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An Empirical Study on Relationship between Share Price and Dividend Policy in case of S&P BSE Large Cap Index Companies

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Abstract
A primary objective of a company's dividend policy is to send signals to existing investors and attract potential investors regarding the management's confidence in the good prospects for the company business. In addition, a sound dividend policy builds trust among investors and encourages them to hold ownership in company equities as long-term investors. Therefore, this study aims to investigate the sensitivity of the market price of shares to the dividend policy of companies. The linkage between dividend policy and share price is examined by controlling certain factors which are considered to be crucial for deciding the dividend policy of a company with the help of a multivariate panel data regression taking a sample of 85 companies forming part of S&P BSE Large Cap Index for the period 2013-14 to 2020-21. The study results suggest that dividend distribution per share has a significant adverse effect on the market price of shares for the period under review. The study results will aid investors and managers of the companies in comprehending the impact of dividend policy on the share prices and ultimately on shareholders' wealth.

Keywords: Dividend Per Share, Earnings Per Share, Market Price of Shares, Panel Data Regression

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I. Introduction

Notwithstanding many empirical and conceptual studies, there has been a dispute about dividend policy and stock prices for more than three decades (Allen &Rachim, 1996). This led to several hypotheses on the relevance and irrelevance of dividend policies, as well as numerous research on their influence on stock prices (Murekefu&Ouma, 2012). One of the central debates in finance is whether earnings should be given to stockholders or reinvested in new investment options.

Dividend payment is critical for shareholders, management, and creditors, among many others. It is critical for investors since they perceive dividends as a means of revenue and a means of evaluating companies from an investing standpoint. It is a method of determining if a business can make cash or otherwise. Numerous investors pay close attention to the dividend yield, determined as yearly dividend income per share divided by the current share price. The dividend yield is a ratio that indicates the income earned about the stock price. If a firm's dividend yield is lesser than its competitors in its sector, it could mean one of two things: (1) the price of a share is high because the market believes the firm has impressive prospects and is currently not focussing on the dividend payments, or (2) the firm is undergoing financial distress and therefore cannot afford to pay dividends to its investors.

On the other hand, a high payment may indicate a struggling firm with a depressed stock price. The dividend is irrelevant for growing firms since retained earnings will be spent on future growth prospects, resulting in capital appreciation for investors. Choosing an appropriate dividend policy is critical since its ability to engage in future initiatives is contingent on the dividends distributed to investors. If a corporation engages in higher payouts, less capital will be available for future developments. Creditors are also concerned about the dividends declared by a firm since more the dividends paid implies less money available to pay the firm's debt. According to Dawar(2012), management is concerned with the dividend to be declared and the percentage to be

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preserved for future investment and growth. This compels the management of the majority of enterprises to evaluate such dividend payout that maximizes shareholders' wealth, rather than focusing only on earnings to be reinvested in the company. Thus, leadership must evaluate the impact of payout policy choices on the firm's share prices (Dawar, 2012).

Dividend distribution and retaining the profit generate two schools of thinking. The first school of thinking holds that distributing the dividend, its announcement, and payout is unimportant (Modigliani & Miller, 1961; and Black & Scholes, 1974). Modigliani and Miller (1961) argue that dividends are meaningless, regardless of the percentage of earnings allocated to shareholders. Black and Scholes (1974) discovered no significant association between a "portfolio's monthly returns on a share and its dividend yield", therefore corroborating this view.The other schools of thought maintain that the distribution of dividends and its declaration and payout are all relevant (Litner 1962). Gordon (1963) argues that dividends are significant because they include information and preferable to capital gains. Brigham (1995) observed that payouts carry information via their effect on stock prices; on the other hand, Litzenberger and Ramaswamy (1979) found a positive link between dividends and share price. It implies that any dividend decision is critical since it is one of the most straightforward methods for a corporation to signal financial health to investors.

Additionally, dividend payments to shareholders from profits convey a clear and strong statement about a company's prospects. By failing to pay dividends, a corporation sends out a message to prospective investors and lenders that it is not in good financial health. Azhagaiah and Priya (2008) proved that increasing dividend increase the share price, but decreasing dividends decreases since investors prefer payouts over capital appreciation. Dividends provide investors with information about the business's health, stability, and sustainability.

While much research has been conducted in industrialized nations on dividend policy and its impact on stock prices, relatively little research has been conducted in emerging markets such as India. Therefore, the dividend policy and its ramifications in the financial and non-financial sectors must be studied.Generally, management has little impact on share prices since many shareholders assume that share price changes are caused by external variables such as the country's political status. This research details the role of organizational variables on share prices. These elements are under the company's influence, and by regulating them, managers may influence share prices. This research may assist managers in organizing dividend policies and also in controlling other corporate factors that affect the share price. This research will equip shareholders with the knowledge to make informed investment decisions. The purpose of this study is to ascertain the effect of dividend policy on the market price of shares, taking the dividend per share, dividend yield, earnings retention ratio, earnings per share and total returns as influencing factors in the case of corporations listed on the S&P BSE LargeCap Index.

The present study is structured as follows: The current section introduces the research background. Section II reviews the relevant literature in brief. Section III highlights the research design. Section IV discusses the empirical results. The last section concludes the findings.

II. Review Of Literature

As a finance subject, the notion of dividend payout and stock price is frequently explored and debated. However, despite decades of conceptual and empirical investigation, dividend payout and share price continue to cause contention (Allen &Rachim, 1996; Nishat & Irfan, 2003; Asamoah & Nkrumah, 2010). On the other hand, dividend decision is among the most critical strategies not only for the business but also for investors, regulatory agencies, and the state (Uwuigbe et al., 2012). Dividend payment is contingent upon the corporations' financial health and stability. It is the barometer of a company's financial performance, as stockholders are concerned with return on investment and employees are concerned with its ability to pay. Regulators are concerned with capital adequacy, whereas the government is concerned with taxation. As a result, dividend payout cannot be overlooked. As such, when directors make investment, finance, and payout choices, they often exercise caution in weighing these considerations before deciding on the long-term interest and sustainability of the firm. According to Black (1996), the more someone examines the dividend scenario, the further it resembles a jigsaw with parts which does not simply fit in.

Numerous hypotheses have been proposed to explain the link between dividend payout and stock price, including the Bird in the Hand hypothesis, the Tax Preference theory, the Signaling theory, the Agency theory, and the Dividend Irrelevancy theory. These ideas provide divergent views on the influence of payout policy choices on a corporation's stock price. These factors resulted in two schools of view (relevance and irrelevance) regarding dividend payout choices. According to one school of thinking (Lintner, 1962; Gordon,1963), payouts are critical to a company's worth, whilst another ideology (Modigliani & Miller,1961) maintains that a company's value does not affect its stock values. Various studies have been conducted as a consequence of the contradictory views, including those by Linter (1956), Modigliani & Miller (1961), Bhattacharya (1979), De

Angelo et al. (1996), Fama& French (2001), Nizar Al- Malkawi(2007), and Al-Najjar (2009). The discussion focuses on the significance or irrelevance of dividend policy in stock value. The first theory (irrelevance) contends that a firm's present worth is determined by its investing strategy, not its payout choices. They estimate that any advantages from dividend payouts would be precisely balanced by the expense of external funding (Modigliani & Miller,1961). The opposing school of thought (relevance) is that dividend payout should and really does affect a company's value, and hence that dividend payout is unimportant only when the rate of return equals the cost of funding the project (Lintner, 1962; Gordon, 1963).

Several studies observed that dividend policy has a strong favourable influence on stock price (Meliana et al.,2021;Purwaningsih,2020; Anwar et al.,2017;Farrukh et al.,2017; Nugraha and Sudaryanto 2016;Chaudry et al., 2015; Khan,2012; Suleman et al.,2011; Joshi,2011;Hussainey et al.,2011; Barman,2007; Nishat & Irfan,2003; Baskin,1989). This indicates that decision to pay a dividend is contingent on the performance of the company's stock. If the stock price grows, the company's profit grows, resulting in the choice to distribute and pay dividends. On the other hand, some studies observe that the dividend policy is negatively related to the share price (Adesina et al.,2017; Sattar et al.,2017; Kaźmierska-Jóźwiak,2015; Al Masum,2014; Khan,2012; Hussainey et al.,2011; Rashid et al.,2008; Vijayakumar,2010). Bougatef (2011) and Zakaria et al. (2012), in their research, found an insignificant relationship between the dividend policy and the market price of the share. In their study, Ali & Chowdhury (2010),Harshapriya (2016)); Bailia et al.(2016) observed that the share price does not fluctuate in response to dividend decisions.

Although many studies on dividend policy and market price have been conducted, just a few studies described how dividend decision impacts the market price of the share. To address this research vacuum and contribute to the literature, the current study explores the influence of dividend policy of corporates on the market price of shares focussing on well-established companies listed on the S&P BSE Large Cap Index.

III. Research Design

1. Data

The present study uses the S&P BSE LargeCap Index as a proxy for the Indian corporate sector as this index consists of 85 well-established companies with a significant market share. The study uses secondary data extracted from the Centre for the Monitoring of the Indian Economy (CMIE) Prowess database for the time-period 2013-14 to 2020-21.

2. Variables

The study employs the following financial variables for panel regression:

i. Dependent Variable:

*Market Price Per Share***:** The closing price of the company's share at the end of each year in-sample period is taken as market price per share (MPS).

ii. Independent Variables

Explanatory Variable:

Dividend Per Share: The total of the declared dividend amount out of profits after tax divided by number of outstanding shares on the record date is taken as dividend per share (DPS).

Dividend Yield: The percentage of a company's share price that it pays out in dividends each year is taken as dividend yield (D Yield).

Control Variables:

*Earnings Per Share***:** The net profit after tax of the company divided by the number of outstanding shares at the end of each financial yearis taken as Earnings Per Share (EPS).

*Earnings Retention Ratio***:** The percentage of a company's earnings that are not distributed as dividends but retained for growth of the business is referred to as Earnings Retention Ratio (ERR) and is calculated as ERR = 1-Dividend Payout = 1-DPS/EPS

*Total Returns***:** The total appreciation in the share price**,** including any dividends paid by the company during a particular financial year, is taken as total returns.

Figure 1 depicts the relationship among all the variables described above.

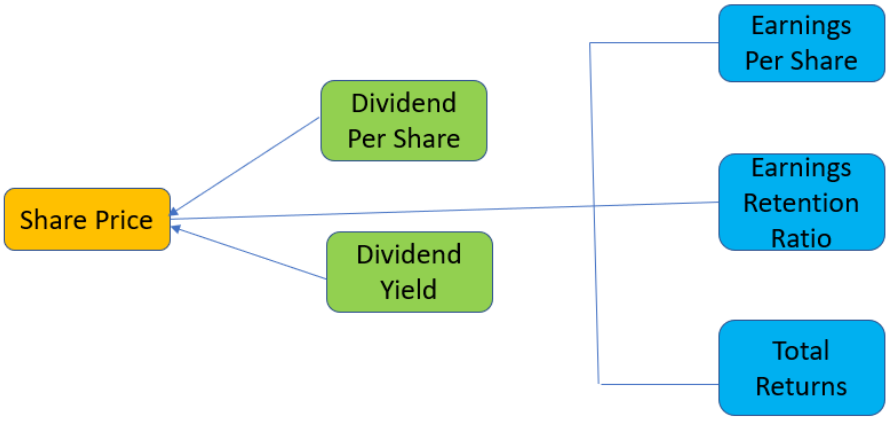

Figure 1: Variables Used in Regression

3. Techniques Used for Empirical Analysis

i. Descriptive Statistics

As a preliminary step, the descriptive statistics on first, second, third and fourth moment of statistical distribution along with Jarque-Bera Test are measured to get a detailed understanding of the financial variables involved in analysis.

ii. Bivariate Correlation Analysis

Thisstatistical method is used to know the linear relationship between two variables of interest and their degree of association with the help of Pearson's correlation coefficients. If the matrix shows high correlations between two or more independent variables, there will be chances of multicollinearity among variables.

iii. Panel Unit Root Testing

To check the stationarity property for each series in a panel, the panel unit root testing is done with Levin, Lin & Chu (2002) test and Fisher-type tests adopting Augmented Dickey-Fuller (ADF) and Phillip Perron (PP) tests (Maddala& Wu, 1999) to check the null hypothesis that a particular variable series is non-stationary. For running regression, the variable series need to be stationary.

iv. Regression Analysis

Based on dependent variables and independent variables (explanatory variable as well as control variables) of the present study, the panel regression equation with intercept and error term can be specified as follows:

$$\boldsymbol{MPS_{it} = f\{(DPS)_{it}(\,D\,Yield)_{it}(EPS)_{it}(ERR)_{it}(Total\ Returns)_{it}\}} \quad \textbf{(1)}$$

$$\boldsymbol{MPS_{it} = \alpha + \beta_1(DPS)_{it} + \beta_2(D\,Yield)_{it} + \beta_3(EPS)_{it} + \beta_4(ERR)_{it} + \beta_5(Total\ Returns)_{it} + \mu_i + \varepsilon_{it}} \quad \textbf{(2)}$$

In equation (2) above, 'i' is used for cross-section element, 't' is used for the time-series element, 'α' is a constant term representing intercept 'βs' as the slope coefficient of independent variables,$\mu_i$unobserved company specific heterogeneity and 'ε' is the error term.

The three different panel data regression models are used for analysing the data, namely, Pooled Ordinary Least Squares (POLS), Fixed Effects Model (FEM), Random Effects (REM) Model. These three models deal with heterogeneity present in the model differently. For example, in the POLS model, the data for different companies is pooled together with the assumption of no individual differences among them. Thus, it takes the intercept and slope coefficients for all the companies to be the same.

However, the assumption of no heterogeneity across cross-sections and across time is not desirable, so we move to FEM and REM. If we assume that there is unobserved heterogeneity across individual companies, we use FEM. However, FEM can fix bias due to time-invariant factors only. In REM, the variation across companies is assumed to be random and uncorrelated with the explanatory or independent variables included in the model. REM helps in estimating effects for time-invariant variables as well as time-variant variables. "The REM has the advantage of greater efficiency relative to the FEM leading to smaller standard errors of coefficients and higher statistical power to detect effects" (Hsiao 2003).

v. Post Estimation Tests

The study applies the Breusch-Pagan (1979) Lagrange multiplier (BP-LM) test to check the existence of cross-section random effect and time random effect or combined random effect to know whether POLS results are reliable or not. The study also employs Hausman Test to decide which model is more appropriate for panel data under consideration, REM or FEM.

IV. Empirical Findings

The results of descriptive statistics and the Jarque-Bera test for normality are shown in Table 1. The results show positive skewness in the panels of MPS, DPS, D Yield, EPS and Total Returns and negative skewness in ERR. All the variable panel series are heavy-tailed relative to the normal distribution. The Jarque-Bera Test's null hypothesis of "normal distribution" is rejected for all the variables with a p-value <0.05.

Table 1: Descriptive Statistics and Results of Jarque-Bera Test

	MPS	DPS	D YIELD	EPS	ERR	Total Returns
Mean	2432.290	88.04531	1.864261	52.56052	-0.864327	0.076092
Median	929.1000	14.56560	0.670000	25.50000	0.330000	0.010000
Maximum	26461.40	1039.191	21.90000	718.9300	1.000000	7.650000
Minimum	38.00000	-30.01720	0.000000	-166.5500	-20.91000	-6.070000
Std. Dev.	4283.048	177.2760	3.358516	113.8208	3.358713	1.585617
Skewness	3.654282	3.177661	3.504500	4.123717	-3.504484	0.390751
Kurtosis	17.18208	13.84090	17.59652	23.13847	17.59696	4.334546
Jarque-Bera	8113.668	5033.545	8357.133	14384.94	8357.527	76.23727
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	765	765	765	729	765	765

Table 2 gives the results of bivariate correlation between different variables considered in the present study. From table 2, it is inferred that MPS is positively correlated to DPS, EPS, ERR and negatively correlated to D Yield and Total Returns. DPS is positively associated with D Yield and EPS and negatively associated to ERR and Total returns. D Yield has a negative linkage with EPS, ERR and Total Returns. EPS is positively correlated to ERR but negatively correlated to Total returns. ERR and Total returns are positively correlated. The bivariate correlation matrix shows that generally, there is a low/moderate correlation between the independent variables, and thus the problem of high multicollinearity does not exist.

Table 2: Bivariate Correlation Matrix

	MPS	DPS	D YIELD	EPS	ERR	Total Returns
MPS	1.000000					
DPS	0.120309	1.000000				
D YIELD	-0.189908	0.719424	1.000000			
EPS	0.779451	0.384800	-0.023992	1.000000		
ERR	0.189899	-0.719461	-1.000000	0.023979	1.000000	
Total Returns	-0.012268	-0.030886	-0.053390	-0.009565	0.053422	1.000000

Before running panel regression on the data, all the variable series are checked for stationarity because if the data has a unit root, it may lead to spurious results. The results of the panel unit root test are reported in Table 3. The Levin, Lin & Chu Test, ADF-Fisher test, and PP-Fisher test show all the variable series (MPS, DPS, D Yield, EPS, ERR and Total returns) are stationary with p-value < 0.05.

Table 3: Panel Unit Root Tests Results

Tests	**Levin, Lin and Chu -t**	**ADF - Fisher Chi-square**	**PP - Fisher Chi-square**	**Result**
Panels	**Statistic with p-Value**			
MPS	-12.1229 (0.0000)	256.859 (0.0000)	326.444 (0.0000)	No unit root
DPS	-9.20520 (0.0000)	165.605 (0.0037)	241.543 (0.0000)	No unit root
D Yield	-10.7253 (0.0000)	177.467 (0.0025)	252.061 (0.0000)	No unit root
EPS	-1.23943 (0.0176)	3.34539 (0.0518)	8.18716 (0.0085)	No unit root
ERR	-9.34412 (0.0000)	170.621 (0.0050)	247.079 (0.0000)	No unit root
Total Returns	-8.01160 (0.0000)	270.362 (0.0000)	512.865 (0.0000)	No unit root

Table 4, Table 5 and Table 6 report the results relating to Pooled Ordinary Least Squares, Fixed Effect Model and Random Effect Model, respectively. As is evident from the results of POLS demonstrated in table 4, the DPS has a significant negative effect on MPS, and EPS is having a significant positive impact on MPS. On the other hand, the D Yield, ERR and Total returns have no statistically significant impact on MPS. Therefore, the computed F-statistic with a p-value, 0.05 indicates that the model has fitted well.

Table 4: Pooled Ordinary Least Squares Results

Dependent Variable: MPS				
Method: **Pooled Ordinary Least Squares**				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	6963.128	33070.22	0.210556	0.8333
DPS	-4.141417	0.948717	-4.365280	0.0000
D YIELD	-5720.743	33068.66	-0.172996	0.8627
EPS	32.43173	1.043323	31.08504	0.0000
ERR	-5659.927	33069.16	-0.171154	0.8642
TOTAL RETURNS	-32.43184	60.62902	-0.534923	0.5929
R-squared	0.646396	**F-statistic**		264.3322
Adjusted R-squared	0.643951	**Prob(F-statistic)**		0.000000

Table 5 presents the results of panel regression with the Fixed Effect Model. The results indicate that DPS has a significant negative impact on MPS and Total Returns have a significant positive relation with MPS. The rest of the variables (D Yield, EPS and ERR) show no statistically significant relationship with MPS. The computed F-statistic with p-value < 0.05 states that FEM is fitted well to the data.

Table 5: Fixed Effects Model Results

Dependent Variable: **MPS**				
Method: **Fixed Effect Model**				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-50626.37	66504.64	-0.761246	0.4468
DPS	-1.525442	0.691283	-2.206684	0.0277
D YIELD	-858.8633	1015.398	-0.845839	0.3980
EPS	1029.029	1264.954	0.813492	0.4162
ERR	-905.3503	1014.414	-0.892486	0.3725
TOTAL RETURNS	12.12961	2.380874	5.094605	0.0000
R-squared	0.999741	**F-statistic**		26328.99
Adjusted R-squared	0.999703	**Prob(F-statistic)**		0.000000

Table 6 reports the results of the Random Effects Model. The results establish a significant negative relationship between DPS and MPS. However, a significant positive effect of EPS and Total Returns on MPS is suggested. D Yield and ERR have no statistically significant relationship with MPS. The computed F -statistic shows that REM is fitted to the data well.

Table 6: Random Effects Model results

Dependent Variable: **MPS**				
Method: **Random Effect Model**				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	1654.364	1081.850	1.529199	0.1267
DPS	-1.899815	0.680228	-2.792908	0.0054
D YIELD	-666.7031	1028.817	-0.648029	0.5172
EPS	31.15931	2.701410	11.53446	0.0000
ERR	-724.2088	1027.874	-0.704570	0.4813
TOTAL RETURNS	11.89611	2.140586	5.557407	0.0000
R-squared	0.184688	**F-statistic**		32.75541
Adjusted R-squared	0.179050	**Prob(F-statistic)**		0.000000

As is discussed above, all the three models, POLS, FEM and REM, fit well to panel data under consideration. Therefore, two post estimation tests have been conducted to decide the best-fitted model among the three. Firstly, the Breusch-Pagan Lagrange Multiplier test is conducted to check the null hypothesis "Variances across entities is zero, i.e., no panel effects." If the BP-LM test is significant, REM is considered preferable compared to POLS. The results of the BP-LM test are presented in Table 7. The results show the existence of both cross-section and period random effects. Thus, POLS is not an appropriate model. On the other hand, it gives clear support for REM.

Table 7: Results of Breusch-Pagan Lagrange Multiplier Test

BP Lagrange multiplier (LM) test for panel data			
Null (no random effect)	**Cross-section**	**Period**	**Both**
Alternative	**One-sided**	**One-sided**	
Breusch-Pagan	2899.240	4.321256	2903.562
(p-Value)	(0.0000)	(0.0376)	(0.0000)

The following post estimation test is Hausman Test (1978), which chooses between FEM and REM. This test is conducted to check the null hypothesis "REM is preferred to FEM," The results of the Hausman test are given in table 8. The test results accept the null hypothesis because Chi-Square Statistic for cross-section and period randomness is insignificant with a p-value > 0,05. Therefore, it is concluded that the REM model is most appropriate for the panel data of the present study.

Table 8: Results of Hausman Test

Hausman Test for Correlated Random Effects			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	6.665035	5	0.2468
Period random	0.313983	5	0.9974

Based on the above empirical analysis and considering the REM model as the best fit model. The results of REM reveal a statistically significant negative relationship between share prices of companies and dividend policy proxied with dividend per share and a statistically insignificant yet negative linkage between share prices and dividend policy proxied with dividend yield. However, the EPS and Total Returns have a statistically significant positive relationship with share prices. The results indicate that dividend policy is not irrelevant, and the amount of dividend distributed per share has a negative impact on the market price of shares.

V. Conclusion

The present study was conducted to examine the relationship between the dividend policy of companies and their share prices. For empirical analysis, the study is based on the secondary data of public companies forming part of the S&P BSE Large Cap Index for 2013-14 to 2020-21. The study applied the panel data regression technique to derive the results. The results of post estimation tests established that Random Effects Model is best suited for the panel data under consideration. The results supported that the dividend per share has a significant negative effect on share prices, and the dividend yield has no significant effect on share prices. The cause of the negative impact of dividend payment on share prices may be the stable dividend policy

adopted by large-cap companies and disappointment in the investors due to the expectation of higher returns from established blue-chip companies.The present study observed that the dividend policy is negatively related to the share price which is similar to the findings by e Adesina et al.(2017); Sattar et al.(2017); Kaźmierska-Jóźwiak(2015); Al Masum(2014); Khan(2012); Hussainey et al.(2011); Rashid et al.(2008); Vijayakumar(2010). The study's findings are beneficial to shareholders, creditors, and managers. As shareholders and managers are interested in share price changes, this research will recommend the variables that influence stock market price changes. It is helpful to creditors since they perceive dividends as a means of evaluating a company's financial performance for providing long-term finance. Additionally, this research identifies critical criteria for boards to consider when developing their company's dividend policy to maximise shareholder value. The following research may concentrate on a bigger group of businesses or a single sector. Researchers in this area should strive to expand the number of companies and periods investigated with dynamic panel regression.

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