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Factors Determining the Share Price Volatility: Evidence from Listed Companies in Sri Lanka

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Abstract

The objective of this study is to investigate the factors determining the share price volatility of listed companies in the Colombo Stock Exchange (CSE), Sri Lanka. A sample of 72 listed non-financial firms from CSE in Sri Lanka is examined using panel data analysis for five years from 2013 to 2017. Dividend pay-out ratio, dividend yield, dividend per share, sales growth, leverage, exchange rate, firm size, earnings volatility, and GDP are considered as explanatory variables. According to the fixed effect regression analysis, only 22% of the movements in share prices are explained by the explanatory variables considered in this study. Therefore, it is concluded that dividend yield, dividend per share, exchange rates, and firm size have a significant impact on price volatility in the Sri Lankan context. Dividend policy can be considered as a protective mechanism to maintain share price volatility in order to enhance the shareholders' wealth.

Keywords: dividend yield, dividend per share, exchange rate, firm size, share price volatility

JEL Classification: D31, M41, F31, L25, D4

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INTRODUCTION

Colombo Stock Exchange (CSE) operates the only one stock market in Sri Lanka, which is considered as the main investment avenue for investors to invest in financial instruments like bonds, derivatives, mutual funds as well as shares in Sri Lanka. The share market plays a significant role in Sri Lankan economic development by raising economic growth and capital formation. The share price is a significant determinant for the investment decision of investors in the share market because investors mainly focus on the price of shares when they decide to invest in shares. However, share prices are fluctuating every day, which depends on various internal factors like dividend payout, dividend yield, dividend per share, sales growth, leverage, earnings volatility, and firm size as well as external factors like exchange rate, inflation, and GDP. Therefore, investors need to have knowledge and awareness about the factors which determine share price in order to make an optimum investment decision (Sharif, Purohit & Pillai, 2015). Thus, it is really important to investigate the factors determining the share prices in the stock market. Numerous studies have been conducted to find out the factors determining share prices. Hence, in the Sri Lankan context, there are very few studies that have been conducted to identify the factors determining the share prices.

In the South Asian economy, the share market is one of the most dominant sectors which performs a vital part in a country's economic growth. Notably, the Sri Lankan economy is directly affected by the share market price. Thus, the share price is one of the significant factors which affect the Sri Lankan economy. Previous literature suggests that there are so many factors influencing when setting the share prices. Such as Dividend Yield, Dividend Pay-out Ratio, Price Earnings Ratio, and Earnings per Share, Size, Net Asset Value per Share, Lending Interest Rate, Inflation Rate, Gross Domestic Product, Retained Earnings, Financial Leverage (i.e., Ganavi, 2018; Mohamed & Nassir, 1993). Ideas generated from the empirical studies in the past, the present study uses dividend payout, dividend yield, DPS, sales growth, leverage, exchange rate, firm size, earnings volatility, and GDP as the independent variable and share price as the dependent variable.

Further findings of this study will help policymakers, investment decision-makers, portfolio managers, share brokers to make better profitable investment decisions and provides empirical evidence for

researchers who are interested in the performance of capital markets. Therefore, the objective of this study is to investigate the factors influencing on share price volatility of listed companies in Sri Lanka. Thus, this study tries to answer the following research question:

What are the factors affecting share price volatility in the listed nonfinancial firm in Sri Lanka?

LITERATURE REVIEW

There are plenty of different empirical studies have been conducted over different periods across the different market to identify the factors that affect stock prices. According to the previous literature, internal and external factors are the significant determinants of the share price. Some recent studies related to the factors influencing share prices have been reviewed here.

Mehmooda, Ullahb & Sabeeh (2019) conducted a study to examine the determinants of stock price volatility in Pakistan stock exchange by collecting a sample of 15 firms from PSX over the period 2011-2015. Their results revealed that there was a positive relationship between stock price volatility and dividend payout ratio. Besides, earnings volatility and leverage had a negative relationship with stock price volatility. Other independent variables, including assets growth and size, had a positive relationship with stock price volatility.

Singh (2018) investigated the determinants of the share price of the twenty-six non-financial companies listed in Muscat Securities Market, Oman. In this study, closing annual stock price from 2011 to 2016 was the dependent variable and the firm-specific variables like firm size, dividends pay-out, earning per share, debt ratio, price-earnings ratio, first lag of dependent variable (stock price) were the independent variables in the panel data regression using a random-effect model. Further, three economic variables—growth rate in GDP, crude oil prices, and consumer price index—were also considered as independent variables. As per the results, EPS, debt ratio, and first lag of stock prices were significant determinants of stock prices. Dividend payout, firm size, and PE ratio were insignificant determinants of stock prices. The inflation rate and crude oil price were significant at the 10% level. The growth rate in GDP was not seen as important and significant variables for share prices in Oman.

Aveh and Awunyo-Vitor (2017) undertaken a study to examine the influence of firm-specific determinants of stock prices in an emerging

market with particular reference to firms listed on the Ghana Stock Exchange from 2008 to 2014. In this study, panel regression analysis was used to analyze the data. This study found that a positive and significant relationship of ROE, EPS, book value of the share, and market capitalization with the market price of shares. These results suggested that these variables are significant determinants of the market price of shares on the Ghana Stock Exchange. Further, a significant negative relationship was found between the market price of shares and dividend yield. This result suggested that dividend decisions are not critically important in influencing the market price of shares.

Balan and Srinivasan (2017) conducted a study on the determinants of share price with reference to the Bombay Stock Exchange "group a" shares using a sample of 69 companies from 7 industries from 2006 to 2013. The results confirmed the significance of DPS and sales as determinants of market share price by the statistical tool of multiple regression. Further, the result of the study indicated that dividends per share being the strong determinants of the market price. Further, the study supported the liberal dividend policy and suggested a company to pay regular dividends. This policy will affect the market price of the share in a positive direction.

Enow and Brijlal (2016) undertaken a study to investigate the determinants of share prices using fourteen companies listed on the Johannesburg stock exchange from 2009-2013. Through the multiple regression analysis, the authors found that dividends per share, earnings per share, and price-earnings ratio accounts for 57.8% of share price movements. Furthermore, earnings per share and price-earnings were significantly positively correlated to share prices, although dividend per share was not. This finding implied that managers could create value for their shareholders by increasing dividend per share, earnings per share, and price-earnings.

Pradhan and Dahal (2016) conducted a study to analyze the factors affecting the share price of Nepalese commercial banks. Fourteen banks listed commercial banks in NEPSE were considered as a sample, and the study period was 2002/03-2013/14. The results indicated that firm-specific variables like earnings per share, dividend per share, price-earnings ratio, book value per share, return on assets, and size were the significant determinants of the stock price in the context of commercial banks in Nepal. Among the variables considered in their study, the size was

found to be the most important determinant that affects the share price. It means, if larger the firm size, the stock price would be higher. Among the macroeconomic variables such as gross domestic product, inflation, money supply, and gross domestic product were important determinants that affect the share price.

Ghose and Chowdhury (2016) surveyed to examine the microeconomic factors as the determinants of share prices in Bangladesh. The study employed annual panel data for 2010-2014 pharmaceuticals sectors in Bangladesh. The results revealed that the dividend per share, size, and price-earnings ratio had a positive and significant impact on the share prices of pharmaceuticals sectors. The evidence also showed that earning per share and returns on equity were the crucial determinants and positively associated with share prices. Moreover, the net asset value per share positively influences the share prices of the pharmaceuticals sector.

In the context of Sri Lanka, there are few studies carried out to investigate the factors influencing the share price. For example, Dissanayake and Biyiri (2017) were attempted to investigate the impact of internal factors on share price using a sample of 20 hotels in CSE over 2011 – 2015. Researchers performed descriptive analysis, correlation analysis, and regression analysis to analyze the data. This study found that there was a significant impact of earning per share, dividend per share, and return on equity on the share price. Further, there was a strong positive relationship between earning per share and share price. Dividends per share had a strong positive relationship with the share price.

According to Atchyuthan (2017), earnings per share, return on equity, return on asset, and dividend per share had a significant positive association with share price while debt to asset ratio had an insignificant association with the share price. The results of this study revealed that earnings per share and dividend per share were the significant determinants of the share price.

Hypotheses development

According to the empirical studies carried out in the past to investigate the determinants of share price volatility, the following hypotheses have been formulated to examine the factors determining the share price volatility in the current study context.

H_1: Dividend payouts significantly influenced on share price volatility
H_2: Dividend yield significantly influenced on share price volatility
H_3: Dividend per share significantly influenced on share price volatility
H_4: Sales growth significantly influenced on share price volatility
H_5: Leverage significantly influenced on share price volatility
H_6: Exchange rate significantly influenced on share price volatility
H_7: Firm size significantly influenced on share price volatility
H_8: Earnings volatility significantly influenced on share price volatility
H_9: GDP significantly influenced on share price volatility

RESEARCH METHODOLOGY

Sampling and Data Collection

The primary objective of the study is to examine the factors determining the share price volatility of non-financial firms listed in CSE, Sri Lanka. The sample of the study is 72 non-financial firms selected under a random sampling method from a population of 225 non-financial firms. Some firms in the population were eliminated as they do not have enough relevant data and unavailability of annual reports since they have listed in the CSE only before three years. The panel data for this study were retrieved from the annual report of sample firms for a period of five years from 2013 to 2017.

Research Model

The study aims to investigate the factors determining the share price volatility, focusing on listed non-financial firms in Sri Lanka. Panel data takes into account the observations regarding comparable transversal units over a large number of periods, there may be cross-sectional effects on each company or a group of companies.

To select the method of analysis that is most suitable to conduct the empirical analysis, pooled, fixed, and random effect models are performed.

Pooled model:

$$SPV_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 DY_{it} + \beta_3 DPS_{it} + \beta_4 SGit + \beta_5 LEV_{it} + \beta_6 EXR_{it} + \beta_7 FS_{it} + \beta_8 EV_{it} + \beta_9 GDP_{it} + \varepsilon_{it} \quad (1)$$

Fixed model:

$$SPVit = \beta0 + \beta1DPit + \beta2DYit + \beta3DPSit + \beta\ 4SGit + \beta5LEVit + \beta6EXRit + \beta7FSit + \beta8EVit + \beta9GDPit + uit \quad (2)$$

Random model

$$SPVit = \beta0 + \beta1DPit + \beta2DYit + \beta3DPSit + \beta4SGit + \beta5LEVit + \beta6EXRit + \beta7FSit + \beta8EVit + \beta9GDPit + uit + \varepsilon it \quad (3)$$

In the equation,

SPV_{it} is the share price volatility of firm i at time t.

DP_{it} is dividend payout of firm i at time t.

DY_{it} is the dividend yield of firm i at time t.

DPS_{it} is the dividend per share of firm i in time t.

SG_{it} is the sales growth of firm i in time t.

LEV_{it} is the financial leverage of a firm i at time t.

EXR_{it} is the exchange rate of firm i in time t.

FS_{it} is the size of firm i at time t.

EV_{it} is the earnings volatility of firm i in time t.

GDP_{it} is the gross domestic product time t.

β0– intercept coefficient of firm i at time t.;

β1, β2, β3, β4, β5, β6, β7, β8 & β9 – row vectors of slope coefficient of regressors

εit: Stochastic error term of firm i at time t

uit: error term of firm i at time t

Table 1: Variables and their measurements

Variable	Connotation	Measurements	Sourement
Dividend Payout Ratio	DPR	$\frac{\text{Dividend per share}}{\text{Earnings per share}}$	Harshapriya (2016) Mehmood, Ullah & Sabeeh (2019)
Dividend yield	DY	$\frac{\text{Dividend per share}}{\text{Average market price per share}}$	Zakaria et al. (2012) and Harshapriya (2016)
Dividend per share	DPS	$\frac{\text{Total dividend paid}}{\text{No.of ordinary shares outstanding}}$	Dissanayake (2016)
Sales growth	SG	$\frac{\text{Current year sales-Last year sales}}{\text{Last year sales}} \times 100$	Amidu & Absor (2006)
Leverage	LEV	$\frac{\text{Total Debt}}{\text{Total Assets}}$	Harshapriya (2016)
Exchange rate	EXR	The rate determined dollar value against Sri Lankan rupees (log value)	Alam & Rashid (2014)
Firm Size	FS	The market value of share * Total number of shares (Natural logarithm of Market capitalization)	Baskin(1989), Sharif, Purohit & Pillai (2015)
Earnings volatility	EV	The standard deviation of earnings per share over the previous five years	Baskin(1989)
Gross Domestic Product	GDP	Real domestic product of the country	Oskooe (2010), Singh, Mehat & Varsha (2011)
Share price volatility	SPV	$Share\ Price\ Volatility = \sqrt{\frac{(MPS\ h - MPS\ l)}{\left(\frac{MPS\ h + MPS\ l}{2}\right)^2}}$ $MPS\ h = Highest\ market\ price\ per\ share$ $MPS\ l = Lowest\ market\ price\ per\ share$	Baskin (1989)

Results and discussion

The following section represents the results and discussion of the present study. Initially, a brief description of the summary statistics on the variables considered in this study has been discussed. Following that, correlation analysis, test to measure variable inflation among the independent variables, and finally, panel data analysis have been discussed to identify the factors determining the share price volatility in Sri Lankan listed non-financial firms.

Descriptive statistics

Table 2 illustrates the descriptive statistics of the independent variables and the dependent variable of this study. This illustration is based on the information collected from the audited annual reports of 72 listed non-financial firms for the period from 2013 to 2017.

Table 2: Descriptive Statistics

Variables	Obs	Mean	St.Dev.	Minimum	Maximum
Dividend Payout	360	.5271	1.0967	-7.6272	11.3557
Dividend Yield	360	.0403	.0410	0	.4735
Dividend Per Share	360	5.1522	11.4525	0	79.6859
Sales Growth	360	6.8574	19.2777	-99.4560	79.9091
Leverage	360	.3695	.2199	.0099	.9702
Exchange Rate	360	2.1412	.0278	2.1109	2.1831
Firm Size	360	9.7693	.5923	8.2430	11.3517
Earnings Volatility	360	10.8846	3.6695	.127	15.8135
GDP	360	4.26	.7265	3.4	5
Share Price Volatility	360	.1116	.0860	0	.4665

As per the descriptive statistics presented in Table 2, the dividend payout ratio indicates a mean value of .5271 with a range from -7.6272 to 11.3557. Therefore the dividend payout ratio expresses high payouts in Sri Lankan nonlisted firms during the study period -and this finding is consistent with the prior study of Harshapriya (2015) in Sri Lanka. The mean value of the dividend yield reports that 0.04 with a minimum yield of 0 and the maximum yield of .4735. Further, the dividend per share of the Sri Lankan listed non-financial firms for the period from 2013 to 2017 indicates the mean value of 5.1522 rupees which is ranging from 0 to 79.6859. Therefore, we could realize the high deviations in the dividend per share to the shareholders during the study period. The average value of the sales growth during the study period is 6.8574, with the ranges from -99.4560 to 79.9091, which expresses the high standard deviation (SD = 19.2777). Anyhow, when we compare the dividend payouts with sales growth, it is relatively low. Averagely, Sri Lankan non-financial firms are using debt capital is 36.95 %. The exchange rate is ranging from 2.1109 to 2.1831 and no significant fluctuations in the exchange rate during the study period. Firm size has a mean value of 9.7693, with a range of 8.2430 to 11.3517. The standard deviation of the earnings per share is considered as earnings volatility. The mean value of the earnings volatility is quite high,

at 10.88. The average GDP of the country from 2013 to 2017 is 4.26. Share price volatility in listed non-financial firms in Sri Lanka has a mean value of .1116. This value indicates share price volatility in Sri Lanka is around 10%, which is ranging from 0 to .4665.

Correlation Analysis

Table 3: Correlations between dividend policy and share price volatility

	DPR	DY	DPS	SG	LEV	EXR	FS	EV	'	SPV
DPR	1.0000									
DY	0.4465*	1.0000								
	0.0000									
DPS	0.2039*	0.2620*	1.0000							
	0.0001	0.0000								
SG	-0.0091	0.1058*	0.0429	1.0000						
	0.8638	0.0450	0.4167							
LEV	-0.0236	0.0231	0.1803*	0.1697*	1.0000					
	0.6552	0.6626	0.0006	0.0012						
EXR	0.0021	0.0786	0.0990	0.0777	0.0428	1.0000				
	0.9680	0.1365	0.0605	0.1413	0.4187					
FS	0.0789	-0.0746	0.3481*	-0.0329	0.0184	0.0134	1.0000			
	0.1352	0.1580	0.0000	0.5335	0.7278	0.7997				
EV	0.0726	-0.0670	0.2092*	-0.0226	-0.1650*	-0.0152	0.2653*	1.0000		
	0.1694	0.2049	0.0001	0.6689	0.0017	0.7737	0.0000			
GDP	0.0183	-0.0292	-0.0190	-0.0437	-0.0212	-0.2916*	0.0327	0.0054	1.0000	
	0.7294	0.5809	0.7188	0.4081	0.6885	0.0000	0.5358	0.9183		
SPV	-0.1000	**0.1200***	**-0.3586***	0.0672	0.0929	-0.0782	**-0.3537***	**-0.3021***	0.0389	1.000
	0.0579	**0.0227**	**0.0000**	0.2036	0.0783	0.1387	**0.0000**	**0.0000**	0.4619	

The correlation analysis presented in Table 3 explains the association between independent variables and the dependent variable. As per the result given in table 3, even there is a negative association between dividend payout ratio and share price volatility that is not significant at a 5% level in this study ($r = -0.1000$, $p > 0.05$). Dividend per share ($r = -0.3586$, $p = 0.0000$), firm size ($r = -0.3537$, $p = 0.000$) and earnings volatility ($r = -0.3021$, $p = 0.000$) significantly negatively associated with share price volatility. This negative means that if the dividend per share, firm size and earnings volatility are high, share price volatility will be lower. Therefore, it can be concluded that there is a significant negative relationship between dividend per share, firm size, and earnings volatility with share price volatility. However, the dividend yield shows a significant positive

relationship with share price volatility (r = 0.1200, p = 0.0227) in this study. This positive explains that if the dividend yield is high, share price volatility will also be high. Even though, sales growth (r = 0.0672, p > 0.05), leverage (r = 0.0929, p > 0.05), exchange rate (r = -0.0782, p > 0.05) and GDP (r = 0.0389, p > 0.05) have not shown any significant relationship with share price volatility. As per this correlation output, share price volatility is not influenced by dividend payout, sales growth, leverage, exchange rate, and GDP.

Regression Analysis

Other researchers (such as Pratheepan & Banda,2016) suggest to estimate the panel regression model can go with Pooled Ordinary Least Square model, Fixed Effect model and Random Effect model to verify the firm effects, country effects, time effects, and other factors to determine the factors influencing share price volatility in Sri Lanka.

Pooled Ordinary Least Square Model

As per the model (1) developed in this study, it is hypothesized that there are no groups or individual effects between the non-financial firms considered as the sample in this study. Therefore, the pooled OLS model is performed to estimate the model (1), and results are presented in Table 4 below.

Table 4: Pooled regression analysis to identify the factors determining the share price volatility

Variable	Coefficient	Std.Error	t-Statistic	Prob.	(95% Conf. Interval)	
C	.7749	.3313	2.34	0.020	.1232	1.4265
Dividend payout	-.0086	.0040	-2.14	0.033	-.0165	-.0006
Dividend yield	.4814	.1125	4.28	0.000	.2600	.7027
Dividend per share	-.0024	.0003	-6.03	0.000	-.0032	-.0016
Sales growth	.0001	.0002	0.70	0.487	-.0002	.0005
Leverage	.0469	.0187	2.50	0.013	.0100	.0838
Exchange Rate	-.1911	.1479	-1.29	0.197	-.4820	.0997
Firm Size	-.0261	.0073	-3.57	0.000	-.0404	-.0117

Earnings volatility	-.0033	.0011	-2.96	0.003	-.0056	-.0011
GDP	.0040	.0056	0.72	0.473	-.0070	.0151
No.of observation	360				R^2	0.2800
F (9, 350)					Adj.R^2	
15.12				0.2615		
Prob > F					Root MSE	0
0.0000				.0739		

Table 4 illustrates that the adjusted R-squared is 26.15%. This value explains that the total variability in the share price volatility has been explained by the nine variables considered in this study, and the rest of the 73.85 % is not explained in model 1. Furthermore, F statistics (F (9,350) = 15.12, Prob > F = 0.000) shows the 1% level of significance, and then it is decided as a pooled OLS model is significant at 1% to explain the factors determine the share price volatility. From the table 4, we can come to know that the nine variables considered in this study, dividend payout ratio (β = -.0086, p < 0.05), dividend per share (β = -.0024, p < 0.05), firm size (β = -.0261, p < 0.05), earnings volatility (β = -.0033, p < 0.05) have significant negative influence on share price volatility. Thus, it can be concluded that there is a significant negative relationship between dividend payout, dividend per share, firm size, and earnings volatility with share price volatility. But, dividend yield has significant positive influence on share price volatility (β = .4814, p < 0.05)

Detecting multicollinearity problem

It is conducted the test for variable inflation factor to estimate the variable inflation among the independent variables considered in this study and the results are presented in Table 5. 'The VIF measures the extent the variance of the estimated regression coefficients are inflated as a result of being related to the other independent variables, and Tolerance is the amount of variability of the selected independent variables not explained by other independent variables' (Al-Shawawreh, 2014, p.140)

Table 5: Values of variable inflation factors

Variable	VIF	1/VIF(Tolerance)
Dividend yield	1.40	0.7148
Dividend per share	1.36	0.7328
Dividend Payout	1.29	0.7756
Firm size	1.23	0.8116
Earnings volatility	1.16	0.8608
Leverage	1.12	0.8949
Exchange rate	1.11	0.8991
GDP	1.10	0.9126
Sales growth	1.05	0.9523
Mean VIF	1.20	

Hair, Black, Babin, and Tatham (2006) explained that multicollinearity problem could be detected that any of the variables with a VIF value above ten or with a value below 0.10 of Tolerance would have a correlation of more than 0.90 with other variables, indicative of the Multi-co linearity problem. As per the results presented in table 5, VIF for all the independent variables considered in this study is ranging from 1.05 to 1.40, which are less than ten, and Tolerance for all independent variables are ranging from 0.7148 to 0.9523 which are higher than 0.10. Therefore, the results of the VIF test have not shown any issues in the present study.

Fixed Effect Model

In the fixed-effect model, it is assumed that the coefficients are changed among the units and time during the study period. Therefore, the model considers the individual effects of the firms as in fixed effect. Thus, if there is any unobserved heterogeneity, it will be deducted in the fixed effect estimation (Bayrakdaroglu, Ege & Yazci, 2013). Results of the fixed effect regression analysis are presented in the table 6.

Table 6: Fixed effect regression analysis to identify the factors determining the share price volatility

Variable	Coefficient	Std.Error	t-Statistic	Prob.	(95% Conf. Interval)	
C	1.2798	.2278	5.62	0.000	.8313	1.7284
Dividend payout	-.0029	.0023	-1.26	0.209	-.0075	.0016
Dividend yield	. 4160	.0880	4.73	0.000	.2427	.5893
Dividend per share	-.0010	.0005	-1.71	0.089	-.0021	.0001
Sales growth	-.0001	.0001	-1.05	0.294	-.0003	.0001
Leverage	.0043	.0310	0.14	0.889	-.0567	.0653

Exchange Rate	-.1964	.0767	-2.56	0.011	-.3474	-.0454
Firm Size	-.0735	.0166	-4.40	0.000	-.1064	-.0406
Earnings volatility	-.0055	.0055	-1.00	0.316	-.0164	.0053
GDP	.0048	.0028	1.71	0.089	-.0007	.0105
No.of observation 360		R^2 within	.1760		Sigma_u = .07242	
F (9, 279) 6.62		R^2 between .2310			Sigma_e = .0369	
Prob > F 0.0000		R^2 overall	.2176		rho = .7935	
F test that all u_i = 0: 0.0000		F (71,279) = 15.85			Prob > F =	

As per the results presented in table 6, overall R -squared value = .2176 illustrates that around 22% of the total variability of share price volatility is explained by all nine variables included in the fixed-effect model. The value of F (9,279) = 6.62 is at a 1% level of significance, which explains the model is goodness fit. The rho value of .7935 reveals that 79.35 % of the variances have been explained because of the differences across panels. Out of the nine variables considered in the study, only three variables have shown a significant relationship with share price volatility. The dividend yield is significantly, positively (β = .4160, $p < 0.01$), influenced on share price volatility; therefore, it can be concluded that there is a significant positive relationship between dividend yield and share price volatility. Even though, exchange rate (β = -.1964 $p < 0.05$) and firm size (β = -.0735, $p < 0.01$) are negatively and significantly influenced share price volatility. The rest of the variables have not shown any significant relationship with share price volatility.

The objective of this study is to identify the factors determining the share price volatility in Sri Lankan listed non-financial firms. Therefore, it is estimated with the pooled OLS and fixed-effect model, and both models are significant to explain the impact. Both models are compared to evaluate which model is most suitable to identify the factors determining the share price volatility. Results of the F test indicated that the significant value of 0.0000 and then it is decided that fixed effect model is more suitable to identify the factors.

Random effect regression analysis

It is assumed that constant coefficients are between the units considered in this study and which do not differ. Therefore, the constant is to be estimated randomly in order to get unconsidered variables in this study

thorough a random effect model (Bayrakdaroglu, Ege & Yazci, 2013). Results of the random effect regression analysis are presented in table 7.

Random Effect Regression is to identify the factors influencing share price volatility.

Table 7: Random effect GLS regression analysis to identify the factors determining the share price volatility

Variable	Coefficient	Std.Error	t-Statistic	Prob.	(95% Conf. Interval)	
C	1.0142	.1945	5.21	0.000	.6329	1.3955
Dividend payout	-.0032	.0023	-1.39	0.164	-.0078	.0013
Dividend yield	. 4367	.0819	5.33	0.000	.2760	.5974
Dividend per share	-.0014	.0004	-3.01	0.003	-.0023	-.0004
Sales growth	-.0001	.0001	-0.77	0.443	-.0003	.0001
Leverage	.0220	.0244	0.91	0.365	-.0257	.0699
Exchange Rate	-.1998	.0760	-2.63	0.009	-.3488	-.0508
Firm Size	-.0476	.0111	-4.26	0.000	-.0695	-.0256
Earnings volatility	-.0040	.0020	-1.93	0.053	-.0080	.0001
GDP	.0041	.0028	1.47	0.142	-.0013	.0097
No.of observation 360		R^2 within	0.1673		Sigma_u = .0649	
Wald chi2 (9) 80.95		R^2 between 0.2661			Sigma_e = .0369	
Prob > chi2 0.0000		R^2 overall	0.2481		rho = .7556	

According to the random effect model presented in the table 7, dividend yield (β = .4367 p < 0.05), dividend per share (β = -.0014 p < 0.05), Exchange rate (β = -.1998 p < 0.05) and firm size (β = -.0476 p < 0.05) have significant influence on share price volatility. Even though, dividend payout (β = -.0032 p > 0.05), sales growth (β = -.0001 p > 0.05), leverage (β =.0220 p > 0.05), earnings volatility (β = -.0040 p > 0.05) and GDP (β = .0041 p > 0.05) have not shown any significant influence on share price volatility in this model.

Table 8: Breusch and Pegan Lagrangian Multiplier test for random effects

Estimated results	Var	Sd = sqrt(var)
Share price volatility	.0074	.0860
e	.0014	.0369
u	.0042	.0649

Test: Var(u) = 0

chibar2(01) = 379.14
Prob > chibar2 = 0.0000

Breusch and Pegan Lagrangian Multiplier test is performed to evaluate whether the pooled OLS or random effect model to explain the factors determining the share price volatility in Sri Lanka. It was hypothesized that H_0 = Pooled effect exists an alternative was H_1 = random effect is exists. Results of the Breusch and Pegan Lagrangian Multiplier indicated that Prob > chibar2 = 0.0000 and the null hypothesis is rejected, and the alternative hypothesis accepted that random effect exists in the empirical analysis.

Hausman Specification Test

In order to establish a suitable model that which of the alternative panel, the model is most appropriate to explain the factors determining the share price volatility in Sri Lankan companies, Hausman specification test was performed, and output is presented in table 8. It was hypothesized that H_0 = random effects exist, and alternative declared that H_1= random effect does not exist.

Table 9: Hausman specification test

Variable	Fixed (b)	Random (B)	Difference (b-B)	Sqrt (diag(v_b-v_B)
Dividend payout	-.0029	-.0032	.0003	.0002
Dividend yield	. 4160	. 4367	-.0207	.0321
Dividend per share	-.0010	-.0014	.0004	.0003
Sales growth	-.0001	-.0001	-.0000	8.8400
Leverage	.0043	.0220	-.0177	.0191
Exchange Rate	-.1964	-.1998	.0034	.0102
Firm Size	-.0735	-.0476	-.0259	.0124
Earnings volatility	-.0055	-.0040	-.0015	.0051
GDP	.0048	.0041	.0007	.0002
Chi2 (9) = (b-B)'[(v_b-v_B) ^ (-1)](b-B)= 18.19				
Prob>chi2 = 0.0331				

As per the Hausman test (Prob>chi2 = 0.0331), the null hypothesis is rejected that the fixed effect model exists to explain the factors determining the share price volatility. Therefore, the fixed-effect model is explained further.

Robust Standard Error

Table 10: Robust standard error

Variable	Coefficient	Robust Std.Error	t-Statistic	Prob.	(95% Conf. Interval)	
C	1.2798	.2331	5.49	.000	.8149	1.7447
Dividend payout	-.0029	.0027	-1.07	.287	-.0084	.0025
Dividend yield	. 4160	.1569	2.65	.010	.1030	.7289
Dividend per share	-.0010	.0005	-1.72	.090	-.0021	.0001
Sales growth	-.0001	.0001	-0.87	.390	-.0004	.0001
Leverage	.0043	.0248	0.17	.862	-.0452	.0539
Exchange Rate	-.1964	.0729	-2.69	.009	-.3418	-.0511
Firm Size	-.0735	.0167	-4.40	.000	-.1068	-.0402
Earnings volatility	-.0055	.0032	-1.69	.095	-.0121	.0009
GDP	.0048	.0023	2.07	.042	.0001	.0095
No.of observation 360		R^2 within	.1760		Sigma_u = .07242	
F (9, 71) 4.00		R^2 between .2310			Sigma_e = .0369	
Prob > F 0.0004		R^2 overall	.2176		rho = .7935	

When we are looking at the heteroskedasticity problem in the fixed-effect model, results provide the same set of coefficients and also a very similar set of p values. Therefore, results clearly state that even though the model is affected by heteroskedasticity, it does not impact on the empirical results observed. In addition to the robust standard error test presented in table 10, cluster robust standard error was observed to control for unknown heteroskedasticity within the panel autocorrelations. Results of the cluster robust standard error are presented in table 11 below. As per the results presented in table 11, the level of significance of the explanatory variables exhibited to influence the share price volatility is similar in the fixed effect model and the cluster robust standard error.

Table 11: Cluster Robust standard error

Variable	Coefficient	Robust Std.Error	t-Statistic	Prob.	(95% Conf. Interval)	
C	1.2798	.2331	5.49	.000	.8149	1.7447
Dividend payout	-.0029	.0027	-1.07	.287	-.0084	.0025
Dividend yield	. 4160	.1569	2.65	.010	.1030	.7289
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Sales growth	-.0001	.0001	-0.87	.390	-.0004	.0001

Leverage	.0043	.0248	0.17	.862	-.0452	.0539
Exchange Rate	-.1964	.0729	-2.69	.009	-.3418	-.0511
Firm Size	-.0735	.0167	-4.40	.000	-.1068	-.0402
Earnings volatility	-.0055	.0032	-1.69	.095	-.0121	.0009
GDP	.0048	.0023	2.07	.042	.0001	.0095
No.of observation 360		R^2 within	.1760		Sigma_u = .07242	
F (9, 71) 4.00		R^2 between .2310			Sigma_e = .0369	
Prob > F 0.0004		R^2 overall	.2176		rho = .7935	

HYPOTHESES TESTING

By performing different panel data analyses, the fixed-effect model is considered as the most appropriate model to explain the factors determining the share price volatility. According to the fixed-effect model, dividend payout does not influence the share price volatility in this study. Therefore, the H1 is not supported, there is no significant influence of dividend payout on share price volatility. A similar finding was revealed by Mehmood, Ullah, and Sabeeh (2019), even though Nguyen, Bui, and Do (2019) found that there is a significant relationship between dividend payout and share price volatility.

Secondly, the dividend yield is significantly positively related to share price volatility, and then H_2 is supported by the data of the study. The outcome of this study is consistent with the results of Al-Shawawreh (2014). However, it is contradicted with the results of Gunarathne et al. (2015) as they have found that there is no significant relationship between dividend yield and share price volatility.

Dividend per share does significantly negatively influence the share price volatility. Therefore, H_3 is supported with the results of the study that there is a significant influence of dividend per share on share price volatility. This finding is contradicted with the results of Dissanayake (2016) as he has not found any significant relationship between dividend per share and share price volatility.

H_4 and H_5 are not supported by the data of the study that sales growth and leverage have not shown any significant influence on share price volatility in this study. These results are contradicted with the results

of Handayani et al. (2019) because they have found that sales growth has a significant positive effect on share price volatility.

H_6 and H_7 are supported by the data of the study that the exchange rate and firm size have a significant negative effect on share price volatility. Similar findings were observed by Ali and Waheed (2017) that there is a significant negative relationship between firm size and share price volatility. This finding is contradicted with the results of Dewasiri and Weerakoon (2015) as they have found a significant positive relationship between firm size and share price volatility.

H_8 and H_9 are also not supported by the data of the study that there is no significant relationship of earnings volatility and GDP with share price volatility in Sri Lankan listed non-financial firms. But Ganavi (2018) found a significant effect of GDP on share price volatility.

CONCLUSION

Purpose of the study is to examine the factors determining the share price volatility of 72 non financial firms listed on CSE for the period from 2013 to 2017. Panel data analysis is performed to examine the factors determining the share price volatility, and the fixed effect model is identified as the best model to explain in this empirical study. There is a significant positive relationship between dividend yield and share price volatility. However, dividend per share, earnings volatility, and firm size significantly negatively related to share price volatility. However, dividend payout, sales growth, firm leverage, earnings volatility, and GDP have not shown any significant influence on share price volatility. It is suggested to future research, which can be extended with all the sectors in the Colombo Stock Exchange and to other Asian region markets.

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