow hypothesis, which states that companies with low growth opportunities are likely to have an overinvestment problem, therefore, high dividend payments help in reducing funds under management control. The negative relationship of growth and dividends is also consistent with pecking order hypothesis presented by Myers and Majluf (1984) who supported the notion that companies with high growth opportunities pay low dividends.

However, growth opportunities available to a company do not remain the same during the life of that company. Putting it differently, as company becomes mature its growth opportunities shrink (Grullon et al., 2002). Intuitively, in early stages companies have to grow and a large amount of their funds are usually committed to undertake the investment and growth projects resulting in higher level of capital expenditures and less availability of free cash flows. However, as companies pass through their establishment phase more free cash flows are available since they have less capital expenditure and hence are able to pay higher dividends. Grullon et. al. (2002) in their "Maturity Hypothesis" pointed out that a dividend increase is a sign of change in a company's life cycle, especially as to a company's transition from higher growth phase to a lower growth phase.

In general, mature companies are less likely to invest in high growth projects, as they have already grown up at the level of an average industrial company of their particular business segment. Such companies are relatively older and do not have sufficient reserve building incentives due to which they face lower growth and fewer capital expenditures. This enables such companies to follow a liberal dividend policy (Al-Malkawi, 2005). On the other hand, new companies need to build reserves in order to meet the challenges brought to them by market competition. Therefore, they have to maintain a reasonably good level of reserves to support rapid growth and financing requirements which restrict them to pay high dividends at an early stage of life cycle.

In order to capture company growth phase, different researchers have used different proxies. The widely used proxy for company growth opportunities is "Market-to-Book Ratio" (MBR) (see, for instance, Barclay et al., 1995, Cleary, 1999, Travlos et al., 2001, Deshmukh, 2003, and Aivazian et al., 2003, Ahmed and Attiya, 2009, Afza and Hammad, 2010b). Several other researchers have also used Price-to-Earning (PE) Ratio to capture company's' maturity (See for example, Al-Malkawi, 2007; Alonso, Iturriaga, Sanz, 2000). It is argued that company's PE ratio is a good indicator of company's' growth prospects because it incorporates market assessment of company's future cash flows and investors are willing to put premium on companies which are expected to grow fast. But the reliability of both MBR and PE ratio depends upon the consistent market conditions. In a situation where market prices are affected by political and macro-economic variables, these measures could produce biased results. In addition, MBR and PE incorporate earning figures which are again affected by earning management practices of corporate management, especially where ownership is concentrated in the hands of family owners. In context of Pakistan, MBR, as a proxy of growth opportunities, has been previously analyzed as determinants of dividend payouts and found to be positively related with dividend payouts. (see for example, Ahmed and Attiya, 2009; Afza and Hammad, 2010). However, due to political instability and uncertain market conditions of Pakistani stock markets, MBR may be considered as a weak proxy of company's growth phase. Therefore, present study has used company's age as a proxy of company's maturity.

Other things held constant, as a company gets older in terms of age, its investment opportunities decline, which leads to lower growth rates and consequently reducing the company's funds requirements for capital expenditures (Al-Malkawi, 2007). Several studies have used company's age to measure its life cycle phase (See for example; Farinas and Moreno, 2000; and Huergo and Jaumandreu, 2002). Intuitively, mature companies have stable earnings, high access to external capital market, good will and expertise, based on which they are able to maintain a good level of reserves, which enable them to pay higher dividends. However, the relationship of age with dividend payouts may not necessarily be linear.

Clementi (2002) and Cooley and Quadrini (2001) argued that company performance has a non linear relationship with company's age. Huynh and Robert (2009) also reported a non-monotonic U-shaped relationship between company growth and company age, based on which they have established that young companies grow faster but the company age-growth relationship reaches a minimum at approximately at the age of seven. A direct dependence of dividends on age has been analyzed by Al-Malkawi (2005) and found a highly significant non-linear relationship among them.

To the best of authors' knowledge no study has yet considered the nature of relationship between company's age and dividend payouts in Pakistan. Moreover, due to political and economic instability market price related variables i.e. MBR and PE are not able to capture the life cycle stage of companies, therefore, present study uses company's age as a proxy of company's maturity and is an effort to explore whether mature companies pay more dividends or not.

Rest of the article is organized as follows. Section 2 provides the relevant review of the literature. Research methodology is presented in Section 3. In Section 4, brief discussion on estimated results is given and conclusions are discussed in the last section.

2. Literature Review

Existing literature on dividend policy and its determinants provides an insight into the dynamics of corporate dividend policies and their implications. However, empirical evidence many a times provides inconclusive results as to what determines the optimal dividend policy. Starting from Lintner (1956) and Miller and Modigliani (1961) irrelevance proposition to date, innumerable theories and empirical findings have been presented but still dividend policy is one of the most important unresolved issues of modern corporate finance.

Theoretical models presented by Bhattacharya (1976), John and Williams (1985) and Miller and Rock (1985) concerning informational contents of dividend changes explain how changes in dividend policy convey news about future cash flows. It is a common perception of investors that increase in dividend is a signal of increase in company's cash flows. The empirical evidence strongly supports the positive relationship between dividend changes and price reaction to such a change (see for example Asquith and Mullins, 1983; Brickely, 1983; Healy and Palepu 1988). But on the other hand, increase in dividends also signals the low growth opportunities for that particular company which is the base line of "Residual dividend policy" theory. Evans (1987) reported a negative relationship between company's growth and age which implies that as the company becomes more mature its growth opportunities decline.

Many researchers have linked company's age with it profitability. Arrow (1962), Jovanovic (1982) and Ericson and Pakes (1995) argued that companies discover and learn ways to become more efficient by standardizing, coordinating and speeding up their production processes and also start reducing their costs, therefore, mature companies are more profitable. On the contrary, Adizes (2004) and Leonard-Barton (1992) established that old age may make knowledge, skills and expertise obsolete and induce company to decay. It is therefore, unclear whether maturity improves company's profitability or whether it deteriorates company performance.

In the seminal work on dividends and company's' maturity, Grullon et. al. (2002) analyzed listed companies of New York (NYSE) and American (AMEX) stock exchanges between 1967 and 1993. They argued that company that increases dividends experience a significant decline in their systematic risk and such companies do not increase their capital expenditure and experience a decline in profitability in the years after the change in dividends. They proposed an alternative explanation of Jensens's (1986) free cash flow hypothesis known as "Maturity Hypothesis". According to them in growing stage a company has many positive NPV projects and it earns large economic profits with high level of capital expenditure. Such companies are left with low free cash flows and experience rapid growth in their earnings. But as a company continues to grow due to market competition, its share price is cannibalized which reduces its profits. In this transition phase, the company's investment opportunities begins to shrink and pace of its growth becomes slow, hence company starts generating larger amount of free cash flows. Ultimately it enters into maturity phase in which the return on investment is close to the cost of capital and its cash free cash flows are high. These mature companies are now able to pay higher dividends.

On relationship of Age, leverage and growth of companies Huynh and Robert (2009) analyzed the data of all manufacturing companies during 1984 to 1998 using Tax Statistical Universal File (T2SUF) data base. They reported a non-monotonic U-shapes relationship between company growth and age. They supported that young companies grow faster than the older companies but the company age-growth relationship reaches to its minimum level approximately after seven years. However, they do not related company age with it dividend policy.

Al-Malkawi (2007) examined the determinants of dividend policy using the panel data of publically traded companies on Amman Stock Exchange between 1989 and 2000. Using Tobit specification he reported that the relationship of company's age is significantly positive with dividend payouts. However, he hypothesized a non linear relationship of age with dividend policy, for which he also used age-square. The estimated results show that dividend policy is significantly and non-linearly related with the company's age.

It is evident from existing literature that very few researchers have analyzed the relationship of company's age and dividend policy directly. Although, many researchers have used company's age to capture company's growth and investment opportunities, but to the best of authors' knowledge, none of the researchers have analyzed the nature of the relationship between company's age and dividend policy in Pakistan. The main objective of present study is to analyze, using a non-linear model specification, whether mature companies pay more dividends or not?

3. Data and Research Methodology

For present study a sample data of 120 companies listed at Karachi Stock Exchange (KSE) has been collected for the period of six years i.e. from 2002-2007. For a company to be included in the sample should meet the following criteria:

1. Companies were listed at KSE during years 2002 to 2007.
2. Should not be a State Owned Enterprise.
3. Should not be in loss during the whole study period.
4. Should not have missed dividend payment in more than 3 years from 2002-2007.

Existing literature reveals that ordinary least square is the most suitable and widely used estimation technique to analyze the determinants of dividend policy (See for example; Ayub, 2005; Kumar, 2006; Al-Malkawi, 2007; Anil and Sujjata, 2008; Ahmed and Attiya, 2009). Therefore, present study has implied the same estimation technique to analyze the impact of company's age on its dividend policy.

3.1 Variables Explanation

Dividend payout is used as a proxy for dividend policy by almost every financial researcher (See for example Gugler, 2003; Reddy and Rath, 2005; Papadopoulos, 2007; Al-Malkawi, 2007; Ahmed & Attiya, 2009). Dividend payout is calculated as total cash dividend paid divided by the company earnings after tax. Following Kumar (2006) we have also used dividend intensity as an alternative proxy of dividend policy in Pakistan. As explained earlier, the present study expects the relationship of company's age to be non-linear with its dividend policy; therefore, a cubic form of models is used to estimate the non-linearity of relationship. Al-Malkaw (2007) used quadratic models, where he has used age and age-square to analyze non-linearity between company's age and dividend policy in Jordan. In this study we have also used age-cube to analyze cubic relationship. Along with age related variables, two control variables have also been used i.e. leverage measured by total liabilities to total assets ratio and profitability, equal to net profit after tax to number of shares outstanding. All variables are summarized in table 3.1.

Table 3.1 *Variable explanation*

Variables	Proxy	Expected Relationship
Dependent Variables		
DPO	Total cash dividend to earning after tax	
DIVINT	Total cash dividend to total assets	
Independent Variables		
AGE	Number of years after incorporation till year t	Positive (+)
AGE^2	AGE square	Negative (-)
AGE^3	AGE cube	Positive (+)
LVRG	Total Liabilities to Total Assets	Negative (-)
PRFT	Earning per share	Positive (+)

3.2 Models

Four models have been designed to estimate the non-linear relationship between company's age and dividends. Model 1 includes only age related main variables and does not include control variables, however, in model 2 we have included two variables to control leverage and profitability impact on company's dividend payouts. In model 3, we have used an alternative proxy of dividend policy i.e. dividend intensity as dependent variable and only age, age-square and age-cube are included as independent variables, but again in model 4 we also included control variables of leverage and profitability. The models to be estimated are given as under:

$$(DPO)_{it} = \beta 0 + \beta 1(AGE)_{i,t} + \beta 2 (AGE)^2_{i,t} + \beta 3 (AGE)^3_{i,t} + \varepsilon_{i,t} \quad \ldots\ldots(1)$$

$$(DPO)_{it} = \beta 0 + \beta 1(AGE)_{i,t} + \beta 2 (AGE)^2_{i,t} + \beta 3 (AGE)^3_{i,t} + \beta 4 (LVRG)_{i,t} + \beta 5 (PRFT)_{i,t} + \varepsilon_{i,t} \quad \ldots\ldots(2)$$

Using alternative proxy of dividend policy i.e. dividend intensity the following two models have been estimated using OLS regression.

$$(DIVINT)_{it} = \beta 0 + \beta 1(AGE)_{i,t} + \beta 2 (AGE)^2_{i,t} + \beta 3 (AGE)^3_{i,t} + \varepsilon_{i,t} \quad \ldots\ldots(3)$$

$$(DIVINT)_{it} = \beta 0 + \beta 1(AGE)_{i,t} + \beta 2 (AGE)^2_{i,t} + \beta 3 (AGE)^3_{i,t} + \beta 4 (LVRG)_{i,t} + \beta 5 (PRFT)_{i,t} + \varepsilon_{i,t} \quad \ldots\ldots(4)$$

1. Statistical Analysis

Given below are the estimated results from OLS regression model based on the sample of 120

listed companies of KSE during 2002 to 2007.

Table 4.1. *Results of OLS regression*

	(Panel-A) DPO			(Panel-B) DIVINT	
Constant	**0.024629** (0.195844) [0.844841]	**0.226711** (1.52854) [0.127311]		**-0.03299*** (-1.7754) [0.076676]	**-0.01318** (-0.65987) [0.509784]
AGE	**0.033153**** (2.253825) [0.024797]	**0.027437*** (1.761434) [0.079066]		**0.008413***** (3.886588) [0.000121]	**0.008033***** (3.829958) [0.000153]
AGE²	**-0.00128**** (-2.55032) [0.011168]	**-0.00108**** (-2.04867) [0.041264]		**-0.00033***** (-4.52583) [8.19E-06]	**-0.00033***** (-4.63179) [5.17E-06]
AGE³	**1.44E-05***** (2.821058) [0.005047]	**1.19E-05**** (2.217033) [0.027284]		**3.87E-06***** (5.168509) [3.92E-07]	**3.83E-06***** (5.299687) [2.09E-07]
LVRG		**-0.26784***** (-3.60061) [0.000365]			**-0.03523***** (-3.51341) [0.000502]
PRFT		**0.002127**** (2.144037) [0.032741]			**0.000848***** (6.351771) [6.83E-10]
R²	0.03158	0.0794		0.12402	0.259279
Adj R²	0.023663	0.0659		0.11672	0.248386
St.Error	0.293515	0.291072		0.041818	0.039242
D/W	1.290775	1.448566		0.789497	0.975496
F-Statistics	3.989214	5.854043		16.98947	23.80248
Sig-F	0.001	0.000		0.000	0.000

Parentheses contain (t-statistics); [p-value]; *** significant at the level 1%; ** significant at the level 5%; *significant at the level 10%.

Table 4.1 is divided into two panels, where panel A shows the estimated results using dependent variable of dividend payout, whereas, panel B presents the relationship of age with alternative proxy of dividend policy i.e. dividend intensity. The results show that age is positively and significantly related to dividend policy. It reveals the fact that as company grows in age it becomes mature and starts increasing it dividend payments. This might be due to the same reason as argued by Grullon et. al. (2002) that mature companies have more reserves and less capital expenditure due to low growth opportunities, based on which it can be established that such companies are able to pay higher dividends. Furthermore, mature companies have several advantages over new companies i.e. they have more experience, expertise, valuable assets and easy access to capital market from where funds can be acquired as and when the need arises. They are also capable to earn higher profit due to their perceived goodwill by their customers, but have low capital expenditure due to which they are able to save a good proportion of their earnings as reserves. Such reserves are then utilized by companies to pay dividends to their shareholders. Based on the estimated results in panel A, the positive relationship between

dividend and maturity is evident, and the proxy of maturity (Age) is significant with t-statistics of 1.761434 and 2.253825, with and without control variables, respectively. The relationship of age is also significantly positive with dividend intensity in panel B, which confirms our results in panel A. The above results are consistent with Manos and Green (2001) who also reported a positive relationship between age of company and its payout level for non-group affiliated Indian companies. Moreover, the results provide support to the "maturity hypothesis" of Grullon et. al. (2002) and "free cash flow hypothesis" defended by Easterbrook (1984) and Jensen and Michael (1986).

However, the relationship of age-square is significantly negative with dividend payout which is inline with the study conducted by Al-Malkawi (2007) who reported a significantly negative relationship of age-square with dividend policy of Jordanian listed companies. The non-linear relationship between the age of the company and dividend payout could be due to changes in company's life cycle. As explained by trade cycle theory that in business cycle there are wave-like fluctuations in aggregate employment, income output and price levels. The negative relationship of age-square with payout is consistent with trade cycle theory. It shows that when companies find new investment opportunities they pay less or may be no dividends, as it would not be an optimal decision any longer. This argument is also consistent with "residual dividend policy theory". The negative relationship of age-square with payout is significant at a level of 5% and 1% in panel A and panel B, respectively.

Regarding age-cube, a significantly positive coefficient value, shows that the decline in payout reveled by age-square is not persistent. As companies find new investment opportunities they start utilizing their reserves but after a point where all present NPV projects have been captured by companies their capital expenditures start decreasing again and such companies start paying dividends. This phenomenon of non-linearity or cubic relationship can be due to the nature of competition faced by listed companies during their life cycle. When new company(s) enters in the business market the level of competition may increase, which forces mature companies to concentrate on expanding their business horizons by introducing new and innovative products and might start spending heavily on advertising campaigns. The increased competition may also enforce company to spend more on research and development due which they have to reduce the distribution of earnings in the forms of dividends and start building up reserves to meet current and future investment needs. But, with the passage of time when companies meet the challenges of growing competition they start performing on their normal capacity which may be higher than the capacity at which company was performing before increase in competition.

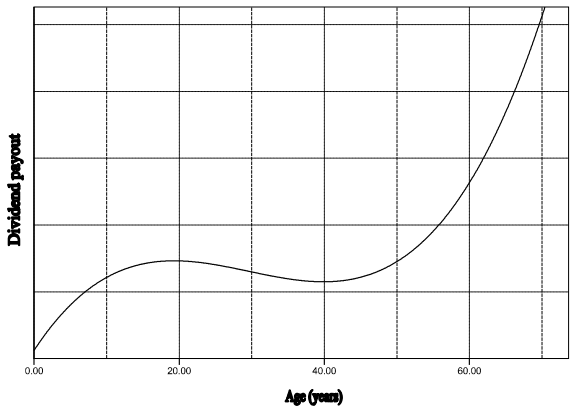

Figure (a)

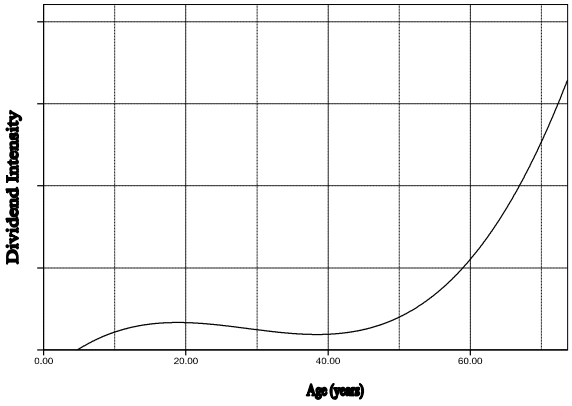

Figure (b)

Figure 4.1: Relationship between firm's age and dividends

In figure 4.1 the non-linearity of relationship between age and dividend policy variables has been clearly revealed. Figure (a) depicts the relationship between age and dividend payouts and in figure (b) the relationship of company's age is plotted against dividend intensity. From the plot, it can be judged that, other things remaining the same, Pakistani companies pay high dividends up till 20 years of age approximately, after that the dividend starts declining with a slow pace, which continues to decrease until the company reaches the age of 40 years approximately. After that companies again start increasing dividends. If we consider the co-efficient value given in Table 4.1, then we can say that during first 20 years of company's age, after every year Pakistani companies increase their payout with approximately 3% but when company reaches the age of 20 its starts reducing dividend payout at a rate of 0.10% approximately every year till it reaches the age of 40 years, after which company again start increasing dividends.

The present study has also used two control variables of leverage and profitability. Leverage has a significantly negative relationship with dividend policy in both panel A and B. It shows that highly leveraged companies are less likely to pay higher dividends. Intuitively, the companies with high level of outsider's equity have to maintain good liquidity to pay regular interest and principal as well. Therefore, such companies are reluctant to distribute cash in the form of dividends. This negative relationship of leverage is consistent with Darling (1957), Rozef, (1982), Baker et. al. (2007), and Ahmed and Attiya (2009)

Profitability, on the other side, is also among the prime determinants of dividend policy. The significantly positive relationship of profitability shows that highly profitable companies have more reserves and hence have more capability to pay high dividends. This result is in line with the studies of DeAngelo et. al (1992), Mayers and Frank (2004), Fama and French (2002) and Avazian et. al. (2003).

4. Conclusions

Present study is an attempt to explore the possible explanation of "Maturity hypothesis" in context of dividend policy in listed companies of Pakistan. For this purpose data of six year (from 2002 to 2007) of 120 companies has been collected and analyzed using OLS regression. A cubic form of models has been estimated with dependent variables of dividend payout and dividend intensity using age, age-square and age-cube as independent variables. The estimated results clearly show the non-linearity in the relationship between age and dividend payouts of companies. It is evident that during first few years, which according to our estimated results are closer to 20 years, companies on average increase its dividend payments but after that companies start reducing dividends. One of the reasons could be increase in competition which forces company to focus more on research and development and other strategies like heavy advertisement campaigns and product innovations to meet the challenges of competition. Therefore, such companies have to spend more on expansion plans to capture the market or at least maintain their share in the market and hence they have to reduce the distribution of earnings in the form of dividends. But after this stage, company again reaches to a new maturity level where its development expenditures have been reduces and company again start paying dividends.

To the best of authors' knowledge, this is a very first study addressing non-linearity of relationship between company's age and dividend policy in listed companies of Pakistan, using a cubic form of models and therefore suggests interesting avenues for future results. Specially, the relationship of age with company's performance is yet to be explored in context of Pakistan. Furthermore, it would be interesting to analyze the changes in company's' investments, advertising, R&D and other capital expenditures as companies grow in age.

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