

# Determinants and Dynamics of Dividend Policy: Evidence from Pakistan's Banking Sector

Intikhab Alam Khan\*  
Dr. Rashid Salaria

## Abstract

*This paper analyzes the dividend policy of 18 banks listed on the Karachi Stock Exchange (KSE) during the period 2001-2007. The study outlines the main determinants that may drive the dividend policy of KSE listed banks. Lintner's model has been applied in a dynamic setting. The Lintner model result maintains the listed banks in Pakistan depend on earning per share and past dividend to decide their dividend payments. However, the results show that dividend tend to be more to current earning as compared to the dividend trend in the past. The results indicate that profitable banks have more free cash flow and they pay more dividends. Moreover, assets growth does not seem to be consistent with the dividend policy. Financial leverage also has no impact on dividend policy of Pakistani banks.*

*Keywords: Dividend policy, panel data, reforms, Karachi Stock Exchange.*

## 1. Introduction

Dividend policy has a prominent place in the area of financial research. Many researchers have conducted studies in the field of payout policy and provided empirical evidence regarding the determinants of dividend policy. Yet we do not have an acceptable explanation for dividend behavior of companies. The question why firms pay dividends from their earnings still remains unexplained. This is known as the dividend puzzle in finance literature.

The research and theory on the dividend policy have also been influenced by the empirical observations about market, corporate and investor attitude towards the dividend policy. Two prominent empirical observations on dividend policy show that corporations follow stable dividend policies and pay out a substantial portion of their earnings as dividends (Lintner, 1956). Naceur et al. (2002) clearly state that firms' dividend policies rely on both current earning and previous dividends.

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\* Intikhab Alam Khan is an MS student (Finance), Department of Business Administration, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST), Islamabad.

Dr. Rashid Salaria is Associate Professor, Department of Business Administration, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST), Islamabad.

Many researches have analyzed dividend policy theory of the developed countries. For example, Eriotis (2005) discussed the distributed earnings and size of firm's effect on dividend policy from Greek data. DeAngelo et al. (2005) discussed the dividend policy lifecycle theory on NYSE, NASDAQ and AMEX data. Eije and Megginson (2006) discuss the dividend policy of the European Union (EU).

Recently researchers have started looking at the dividend behavior of companies operating in emerging markets. Adaoglu (2000) conducted a research on Istanbul Stock Exchange (ISE), discussing the dividend policy theory. Reddy (2001) discussed the dividend policy of Indian corporate firms. Omet (2004) conducted a research on dividend policy behavior in Jordan Capital Market. It cannot be denied that dividend policy in emerging markets is very different from the norms that have been accepted in the developed countries.

This paper contributes to the relatively limited literature on the dynamics of the dividend policy performance. It broadens the conventional structure proposed by Lintner (1956) and suggests a sound approach to modeling the dynamics of dividends. In the same vein, this paper also covers the determinants of dividend policy of Pakistani banks listed on the Karachi Stock Exchange.

This paper is organized in five sections. Section II describes the literature review, conceptual framework and details the working hypotheses. Section III presents the empirical methods. Section IV discusses and evaluates the results. In the last, we present the conclusion on the basis of the results.

## **2. Literature Review**

The pioneering work in analyzing the determinants of dividend policy is a study done by Lintner (1956) who uses both empirical and survey research methodology in his investigation. Lintner's review of finance literature on the determinants of dividend policy identifies 15 variables, some of which are firm size, plant and equipment expenditure, willingness to use external financing earning stability. His empirical study finds that corporations determine a target dividend payout ratio and dividend policy is adjusted according to the target dividend payout ratio which is determined in a way that the corporation can sustain its capital investments and can achieve its targeted growth in the long run. Additionally, Lintner finds that corporations follow stable dividend policies and in case of substantial increase in earning, dividends are not increased by a substantial amount, but they are gradually increased considering the target dividend payout ratio.

Naceur et al. (2000) conclude that firms rely on both current earnings and previous dividends to fix their dividend payment. Fama and Blahnik (1968) reformulate Lintner's model by undertaking a more comprehensive empirical approach and confirm the findings of Lintner that corporations follow stable dividend policies. Dewenter and Warther (1998) use the Lintner model and apply it to sample American and Japanese corporations. They find that the managers in the US smooth out the dividends, whereas Japanese corporations are more

willing to omit dividends and follow relatively less stable dividend policy as compared to US firms.

### 3. Conceptual Framework and Working Hypotheses

#### 3.1. Lintner Model

For testing dividend stability, the dividend policy model of Lintner (1956), a robust model and a finance 'classic', is used (Lease et al., 2000). Lintner builds the following behavioral model in the light of his survey findings:

$$D_{i,t}^* = r_i P_{i,t} \quad (1)$$

$$D_{i,t} - D_{i,(t-1)} = a_i + c_i (D_{i,t}^* - D_{i,(t-1)}^*) + u_{i,t} \quad (2)$$

The change in cash dividends (eq. 2) depends on the difference between the targeted dividend payments ( $D_{i,t}^*$ ) and the actual dividend payments last period ( $D_{i,(t-1)}$ ). The positive 'ai' intercept shows the reluctance of corporations in decreasing the dividend and their preference for a gradual growth in dividends. Coefficient 'ci' indicates the stability in dividend changes and is also the adjustment factor towards the target payout ratio ( $r_i$ ) which depends on the level of debt, investment opportunities, marginal tax rates of investors, transaction costs and other related factors.

By combining equations (1) and (2) without effecting the error term, Lintner tests the following empirical model:

$$D_{i,t} = a_{i,t} + b P_{i,t} + d D_{i,(t-1)} + u_{i,t} \quad (3)$$

Where  $b = cr$  and  $d = (1-c)$

The preceding model in equation (3) is modified to test for stability in the dividend policy of the KSE-listed banks.

$$DPS_{i,t} = a_i + \beta_1 EPS + \beta_2 DPS_{i,(t-1)} + u_{i,t} \quad (4)$$

Where DPS stands for dividend per share and EPS stands for earning per share.

#### 3.2. Variables

##### 3.2.1 Return on Assets

The basic idea has its roots in Modigliani and Miller's (1961) argument and holds that the value of the firm is solely determined by the earnings power of its assets and its investment policy. The total size of the pie is what is important, and it is unchanged in the slicing. Therefore, a firm should endeavor towards having an optimal investment policy. It is unable to create value simply by altering the mix of dividends and retained earnings. Thus, firms with

high profitability can afford larger free cash flows and hence new investment opportunities. Therefore, paying higher dividends does not disturb them. In the same vein and according to the pecking order theory, firms prefer using internal sources of financing first, then debt and finally external equity obtained by stock issues. The more profitable the firms are, the more internal financing they will have, and thus will be able to afford larger dividends. As a proxy, we measure the profitability by the return on assets (ROA) and it is hypothesized to be positively correlated with dividend payments.

### **3.2.2. Market-to-Book Ratio**

Asymmetric information also provides new evidence in dividend policy. Assuming the difference of interests between insiders and outsiders, the former often process and trade on information about firm's share values whereas investors do not process because of lack of important information. Dividends may then act as a signaling mechanism (Petit, 1972). It is a costly-to-replicate vehicle for conveying private information to capital market. Because of general tendency for stability, any change in dividend policy is interpreted as a change in the management's expectations of profitability. Therefore, it is hypothesized that firms with large investment opportunities and hence with strong financing needs would rather retain than distribute their earnings. A common proxy for investment opportunities is the market-to-book ratio (MBV) and it is negatively correlated with dividend payment.

### **3.2.3 Leverage**

Two arguments plead such suggestion. First, in an agency theory framework, debt can play a disciplinary role: by increasing the debt level, the free cash flow will decrease (Jensen, 1986). Indeed, shareholders may expropriate wealth from bondholders by paying themselves dividends at the expense of bondholders who try to take this problem due to bond indenture restrictions (Jensen & Meckling, 1976). Besides, firms with high debt ratios ought to pay out lower dividends as they have already pre-committed their cash flows to make debt payments and to avoid borrowing more capital. The variable used is the company's leverage ratio (LEV) and it should have a negative impact on dividend.

### **3.2.4 Firm Size**

The literature suggests that size may be inversely related to the probability of bankruptcy (Titman and Wessels, 1988; Rajan and Zingales, 1995). In particular, larger firms should have easier access to external capital markets and be able to borrow at better conditions. Even the conflicts between creditors and shareholders are more severe for smaller firms rather than larger ones. Besides, larger firms tend to be more diversified and their cash flows are more regular and less volatile. Thus, larger firms should be more willing to pay out higher dividends. As surrogate to size, we use the firm's total market value (LNSIZE) and it is expected to be positively correlated with paid dividend.

### 3.3 Hypotheses

Hypothesis 1: Dividend policy relies upon firm's earning power. We expect that more profitable banks should pay more dividends in the KSE.

Hypothesis 2: Dividends operate as an information signal. We expect that banks with greater investment opportunities will pay lesser dividend in the KSE.

Hypothesis 3: Dividend and debt are direct substitutes. We expect that the degree of leverage will be negatively associated with the dividend distribution in the KSE.

Hypothesis 4: Larger banks distribute larger dividends. We expect that dividend payments will be negatively correlated with the size of the firm in the KSE.

The following regression equation is estimated to provide bearing on the hypotheses:

$$DY_{i,t} = aD.Y_{i,t-1} + bROA_{i,t} + cMBV_{i,t} + dGROWTH_{i,t} + eLEV_{i,t} + \epsilon_{i,t}$$

Where:

DY = Dividend Yield

ROA = Net Profit Divided By Total Assets

MBV = Market Value of Equity Divided By Book Value of Equity

GROWTH = Annual Rate of Growth of Total Assets

LEV = Debt to Equity Ratio

We use the conventional dividend yield (DY) that equals the ratio of dividend per share to price per share as our measure of the dependent variable because the sample contains firms with negative earnings.

## 4. Methodology

This study is based on secondary data. The source of data is the KSE (Karachi Stock Exchange) and the data which were not available on websites of listed companies; the remaining data has been taken from financial statements of the listed banks from the State Bank of Pakistan. All the data is downloaded from the official websites.

### 4.1 Sampling and Population

Data has been taken from 18 banks of Pakistan from 2001-2007. There are 27 listed banks as of the year 2008. As we require consecutive data of firms, this leaves 114 sample observations for analysis because of some missing values from data.

## 4.2 Estimation Methodology

The advances in panel data econometrics during the last decade have opened the way for estimating the Lintner model by using panel data regressions which are significantly different from the estimation methodologies used in Lintner's studies. In panel data regression, time series and cross-sectional observations are combined and estimated. In other words, several cross-sectional units are observed over a period of time in a panel data setting. The basic model using pooled observations is as follows:

$$Y_{i,t} = \alpha + \beta_k X_{k,i,t} + u_{i,t}$$

The panel data has multiple observations  $t=1, \dots, T_i$  of each of  $i=1, \dots, n$  observation units

Where:

$i = 1, \dots, n$  is the cross-sectional units in the sample;

$t = 1, \dots, T$  is the sample period;

$\beta_k$  are the parameters that will be estimated;

$k = 1, 2, \dots$  denotes the independent (explanatory) variables;

$u_{i,t}$  is a stochastic error term assumed to have mean zero and constant variance.

The main advantage of pooling is that it is possible to increase the number of observations, especially in cases where each individual cross-section sample is so small that the sample size affects the degrees of freedom adversely. Gujarati (1995) states that in the case of a properly specified model, pooled regression can provide more efficient estimation, inference and even better forecasts (p.524). Baltagi (1995) states that panel data gives more informative data, more variability, less colinearity among the variables, more degree of freedom and more efficiency. Panel data is better able to study the dynamics of adjustment, and is better able to identify and measure effects that are simply not detectable in pure cross-sections or pure time-series data. Moreover, many variables can be more accurately measured at the micro level, and the biases resulting from aggregation over firms or individuals are eliminated. Greene (1997) states that 'the fundamental advantage of a panel data set over a cross section is that it will allow the researcher far greater flexibility in modeling differences in behavior across individuals' (p. 615). Pindyck and Rubinfeld (1998) observe that 'incorporating information relating to both cross-section and time-series variables can substantially diminish the problems that arise when there is an omitted-variables problem' (p. 250).

There are three common regression techniques used in estimating models with panel data. Namely, these three regression techniques are the pooled ordinary least squares, the fixed effects model and the random effects model. In this research, three regression techniques

are used for the estimation of the model. Subsequently, proper test statistics, namely the Chow test and the Hausman test (H), are used to choose the most appropriate model for the particular sample.

## 5. Analysis and Results

### 5.1 Lintner Model Estimation

The estimation results are based on the 114 observations. The dependent variable is dividend per share ( $DPS_{i,t}$ ). The independent variables are earnings per share ( $EPS_{i,t}$ ) and lagged dividend per share ( $DPS_{i,t-1}$ ). Regression 1 is estimated using ordinary least squares. Regression 2 is estimated using the random effects model and regression 3 is estimated using fixed effects.

Coefficient	Regression 1	Regression 2	Regression 3
$\alpha_1$	0.027 (5.096 <sup>*</sup> )	0.036 (4.476 <sup>*</sup> )	
$\beta_1$	0.950 (32.273 <sup>*</sup> )	0.755 (28.349 <sup>*</sup> )	0.641 (13.032 <sup>*</sup> )
$\beta_2$	0.732 (21.161 <sup>*</sup> )	0.681 (18.692 <sup>*</sup> )	0.480 (09.907 <sup>*</sup> )
Adjusted R <sup>2</sup>	0.792	0.819	0.764
Hausman Test			72.441 <sup>*</sup>

\*indicate that t-statistics are significant at 0.01 level

If we compare these results with the study by Aivazian et al. (2003), OLS estimates of the coefficient of lagged dividend per share (0.606) reported by Aivazian et al. (2003), and is even lower than the value  $\beta_2$  (0.732) reported in this study (regression 1). 0.95 value of  $\beta_1$  indicates that in Pakistan earning per share is more relevant as compared to lagged dividend per share.

### 5.2 Determinants of Dividend Policy in the KSE

We present the regression results for dividend policy determinants. Both the Chow and Hausman tests confirm the presence of firm-specific fixed effects. When static models are used, only the coefficients associated with the lagged dividend yield, profitability are significant.

Regressors	POOLED	FEM	REM
	0.4055	0.1626	0.3737
DYt-1	(6.75) ***	(2.35) **	(6.14) ***
ROA	0.2139	0.2755	0.2207
	(7.24) ***	(6.67) ***	(7.28) ***
MBV	-0.0067	-0.0063	-0.0075
	(-1.75) ***	(-0.47)	(-1.97) ***
LEV	0.0005	-0.0022	0.0005
	(1.71) *	(-2.38) **	(1.53)
GROWTH	-0.0005	0.0092	0.0002
	(-0.05)	(0.97)	(0.02)
Constant	0.0727	0.3962	-
	(2.89) ***	(3.47) ***	-
Adjusted R-squared	0.4859		
Chow test (p-value)		0.0003	
Hausman test (p-value)			0.0000
Observations	114	114	114

\*, \*\*, \*\*\* indicate statistical significant at 10%, 5% and 1% level.

The results in the above table reveal that profitability affects dividend payments. This provides strong support for the residual cash flow theory of dividends that the firms with high cash flow pay high dividends and vice versa. Besides, the absence of relationship between dividend policy and MBV clearly support the argument that the expectation of future growth opportunities is not relevant in dividend policy for Pakistani banks. However, dividend policy in our sample is positively affected by past growth which means that Pakistani banks pay more attention to past growth than future growth to device their dividend policy. Typically, if a firm has grown at a fast rate in the past, chances are that it will have a lower dividend payout rate.

Also, we find in the above that financial leverage has no impact on the dividend policy. This result does not confirm the common view that a risky firm pays out lesser dividends in order to lower its dependence on external financing rather it reflects the idea set out by Fama and French (2000) where debt is the residual.

The results show that size has a negative effect on dividend yield. This finding is not consistent with the pecking order theory and stand up in sharp contrast with the results in Smith and Watts (1992) and in Gaver (1993).

## 6. Conclusion

Following the publication of Lintner's (1956) classic paper, a number of studies have examined the question of dividend policy. Based on the available evidence, it seems that firms which are listed on advanced stock markets follow stable dividend policies. On the other hand, companies in less developed markets follow less stable dividend policies. 'Emerging market firms often do have a target payout ratio like their developed country counterparts, but they are generally less concerned with volatility in dividends over time and, consequently, dividend smoothing over time is less important' (Glen et al., 1995).

The empirical analysis in this paper focused on the time period 2001-2007. Based on a sample of 114 Pakistani banks which are listed on KSE, the empirical evidence shows that these banks follow stable dividend policies. Indeed, the results indicate that current earnings per share are more important than lagged dividend per share in determining current dividend per share. Any variability in the earnings of the corporation is directly reflected in the level of dividends.

On the other hand, we highlight some determinants that may influence the dividend policy pattern. First, the results indicate that highly profitable firms with more stable earnings can afford larger free cash flows and thus pay out larger dividends. Second, fast-growing firms distribute larger dividends so as to appeal to investors. This agrees with the informative content of the dividends. Finally, the negative coefficient on size in the full sample has disappeared when regulated firms are excluded which reduce the robustness of this factor.

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