Examining the Applicability of Lintner's' Model of Dividend in Energy Sector of Viksit Bharat: An Empirical Study

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Abstract **-** Dividend is one of the most important decisions in the finance literature. The present paper aims to explore the dividend patterns of current year equity dividend, current earnings, and lagged dividend, and applicability of Lintner's model in the energy sector of Bharat. The data used in study has been collected from the Prowess software (CMIE). The reference period of the study is 2004-2023. The outcomes are found to be consistent with the Lintner's model.

Keywords: ***Dividends,Lintner's model, Dividend pattern, Energy sector, G35,G32, Viksit Bharat***

INTRODUCTION

One of the main aspects of the company's financial policy that receives attention is dividend declaration. The choice of whether to retain earnings or distribute them to shareholders as a dividend is at the financing decision with context to the dividend policy. Over the past few decades, the dividend decision—which is referred to as the dividend puzzle—has drawn a lot of attention as one of the most extensively studied subjects? Numerous models have been developed in an attempt to explain the dividend behavior of the firms as a result of previous research findings. According to (Khan et al., 2022) the earnings per share plays a vital role in determining the financial health of the company moreover it affects the economic sustainability in a positive way. The whole idea behind Viksit Bharat is get economic sustainability for the holistic development of the country. The vision of Prime Minister Shri Narendra Modi ji is to gain the economic stability through Viksit Bharat.

Lintner's (1956) model and its Relevance

It shows that dividend decisions are important for businesses whose managers want to maintain dividend stability within a specific long-term payout ratio. The most important components of the company's dividend policy are current earnings and the dividend from the previous year. Furthermore, rather than the payout's absolute level, firms are more concerned about dividend changes. Based on factors such the company's size, liquidity position, market capitalization, price-earnings ratio, and ownership distribution, Lintner's first selected over 600 companies. The literature indicates that these traits significantly influence

dividend decision. After screening, he identified 28 businesses for in-depth analyses and subjective assessment. In specifically, he spent seven years (1947–1953) conducting an extensive survey on 28 listed businesses. Regarding the long-term payout ratio issue, the results of Lintner's survey indicate that roughly two-thirds of the corporations have a defined long-term dividend policy in place. The target ratio had a mean value of 50% and ranged from 20% to 80% on average. Companies modify their payouts annually in accordance with their goal ratios. As a result, the Lintner's model places a high value on adjustment speed. In order to smooth out the dividend over time, adjustments are performed. Even a decline in earnings does not always translate into a decrease in dividends when adjustments of this kind are made. (Javed, MY, Aqil, 2024)found that in Indian energy sector, the economic aspect of sustainable investments affects the market-based parameter of firm performance in a positive way. It helps in the overall development of the economy and helps in the Viksit Bharat by getting economic stability.

REVIEW OF LITERATURE

Wolmarans(2003) investigated that whether Lintner's model fits to the south African companies or not. And found that there is variability in dividend payment and the percentage model does not fit to the 200 companies they have taken. Bodla,Pal&Sura(2007) explored the applicability of Lintner's model in the banking industry . Regression analysis was applied to know whether current year earnings and previous year earning affect to the current year dividends or not..Baker(2010) stated that the model provides a more accurate explanation of the main trends in dividend policy than signaling theories based on the public destruction of value, and we discovered empirical evidence to support a few of its unique predictions. According to Abdullah's (2012) investigation into the impact of ownership structure on a company's dividend policy, which was based on the Lintner's model, the partial adjustment model outperforms the full adjustment model in terms of explaining dividend variation with variables related to ownership classes. Parasuraman (2012) looked into the factors that affected the BSE constituent businesses' dividend payments from 2002 to the latest possible date, 2011. Dogra &Vashisht(2013) According to the study, Lintner's model fits the chosen Indian enterprises the best out of all the models. Andres (2015) looked at the applicability of the Lintner's model and discovered that their dividend payouts were inconsistent. Rajasekaran &Pandian(2017) found that the Lintner's model and Brittain's Cashflow model are the most appropriate models that are capable of explaining the factors that affects the dividends irrespective of industry classification.. Fernau(2019)Using 99 empirical studies that employ Lintner's`s dividend payout model and investigated the heterogeneity in reported dividend smoothing effects. Hartono & Sari (2021) proved the determinants and relevance of the parametric statistical analysis in the inconsistent distribution of dividends. Rekha & Warne (2022) research of the Lintner's model in manufacturing sector showed that firms prefer the stability in their dividend policies. Kafiya(2023) ownership structure variables are more influential in developing and implementing firms' dividend policy, since effective and efficient dividend policy maximises shareholders' wealth.

Objective of the study:

1. To know the dividend patterns of the selected companies of Energy Sector across the years.
2. To check the applicability of Lintner's model in case of selected companies of Energy sector across the years.

METHODOLOGY

Research design is empirical in nature. The secondary data has been sourced from Prowess (CMIE) software.

Tools & Techniques: There are no. of companies are available on Prowess (CMIE) software in the energy sector. We have filtered seventeen companies of energy sector which provides dividend to the employees on regular basis. Out of 17 companies, one company is from private sector, 15 companies are from Public sector and one company is from unlimited companies. Table 1 constitutes the sample of the study. The reference period of the present study ranges from 2014 to 2023. i.e is a period of ten years. Cross sectional study has been done. Descriptive Statistics has been applied to know the patterns of dividend policy of the energy sector across the years and regression analysis(Backward) has been applied to know the applicability of Lintner's model in energy sector of selected companies in India.

Research Gap: - By reviewing the literature of previous study it has been analysed that very few studies have been conducted related to check the applicability of Lintner's model during 2014 to 2023. And no study has been found with reference to energy sector. So to know the significance or alignment of Lintner's model in energy sector this study has been attempted.

Research Variable in Study:

S.I. No.	Name of the Variable	Type of Variable	Proxy/Definition
1.	Equity Dividend	Dependent Variable	Equity dividend paid during the year
2.	Current Earnings	Independent Variable	Earnings after Taxes is taken as proxy for current year
3.	Lagged Dividend	Independent Variable	Previous year dividend paid to shareholder

The statistical model developed to test Lintner's dividend policy model:
$Y_t = \alpha + \beta_1 X_1 + \beta_2 X_2$
Where,
Y_t = dependent variable (equity dividend expected during period t)
α = Constant
X_1 = independent variable (Current year earnings after tax)
β_1 = regression coefficient of CE (target payout ratio *adjustment factor)
X_2 = independent variable (Equity dividend during period t-1)
β_2 = regression coefficient of dividend paid during period t-1
Target payout ratio* adjustment factor = β_1
$\alpha_i * C_i = \beta_1$
$\alpha_i * (1 - \beta_2) = \beta_1$
This implies α_i = target payout ratio = $\beta_1 / (1 - \beta_2)$ or β_1 / C_i
C_i= partial adjustment factor

RESULTS & ANALYSIS

Equity dividend is the dividend payment to equity shareholders in the current year. Table 1 DPR shows the average dividend payout ratio during 2014-2023. This table 2.0 indicates that mean of equity dividend ranges in a range i.e. 348.27 crores to 1424.10 crores which implies that there is a variation in the dividend payment of the companies of energy sector of the sample taken during the study. The standard deviation of constant equity dividend ranges from 526.90 to 3022.42 crore. The current earnings is the proxy of earnings

after taxes and the mean of it ranges from 1323.40 to 2923.64 which means by companies in energy sector taken during this study are increasing dividend payment year on year basis. The standard deviation of the same varies from 2712.81 to 5380.90. Lagged dividend is the previous year dividend payment to its shareholders by the management. The mean of the lagged dividend ranges from 369.66 crore to 1424.10 crore and the standard deviation is also ranges from 536.50 crore to 3022.42 which is a indication of variability of data in the reference period of 2014 to 2023 in the dividend payment of shareholders.

Table:-1 Dividend Patterns of Energy Sector in India across the years (Amount in Crores)

	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Year	**Constant Equity Dividend**		**Current Earnings**		**Lagged Dividend**	
2014	534.87	1140.34	1323.40	2712.81	513.90	1139.13
2015	348.27	526.90	1465.31	2594.16	534.87	1140.34
2016	463.27	737.78	1603.81	2881.54	369.66	536.50
2017	750.65	1072.55	1728.37	2889.16	474.95	762.14
2018	749.36	1188.57	1393.03	3336.69	711.00	1048.26
2019	827.14	1550.60	1927.87	3578.49	750.88	1187.67
2020	902.91	1293.20	1993.78	3540.76	877.08	1591.65
2021	1041.87	2060.62	2158.61	4274.82	856.74	1262.93
2022	1424.10	3022.42	2748.92	5534.60	1041.87	2060.62
2023	1367.87	2568.87	2923.64	5380.90	1424.10	3022.42

Table -2 exhibits the estimates of Lintner's Model. As can be observed, throughout the previous ten years, the coefficient of determination (R2) values has ranged from 0.895 to 0.996. The aforementioned illustrates the equation's remarkably strong explanatory power. Put another way, the Lintner's model's independent variables account for more than 89% of the fluctuation in the dividend that the energy sector pays out. 'F' values also show that the factors impacting the current year dividend are earning and lagged dividend. The results of the Durbin Watson test, which is used to determine if autocorrelation exists in cross-section data series, show that there is no autocorrelation in any of the study's years other than 2021, when the series was determined to be inconclusive. Thus, the model's outputs provide reliable estimates.

Table:-2 Model:-Lintner's Model

Regression Coefficients, Coefficients of determination R^2& F values of variables of selected companies of Energy Sector in India across the years.

Year	**Coefficient of the independent variable**			**R^2**	**F**	**Durbin Watson**
	Constant	Current Earnings	Lagged Dividend			
2014	-14.851 (-.303)	.415 (24.973)*	.329 (1.548)	0.977	623.637*	2.151
2015	54.028 (2.355)	.201 (25.488)*	-.179 (-1.210)	0.977	649.636*	1.396

2016	-23.649 (-3.51)	.269 (.794)	1.317 (12.476)*	0.917	155.662*	2.797
2017	118.253 (1.068)	.004 (.019)	1.331 (10.537)*	0.895	111.030*	1.570
2018	174.872 (1.391)	0.255 (4.857)*	0.308 (1.842)***	0.899	58.001*	2.542
2019	-40.064 (-.858)	.344 (8.558)*	.271 (2.237)**	0.992	766.592*	2.397
2020	191.717 (2.032)	0.839 (4.504)*	-1.096 (-2.646)**	0.949	111.824*	1.874
2021	-130.320 (-1.184)	.314 (5.747)*	.576 (.311)*	0.975	255.693*	0.950
2022	-87.07 (-.664)	-.187 (-.704)	1.450 (24.88)*	0.978	619.393*	2.216
2023	71.335 (1.440)	.188 (7.323)*	.524 (11.465)*	0.996	1674.94*	1.605

* Significant at 1% Level ** Significant at 5% Level *** Significant at 10% Level. Figures in brackets are the t values.

For years seven and eight out of ten, the regression coefficients for the independent variables earnings and lagged dividends have shown statistical significance. There is a positive correlation between dividend and the independent variables, as indicated by the positive values of the regression coefficients for both of the Lintner's model's variables. The current earnings variable's significance demonstrates how crucial current earnings are to the dividend declaration in accordance with the intended payout ratio. To make sure that the current dividend indicates their success, it also takes into account the strength of the energy industry.

As was previously mentioned, the Lintner's model's lagged dividend indicates management's goal for a consistent dividend policy. It is noteworthy to observe from Table 2 that in over 80% of the cases, the lagged dividend has emerged as a highly significant dividend determinant.

As a result, our findings concur with those of Lintner's 1956 study and with research conducted in the United States (DeAngelo and DeAngelo, 1990; Buchanan, 2000). Nonetheless, the outcomes diverge with the research on emerging capital markets conducted by Miller and Shah (1997) and Aivazian Clearly (1999). In the current study, there is no significant coefficient growth for the intercept term (constant) over the sample years. This could be explained by the small sample size and the types of businesses that are being examined. In other words, the current study is unique since only the energy sector takes sample size into account; as a result, the dividend pattern may vary from that of companies in the manufacturing sector.

Table 3 states that target payout ratio and partial adjustment factor of the selected companies of energy sector of India. The table depicts that target payout ratio of fifty percent of the reference period (year 2014,2019,2020,2021 & 2022) of the study is more than 40% which shows the dividend stability. However there is no stable dividend policy in continuity of the reference period of the selected company in the energy sector in India. The partial adjustment factor is negative in three years out of the sample period which mean by there is no smoothing of dividend payment and no target setting of the years.

Table: 3- Target Payout ratio and adjustment factor in case of Energy Sector of Selected companies in India.

Year	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**

Target Payout ratio	0.62	0.17	-0.85	-0.01	0.37	0.47	0.40	0.74	0.42	0.39
Partial Adjustment Factor	0.67	1.179	-0.317	-0.331	0.69	0.72	2.096	0.424	-0.45	0.47

CONCLUSION

Dividend decision is one of the most important decisions of the finance manager. So, they have to take many things into the consideration while payment of the same. In the present study, we have investigated that whether Lintner's model fits to the selected companies of the energy sector. And the study found that as per Lintner's model, the independent variable current year earnings and earnings after taxes play a major and significant influence in the payment of current year dividend. Hence, it can be said that the current earnings and previous year dividend are the most significant determinant of dividend payment. Dividend is an underlying concept of the economic development, which inclines with the ideology of the Viksit Bharat. The result of regression analysis also showed that the coefficient of the same have positive and significant relationship of the determinants with the current year equity dividend payment. The findings of F value indicate that there is a relationship of independent variable with the constant in reference to sample period 2014 to 2023 under the study. Therefore, the findings of the study align with the Lintner's (1956) after many years of the model, it stills has the applicability in the energy sector of Viksit Bharat. The current study has developed a model which aligns with the overall development of the nation and helps in implementing the model of Viksit Bharat. According to (Javed, M.Y , Hasan, 2022; Javed, MY, Aqil, 2024; Khan et al., 2022; Mohd Yousuf Javed, Mohammad Hasan,Azam, 2020) sustainable investments in India helps in the economic growth of the country and helps the policy maker in implementing the model of Viksit Bharat.

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