

THE RELATIONSHIP BETWEEN THE MACROECONOMIC VARIABLES AND THE DIVIDEND PAYOUT RATIO, OF THE TEXTILE SECTOR LISTED ON THE PAKISTAN STOCK MARKET

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Abstract. *This study empirically investigate to find the relationship of the interest rate, inflation rate, exchange rate, GDP growth rate and the unemployment rate with the dividend payout ratio by using annual time series data started from 2001 to 2017. The macroeconomic variables data was collected from State Bank of Pakistan and the dividend payout ratio data of Textile Sector listed on the Pakistan Stock Exchange was collected from the official website of the companies. For analysis of the data the OLS model was applied of which the multiple regression models were applied. Before applying the OLS model the preliminary test was applied. The result of the OLS model shows that there is a positive relationship between the exchange rate and the unemployment and negative relationship between the interest rate, inflation rate and the GDP growth rate with the dividend payout ratio.*

Key words: Inflation rate, interest rate, exchange rate, GDP growth rate, unemployment rate, dividend payout ratio.

Introduction

The financial policy of a country affects the overall performance of the companies. The microeconomic variables are in the control of the economy and the macroeconomic variables are beyond the control of the economy. The economy depend on the macroeconomic variables and the most important macroeconomic variables are the interest rate, the exchange rate, the inflation rate, the GDP growth rate and the unemployment rate. This study examines the performance of the firm in the context of the macroeconomic variables. The performance of the economy depends upon the macroeconomic variables. The macroeconomic variables attract the attention of the researcher from the decades. The dividend payout ratio shows the overall performance of the firms. The financial health of the company depends on the dividend that a company should pay to the shareholders against their percent of shares. Sometimes, in the financial crisis the company issue bonus to the shareholders instead of

issuing the dividend. The macroeconomic variables play an important role in the economy of a nation. There are different macroeconomic variables which effect the economy, but there are four variables which effect the whole economy. The most important and the crucial variable which effect the economy is the inflation rate. The inflation rate has a direct relationship with the interest rate. If the inflation rate increase the interest rate decrease and the investor should there idle fund in the stock market. The Inflation shows the government management of the economy as well as it provides evidence on the stability of the local currency. Countries with high inflation are associated with high uncertainty (Demirgüç-Kunt & Maksimovic, 1996). The whole economy of the country is affected by the interest rate, when the interest rate increases the investor will deposit their funds in the banks. The policy of the interest rate is set by the State Bank of the country. As interest rate increases, firms are less willing to finance new investments due to increase in the cost of borrowing. Bartholdy and Mateus (2008), the exchange rate shows that how the currency of a country can be exchanged for another currency. The *exchange rate* between two countries is the price at which residents of those countries trade with each other (Moseley, 2012). The GDP growth rate represents the market value of all the goods and services produced within the boundary of a country in a specified period of time. When the real economic activity of the economy increases, it leads to increase the corporate earning of the different companies, which ultimately leads to increase the dividend payout ratio (Ghafoor, Khan, Shah, & Khan, 2014). According to Mahmood and Carter (2012) GDP is a measure of the economic growth. According to the (Jan, Owais, & Khan, 2014) GDP is used to show the overall performance of the country and it has a negative relationship with financial leverage. The higher GDP growth rate attract the investor in order to invest their fund in that economy, and which in turn leads to the venture fund (Gompers & Lerner, 1998). The gross domestic product growth rate of the economy is a measure of the growth opportunities available to firms in the economy. For an individual firm level, the growth rate is a proxy for the investment opportunity set faced by firms (Smith Jr & Watts, 1992). The unemployment is the international problem. Simply unemployment means the people do not have a job. According to the resolution of international labor organization 1982, one can be called unemployed if he or she without work, he she available for work and seeking for work. The unemployment rate is high when the economy is in recession. The wages of the labor low when unemployment is in peak. The dividend payout ratio show the company paid to the shareholders against their share. The dividend payout ratio is defined as the ratio between the cash dividend that the after-tax cash flow, not the after tax earnings of the companies (Gill, Biger, & Tibrewala, 2010).

The studies found on to find the impact of the interest rate, the inflation rate, the exchange rate and found their relationship with the dividend payout ratio. There is no such study found to find the relationship of the macroeconomic variables such as the interest rate, the inflation rate, the exchange rate, the GDP growth rate and the unemployment rate on the dividend payout ratio. The study select the Textile Sector because the Textile sector in Pakistan has 8.5% contribution towards GDP, 45% contribution towards the labor force and is the 4th largest cotton producer in Asia. The Textile Sector has 57% revenue in Pakistan of the Total export.

Literature Review

Singh, Mehta and Varsha (2011), the authors pinpoint the macroeconomic variables and find their impact on the stock return from Taiwan. The authors concluded that the macroeconomic variables such as the inflation rate, interest rate, exchange rate, GDP and the employment rate has a significant effect on the stock return. From the analysis the authors concluded that the GDP and the employment rate have a positive relationship and the inflation rate, the interest rate and the exchange rate has a negative relationship with the stock return. The scholars investigated that do the interest rate, exchange rate affect the stock return. The study covered the period of the data from the 1998-2009. For the analysis of the data the multiple regression models was used. From the analysis it has been concluded that the interest rate and the exchange rate has a significant impact on the stock return (Ahmad, Rehman, & Raof, 2010).

Gay, Jr (2008), the scholars reveal the effect of the macroeconomic variables on the stock return evidence from the Bangladesh. The study covered the period from 2001 to 2010. A simple multiple regression model was used for the analysis. From the analysis the authors concluded that the macroeconomic variables such as the inflation, interest rate, exchange rate, GDP growth rate and the money supply has no relation with the stock return. The authors also that the stock returns has no sensitive relation with the macroeconomic variables.

The authors studied the dividend policy in an inflationary environment. The authors collected the data from 88 companies. The statistical model was applied for the analysis of the data. From the analysis the authors concluded that the dividend payout has an impact on the share prices in an inflationary environment and the currency should valueless in the hyperinflation (Tinashe, 2014). Kyereboah-Coleman and Agyire-Tettey (2008), the authors pinpoint the impact of macroeconomic indicators on stock market performance. The study covered the period from 1991 to 2005. For the analysis of the data the co-integration and error correction model was applied. From the analysis of the

data the authors concluded that there is a negative relationship of the inflation rate with the stock market performance and the deposit money has adverse effect on the stock market performance.

The scholars investigated the inflation and the dividend payout policy. The authors examine the relationship between the dividend corporate earnings, real growth and the inflation. For the analysis of the data the co-integration test was applied. The authors concluded that the has a positive effect on the dividend payout ratios (Basse & Reddemann, 2011).

Fu and Lin (2012) the scholars studied the interest rate, the unemployment rate and the China exchange rate regime. The study covered period from 2001 to 2009. For the analysis of the data the co-integration test and the Unit root test was used. The authors concluded from his study that there is no correlation between the unemployment and the exchange rate and there is relation between the inflation and the exchange rate. The scholars pinpoint the determinants of capital structure in the developing countries. The authors used five macroeconomic variables and five developing countries of 5 regions and the data was taken from the World Bank. From the analysis of the study it should concluded that the short term debt, tangibility, profitability, inflation and the interest rate are negatively related with the leverage. The long term debt and the GDP were positively related with the leverage of the firm (Bas, Muradoglu, & Phylaktis, 2009).

Elly and Hellen (2013) the authors investigated relationship between the inflation and the dividend payout ratio for the firm listed on the Nairobi Stock Exchange. The study covered the period from 2002 to 2011. The authors collected the data from the Nairobi Stock Exchange. From the analysis of the data the authors concluded that the inflation has a positive relationship with the dividend payout ratio. The scholars studied the determinant of the dividend payout ratio. The scholars analyzed the dividend payout ratio for 50 companies in 2009. From the analysis of the data the authors concluded that the debt to equity ratio, profitability, market to book value ratio, the current ratio and corporate tax has a positive relationship with dividend payout ratio and operating cash flow per share and market to book value has negative relationship with the dividend payout ratio (Rehman & Takumi, 2012). Scholars investigated the impact of macroeconomic variables on the dividend payout ratio: evidence from the textile sector listed on the Pakistan Stock Market. The authors collected data from the State Bank of Pakistan and the official website of the companies. For the analysis of the data the OLS model was used. The authors concluded from his result that the inflation rate has a negative impact on the dividend payout ratios and the interest rate and the exchange rate has a positive relationship with the dividend payout ratios.

Data and Methodology

Data description

This study finds the relationship between the macroeconomic variables such as the inflation rate, the interest rate, the exchange rate, unemployment rate and the GDP growth rate on the dividend payout ratio. The data is secondary data and covered the period from 2001 to 2017. The textile sector which is listed on the Pakistan Stock Exchange, selected on the basis of the stratified random sampling and of which Twenty five companies has been selected. The Textile Sector is selected because it has greater contribution to the economy of Pakistan. The textile sector is selected because it has 8.5% contribution towards GDP, 45% to the labor employed, 4th largest producer of the cotton in the world and third largest producer in Asia. The macroeconomic variable data has been taken from the State Bank of Pakistan and the dividend payout ratio data has been collected from the official website of the company.

Methodology

This study aims to find out the relationship between the dividend payout ratio and the macroeconomic variables. For the analysis the OLS model of which the Least Square Methods is used. The Least Square Methods will be used because there is time series data and the OLS is the most important of all the regression model. Before applying the OLS model other Test should also be used of which the first is the stationarity of the data will be checked through the Augmented Dickey Fuller test, the multicollinearity will be checked through Breusch-Godfrey Serial Correlation LM Test, the normality will be checked through the Jerque Berra Statistics and the Heteroscedasticity is checked through the Breusch Pagan-Godfrey test.

Regression equation

The main objective of the study is to find the relationship between the macroeconomic variables and the dividend payout ratio, of the Textile Sector listed on the Pakistan Stock Market. The regression equation of this study is following.

$$DP_t = \alpha_t + \beta_1 INF_t + \beta_2 INT_t + \beta_3 EXR_t + GDP_t + UN_t + \varepsilon_t$$

Where as

t = Times Series

DP = Dividend payout ratio

INF = Annual Inflation rate

INT = Annual Interest rate

EXR = Annual Exchange rate of a currency.

GDP = Gross domestic product

UN = Unemployment rate; ε_t = Error term

Empirical evidence

Before applying any model first of all the statistical analysis should be applied. The data of the study consist of the 17 years started from the 2001 to 2017.8. The statistical of the variables shown in the table 1

Table 1 *Descriptive Statistics*

Statistics Name	DIV	INT	INF	ER	GDP	UR
Mean	1.17	0.13	0.08	79.29	4.42	0.07
Median	1.40	0.10	0.08	81.48	4.05	0.06
Maximum	2.00	0.64	0.17	104.98	7.70	0.08
Minimum	0.00	0.06	0.03	57.88	0.36	0.05
Std. Dev.	0.67	0.13	0.04	18.76	1.80	0.01
Skewness	-0.65	3.50	0.68	0.13	-0.14	0.49
Kurtosis	2.37	13.91	2.70	1.34	3.24	1.88
Jarque-Bera	1.46	119.05	1.37	2.01	0.10	1.58
Probability	0.48	0.00	0.50	0.37	0.95	0.45
Sum	19.85	2.28	1.33	1,347.94	75.13	1.11
Sum Sq. Dev.	7.16	0.28	0.03	5,629.30	52.03	0.00
Observations	17	17	17	17	17	17

The table 1 explain that the average of the dividend payout ratio (DIV) is 1.17 with a standard deviation 0.67, the average of the interest rate (INT) rate is 0.13 with the average of 0.13, the average of the inflation rate (INF) is 0.08 with the standard deviation 0.04, the average of the Exchange rate (ER) is 79.29 with the S.D is 18.76, the average of the GDP growth rate is 4.42 and the S.D is 1.80 and the average of the unemployment rate is 0.07 with the S.D is 0.01.all the variables of the model are positively skewed, except the dividend payout ratio and GDP growth rate. Furthermore Kurtosis of the dataset shows that all the given variables are at high peak except the exchange rate and the unemployment rate. The probability of the Jerque Berra statistics confirm that the probability is greater than 5%.Therefore all the variables are normally distributed.

There are some other preliminary tests which should be carried out before applying the OLS. The most important of this is the Unit root test. The unit root test shows the stationarity of the data. The stationarity of the data should be checked through the ADF.

Table 2 *Group Unit Root Test*

Method	Statistics	Prob**	Cross section	Obs.	Conclusion
ADF - Fisher Chi-square	21.40	0.04	6	91	Unit Root Test

In the above table 2, the result of the ADF 0.044 which is less than 5%, reveal that there is no stationarity in the data and all the variables are at leveled stationary.

Table 3 *Heteroscedasticity Test: Breusch-Pagan-Godfrey*

F-statistic	1.19	Prob. F(5,11)	0.37	Conclusion
Obs*R-squared	5.99	Prob. Chi-Square(5)	0.30	Heteroscedasticity

Table 3 shows values of Heteroscedasticity. The Heteroscedasticity is checked through the Breusch Pagan-Godfrey test. The result of the heteroscedasticity 0.75 which is greater than the 5%, and the result shows that there is no heteroscedasticity in the data.

Table 4 *Breusch-Godfrey Serial Correlation LM Test:*

F-statistic	0.015	Prob. F(2,9)	0.9848	Conclusion
Obs*R-squared	0.054	Prob. Chi-Square(2)	0.9716	Serial Correlation

Testing for serial correlation is found almost in the time series data. Figure 1 shows the autocorrelation of the data. The autocorrelation is checked Breusch-Godfrey Serial Correlation LM Test. The result of the serial correlation 0.042 reveals that there is no serial correlation or autocorrelation in the data. The result of the data is shown in the table 3.

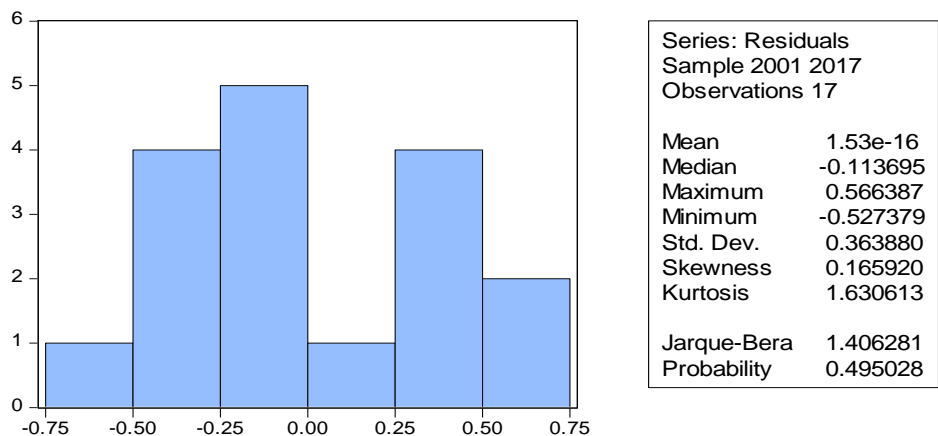


Figure 1 Normality

The function which should almost found in the time series data is the function of the normality. The normality of the data is checked through the Jerque Berra Statistics. The result of the Jerque Berra statistics 0.42 and the probability 0.80 which is greater than 5% and hence the result shows that there is no normality found in the data.

The multicollinearity is checked through the correlelogram and there is multicollinearity found in the data.

Table 5 *Least Squares Methods*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Interest Rate	-0.37	0.90	-0.41	0.68
Inflation Rate	-3.22	3.95	-0.81	0.43
Exchange Rate	0.02	0.007	3.64	0.00
GDP growth rate	-0.01	0.07	-0.21	0.83
Unemployment rate	43.10	15.89	2.71	0.02
C	-3.41	1.74	-1.95	0.07
R-squared		0.70		
Adjusted R-squared		0.56		
F-statistic		5.23		
Prob (F-statistic)		0.01		
Durbin-Watson stat		1.78		

DV: Dividend; Method: Least Squares; Included observations: 85

Table 5 illustrates the least square regression model. The coefficient of interest rate, inflation rate and GDP growth rate illustrate that there is a negative relationship between the inflation and the dividend payout ratio and is statistically insignificant. The interest rate illustrate that on every one percent increase in the interest rate the dividend payout ratio decrease -3.7% the inflation rate illustrate that on every one percent increase in the inflation rate the dividend payout ratio decrease -3.22% and the coefficient of the exchange rate illustrate that when the GDP of the country increase the dividend payout ratio decrease -0.015%. The two variables the exchange rate and the unemployment rate illustrate the positive (Singh et al., 2011) relationship between the dividend payout ratio and the stated variables and is statistically significant. The coefficient of the exchange rate illustrate that when the Pakistan currency appreciate the dividend payout ratio increase 0.02% and the coefficient of the unemployment illustrate that when the unemployment increase the dividend payout ratio increase 43.10%. The adjusted R-squared explains the variation in the model, the value of the adjusted R-squared explains that 59% variation in the dividend payout ratio is caused by interest rate, inflation rate, exchange rate, GDP growth rate and the unemployment rate.

The overall explanatory power of the model is tested through the ANOVA and the result of the ANOVA explains that there are more chances to reject the null hypothesis and accept the alternative hypothesis.

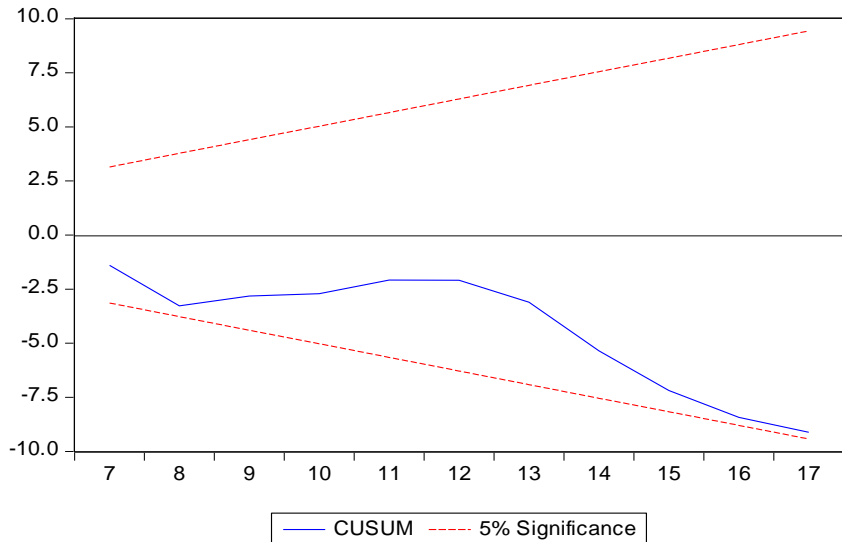


Figure 2 CUSUM model stability test

The table 8 illustrates the model stability. The stability of the model is checked through the CUSUM statistics and shows that the residual are in the red extreme and the model is stable.

Conclusion

This study empirically investigates the relationship between the macroeconomic variables and the dividend payout ratios. The target sample of this study is the Textile Sector listed on the Pakistan Stock Market. The study covered the period from 2001 to 2017. The finding of the study illustrate that there is a correlation between the dividend payout ratio and the macroeconomic variables and the dividend payout ratio. the ADF shows that all the variables are at leveled stationary, the Jerque Berra statistics illustrate that there is no normality function in the data, Breusch-Godfrey Serial Correlation LM Test illustrate that there is no autocorrelation in the data, the Test Breusch-Pagan-Godfrey illustrate that there is no Heteroscedasticity function in the data and the co-integration in the data was checked through Johanson Co-integration. The relationship checked through OLS. Form the analysis it should be concluded that there is positive as well as negative relationship between the variables. The coefficient of the interest rate, inflation rate and the GDP growth

rate illustrate that there is negative relationship between the variables and is statistically insignificant. The coefficient of the exchange rate and the unemployment illustrate that there is positive relationship with the dividend payout ratio and is statistically significant. The overall explanatory power of the stated model is checked and it shows that there is more chance to accept the alternative hypothesis and reject the null hypothesis.

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