

Determinants of Firm Value in Shariah Compliant Companies

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Abstract

This study explores the determinants of firm value in Shariah-compliant firms listed on the Pakistan Stock Exchange (PSX). The dataset covers the period from 2009 to 2016 for firms listed on the KMI-30 index. We used three different proxies for firm value, i.e., Tobin's Q, market-value-to-book value ratio, and log of the market price of shares. Based on regression analysis, we have concluded that firm value significantly and positively influences dividend per share and fixed asset turnover in all model specifications. Further, both the debt ratio and firm size substantially and negatively impact firm value. However, both dividend payout and dividend yield have an insignificant effect on firm value. The mixed results partially support the dividend relevance theories, which imply that the dividend payments influence firm value. Moreover, the results also support the view that a firm's size and its efficiency in utilizing assets influence its valuation. The results are broadly consistent with previous research on the determinants of firm value. The study will facilitate policymakers in developing suitable policies for regulating Shariah-compliant instruments. Likewise, investors looking for Halal returns on their investments may also gain valuable insights about the determinants of firm value in Shariah-compliant organizations.

Keywords: *Firm value, Tobin's Q, market-to-book-value ratio, dividend policy, dividend payout, dividend yield, debt ratio, fixed asset turnover, firm size, Pakistan Stock Exchange (PSX).*

Introduction

Firm value, also commonly known as enterprise value, is a measure of the financial worth of a business entity at a specific time (Subanidja, Rajasa, Suharto & Atmanto, 2016). In the modern era, business entities compete to dominate the market for a product or service, while financial managers continuously strive with complicated investing and financing decisions that maximize firm value. Firm value is not simple to maximize, as it is dependent upon numerous factors that are beyond the direct control of the management. These

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determinants of firm value are driven by several macroeconomic factors and are not firm-specific (Saona & San-Martín, 2018). Prominent macroeconomic factors that influence firm value include inflation, interest rate, exchange rates, and economic growth rate. Therefore, in any given economic scenario, financial managers concentrate on maximizing firm value by effectively managing their firm-specific determinants.

Prior research on the topic suggests that firm value is determined by, among other things, dividend policy, capital structure, corporate governance practices, and ownership concentration (Saona & San-Martín, 2016). However, past studies on the determinants of firm value do not provide much evidence in the context of Shariah-compliant companies in developing South Asian countries. Shariah-compliant companies are businesses whose operations and financial structure comply with the conventional Islamic guidelines and teachings (Azmat, Skully & Brown, 2014). Pakistan is an Islamic country; therefore, Shariah-compliant companies are growing steadily as many investors and members of the general public prefer to associate with such business entities as compared to conventional ones. Thus, the study “analyzes the determinants of firm value in Shariah-compliant firms listed on the Pakistan Stock Exchange (PSX).” Given the importance of firm-specific determinants, the research focusses on how dividend attributes, efficiency ratios, debt level, and firm size influence the firm value of large shariah-compliant listed firms in Pakistan.

Literature Review

Firm Value

The market value of firms plays an essential role in investment decisions. As a consequence, all firms aim to make investing and financing choices that maximize firm value. A firm value not only reflects the success achieved by an organization, but it is also an indicator of future growth opportunities. Anton (2016) analyzed Romanian listed companies to explore the impact of dividend policy on firm value. The results suggest that investors in Romania prefer firms that tend to pay high dividends. Similarly, Tewelde (2005) investigates how capital structure, investment decisions, and profits affect the value of a firm. The study concludes that investing and financing decisions affect firm value, while dividend policy had a more substantial impact on firm value as compared to retained earnings. Further, it is argued that firm value depends on leverage, and high leverage may lead to a higher market valuation (Ross, 1977; Adesola & Okwong, 2009).

Conventionally, firm value is calculated as the present value of future cash flows discounted at the weighted average cost of capital. Therefore, the firm value will be significantly influenced by any firm-specific or market attribute that affects the future cash flows and the weighted average cost of capital of a firm. Further, Rehman (2016) investigated the effect

of capital structure and dividend policy on the firm value of KSE listed firms. The results suggest that capital structure has a significant impact on firm value. It is also argued that investors in Pakistan focus mainly on the earning per share while appraising a company's past performance. Similar findings in the Pakistani context have also been reported by Sheikh and Wang (2011), Smith (1990), Ellili and Farouk (2011). On the contrary, the role of various financial ratios on firm value was assessed by Bhullar (2017). The study reports that financial performance, especially efficiency ratios, is a crucial determinant of firm value.

Dividend Attributes and the Value of Firms

The dividend irrelevance theory proposed by Miller & Modigliani (1961), suggests that a firm's dividend policy is not an essential determinant of the value of firms and their stock market prices. Instead, the theory assumes that factors such as investment decisions and future opportunities available to a firm contribute to the firm value. Therefore, firms that have the right investment decisions and have sound future opportunities will have high firm value and vice versa. Black and Scholes (1974) also suggested a similar belief about firm value, which is that dividend payments are irrelevant for firm value. In other words, the theory suggests that shareholder wealth is unaffected by dividend payments of a firm. Many researchers have empirically validated the dividend irrelevance theory.

Although dividend attributes and value of firms are positively linked, many researchers believe that under certain assumptions, this relationship may not be valid (Miller & Modigliani, 1961). For example, if the investors have not sufficient knowledge of this phenomenon, and they based their decision on irrational assumptions. Theoretically, a firm's value also depends on past evidence and expected future trends. Many studies based on empirical evidence found that this does not happen all the time as other factors also contribute to the value of firms (Denis & Osobov, 2008). Several studies have validated this phenomenon. For example, a survey of listed firms in the New York Stock Exchange (1931 to 1966) concluded that a firm's dividend is not a significant predictor of firms' market value (Black & Scholes, 1974). Grauer and Hakansson (1993) suggest that investors do not derive any benefit from the information related to the stocks, especially if they have homogeneous beliefs and the market is efficient. Some studies have supported the theory and its claims about the irrelevance of dividends for firm value (McGowan, 2005; Chen, Firth & Gao, 2002).

Despite the intuitive appeal of the Miller and Modigliani (1961) dividend irrelevance theory, many eminent academicians believe that a critical antecedent to firm value is dividend policy. Gordon (1962) supports the view that dividends have several positive effects on firm performance, including enhanced market value. In a similar context, Ogden (1994) investigates NYSE listed stocks and found that firms that provide a decent dividend payout will experience high returns for several days. Several other studies also find evidence that

supports the relevance of dividends for firm value. Jose and Stevens (1989) examined the dividend policies of many organizations and argued that their different dividend policies have a significant influence on firm value. Similarly, Kato, Loewenstein, and Tsay (2002) analyze the cash-flow hypothesis in several Japanese organizations. The study found that dividends reflect an organization's cash flow pattern and future earnings. It also suggests that liquidity affects the investment decisions of non-keiretsu firms differently as compared to keiretsu firms.

Efficiency Ratios and Firm Values

Many studies, for decades, have focused on the impact of efficiency ratios on firm value (Baik et al., 2013; Alm & Sicklest, 1998). Past studies have also measured firms' efficiency based on technical excellence, productivity, and profitability (Soliman, 2008). The literature on efficiency ratios and firm value are available in the manufacturing, insurance, and banking sectors (Becchetti & Sierra, 2003; Gaganis, Hasan & Pasiouras, 2013). In determining firm value, investors give importance to efficiency ratios, cash flow, income statements, and balance sheets, as they reflect the real value of a firm (Baik et al., 2013; Alam sickles, 1998).

Both the shareholders, as well as creditors, have the right to the firm's assets. Therefore, when a firm liquidates, the creditors' claims on the assets have priority over the shareholders (Gaganis, Hasan & Pasiouras, 2013). Thus, a firm value "is equal to the total of the firm's net financial debt (after liquid assets and stocks are decreased) and values of the share" (Chambers & Dimson, 2009). Many researchers have also examined the effectiveness of the firms based on (technical efficiency, productive efficiency, profit efficiency, and X-efficiency). The studies on efficiency and firm value have used different methodologies, "including financial analysis, data envelopment, and stochastic frontier analysis" (Gaganis, Hasan & Pasiouras, 2013). These studies are available in domains such as insurance and banking and manufacturing sectors (Gaganis, Hasan & Pasiouras, 2013). Berger & Hannan (1998) based on linear programming, found efficiency news is a significant predictor of the stock market performance of US Airlines. Similarly, Gaganis Hassan and Pasiouras (2013) also found similar positive trends in the insurance sector.

Debt and Firm Value

An abundance of studies is available on the antecedents of firm value. Many studies have acknowledged that liquidity is a precursor of firm value (Lockwood, Prombutr, 2010). Akbar, Rehman, and Ormrod (2013) argue the managers are generally not concerned about stakeholders' interests; therefore, they increase the portion of the debt. Enhancing debt reduces agency costs and enhances the value of firms. Firms that have a low proportion of debt may have fewer funds for unnecessary expenses. On the contrary, a higher level of debt increases liquidity, which enables firms to raise operational funds and enhance

investment activities, which enhances firm value (Pérez-González & Yun, 2013). Brigham and Ehrhardt (2013) suggests that a firm's debt has a bipolar effect on stocks. When the prices of the shares are low, the debt will further decrease. On the contrary, if the debt is on the higher side, it may enhance the market value of the stocks. Antwi, Mills, and Zhao (2012) stresses that although the higher debt ratio may increase the value of the shares, but if this ratio keeps growing, it will lead to bankruptcy.

One of the benefits of the debt burden is that firms are entitled to adjust interest payments against the tax obligation. However, such leverage can offset the income realized through equity. However, if firms use debt on improving their capital structure, it may increase the value of firms. Past studies have found contradicting results on the association of debt and firm value. Some studies found that debt and firm value are positively associated (De-Jong, Verbeek & Verwijmere 2011; Pérez-González & Yun, 2013), while others found that loans adversely affect the firm value (Meier, Bozec & Laurin, 2013; Cassell, Huang, Sanchez & Stuart, 2012; Akbar, Rehman & Ormrod, 2013).

Firm Size and Firm Value

Researchers, for decades, have been examining the impact of "firm size and the value of firms." Niresh and Thirunavukkarasu (2014) argue that a large size firm due to economies of scale are often more efficient and have a high firm value. Dawson and Barrédy (2018) suggests that a large firm has more market power and are in a better position to benefit from the capital market due to which it is profitable. Dawson and Barrédy (2018) stress that the size of a business entity is an essential aspect that contributes to its profitability and market value, which traditional neoclassical view of the firm also supports. Similarly, Tangen (2003) indicates that the cost of products in a large scale firm in comparison to small size firms is significantly low as the profitability of larger firm are higher (kato et al., 2002).

On the contrary, managers often control large organizations who, instead of pursuing organizational goals, pursue self-interest, which may decrease businesses profitability (Niresh & Thirunavukkarasu, 2014). The primary purpose of all business entities is to achieve sustainability and make a profit, which is a precursor to market value (Agiomirgiannakis, Voulgaris, Papadogonas, 2006). Past studies also support the association between the size of a firm and market value (Capon, 2013). Berger and Di-Patti (2006) suggest the firm size is an essential predictor of a firm's worth because it is generally more diversified, well managed, and has a high threshold for absorbing risk. On the contrary, small firms have less capability to resolve the asymmetric information problem due to which their performance is far below large firms. A large business unit has vast resources and is more organized; therefore, it can quickly achieve organizational goals (Capon, 2013), Bhattacharyya and Saxena (2009)

observed that a large organization is equipped to deal with market risk, uncertainties and have more resources to offset random losses. A large size firm in comparison to the small firm has more bargaining power in the supply value chain, which contributes toward its profitability. Large firms, because of vast resources, can afford to buy the best sites, acquire superior technology, and attract and retain the best possible talents. Dawson and Barrédy (2018) found that firm size is directly associated with high performance. The study also found that the size of business units in the UK have an indirect relationship with performance. Thus, the authors concluded that small business units have fewer agency problems because they have flexible structures due to which they can adapt to changes.

Methodology

The study has used financial data from the annual reports of 28 shariah-compliant listed firms in Pakistan for the period 2009 to 2016. The KMI 30 index lists the leading shariah-compliant firms operating in Pakistan. Therefore, the authors obtained a sample of 224 firm-year observations for data analysis. The study generated ten research variables, including three proxies for firm value, i.e., Tobin's Q, market-to-book-value ratio, and market capitalization. Moreover, seven variables were used to capture a company's dividend distributions and firm-specific attributes, i.e., "dividend payout ratio, dividend yield, dividend per share, debt-ratio, fixed asset turnover, total capital, and firm size."

Models

The study uses panel data regression models to ascertain the determinants of firm value in Shariah-compliant firms of Pakistan. The dependent variable in each model is a proxy for firm value. Moreover, the independent variables capture each company's dividend distribution and firm-specific attributes, such as dividend payout ratio, dividend yield, dividend per share, debt-ratio, fixed asset turnover, total capital, and firm size.

$$TQ_{it} = \beta_1 + \beta_2 DP_{it} + \beta_3 DY_{it} + \beta_4 DPS_{it} + \beta_5 DR_{it} + \beta_6 FAT_{it} + \beta_7 TC_{it} + \beta_8 FS_{it} + u_{it} \text{ (Model 1)}$$

$$MBV_{it} = \beta_1 + \beta_2 DP_{it} + \beta_3 DY_{it} + \beta_4 DPS_{it} + \beta_5 DR_{it} + \beta_6 FAT_{it} + \beta_7 TC_{it} + \beta_8 FS_{it} + u_{it} \text{ (Model 2)}$$

$$MC_{it} = \beta_1 + \beta_2 DP_{it} + \beta_3 DY_{it} + \beta_4 DPS_{it} + \beta_5 DR_{it} + \beta_6 FAT_{it} + \beta_7 TC_{it} + \beta_8 FS_{it} + u_{it} \text{ (Model 3)}$$

Where,

TQ_{it} = "Tobin's Q for firm i at time t"

MBV_{it} = "Market-to-book-value ratio of firm i at time t"

MC_{it} = "Market capitalization of firm i at time t"

DP_{it} = "Dividend payout ratio for firm i at time t"

DY_{it} = "Dividend yield for firm i at time t"

DPS_{it} = "Dividend per share for firm i at time t"

DR_{it} = "Debt ratio for firm i at time t"

FAT_{it} = "Fixed asset turnover for firm i at time t"

TC_{it} = "Total capital for firm i at time t"

FS_{it} = "Firm size for firm i at time t"

u_{it} = "error term for firm i at time t"

Results and Discussion

Correlation Analysis

We performed a correlation analysis to analyze the degree of association between the constructs used in the study. The correlation values ranged from -1 to +1. A correlation value of 0 suggests that the two constructs have no relationship. The correlation value +1 indicates a perfect positive relationship, while -1 suggests a perfect negative relationship. Table 1 shows a summary of the results.

Table 1: Pairwise Correlations

	TQ	MBV	MC	DP	DY	DPS	DR	FAT	TC	FS
TQ	1.0000									
MBV	0.0846	1.0000								
MC	0.4772	0.0905	1.0000							
DP	0.0306	0.1017	0.0015	1.0000						
DY	0.0651	-0.1376	-0.1209	0.0384	1.0000					
DPS	0.2223	-0.2520	0.0708	0.0321	0.7067	1.0000				
DR	-0.3443	0.1274	-0.4103	-0.0062	-0.0862	-0.2806	1.0000			
FAT	0.0068	0.1220	0.2101	0.0174	-0.0638	-0.1176	0.0537	1.0000		
TC	0.0718	-0.5096	-0.0127	-0.0754	0.1059	0.2173	-0.0689	-0.1143	1.0000	
FS	-0.2762	-0.0328	0.1258	-0.0380	-0.0931	-0.0970	0.0599	-0.1207	0.2842	1.0000

Table 1 suggests that Tobin's Q has a positive association with all the constructs except debt-equity-ratio and total assets. Market-value-ratio has a negative association with dividend yield, dividend per share, total capitalization, and firm value. Similarly, market capitalization is negatively associated with dividend yield, debt ratio, and total capital. The inverse relationship between debt ratio and proxies for a firm value suggests that highly leveraged firms have low firm value. Further, the negative correlations between firm value proxies and dividend measures imply that high dividend-paying firms have low firm value. The relatively small relationships between the research variables suggest that "multicollinearity is not an issue."

Panel Regression Results - Model 1

The panel regression results reported in Table 2 were generated from estimating Model 1 using Eviews 7 software. The diagnostic analysis suggests that “the fixed-effect model will be appropriate” for the required analysis. The panel regression results indicate that dividend per share, fixed asset turnover are significantly positive predictors of firm value (measured via Tobin’s Q). On the contrary, the results suggest that firm size and debt ratios are significantly negative predictors of firm value (measured via Tobin’s Q.). However, several variables (i.e., dividend payout, dividend yield, and total capital) remained insignificant in the results. These mixed results partially support the dividend relevance theories, which imply that dividend payments and firm value are positively related. Moreover, the results also support the view that a firm’s size and its efficiency in utilizing assets influence its valuation. The results are broadly consistent with previous similar studies.

The F-statistics in Table 2 suggests that model 1 is statistically significant. The adjusted R-squared value of 0.731182 indicates that 73.11% of the variation in the dependent variable is because of the independent variables (i.e., dividend measures and firm-specific attributes).

Table 2: Panel Regression Results - Model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.831499	0.6216	15.81576	0
DPS	0.005752	0.002584	2.22612	0.0272
DP	0.007283	0.016201	0.44956	0.6536
DY	-0.046262	0.05389	-0.85845	0.3918
DR	-0.422028	0.157229	-2.68416	0.0079
FAT	0.019403	0.00739	2.625508	0.0094
TC	0.023797	0.028608	0.831836	0.4066
FS	-0.936718	0.075454	-12.4144	0
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.780606	Mean dependent var	2.754566	
Adjusted R-squared	0.731182	S.D. dependent var	0.567677	
SE of regression	0.294327	Akaike info criterion	0.559111	
Sum squared residual.	15.76639	Schwarz criterion	1.198795	
Log-likelihood	-20.62048	Hannan-Quinn criter.	0.817319	
F-statistic	15.79406	Durbin-Watson stat	1.287031	
Prob (F-statistic)	0.000			

Figure 1 reports the Jarque Bera normality test results for Model 1. The relatively large and statistically significant Jarque Bera statistic implies that the residuals from Model 1 are not normally distributed.

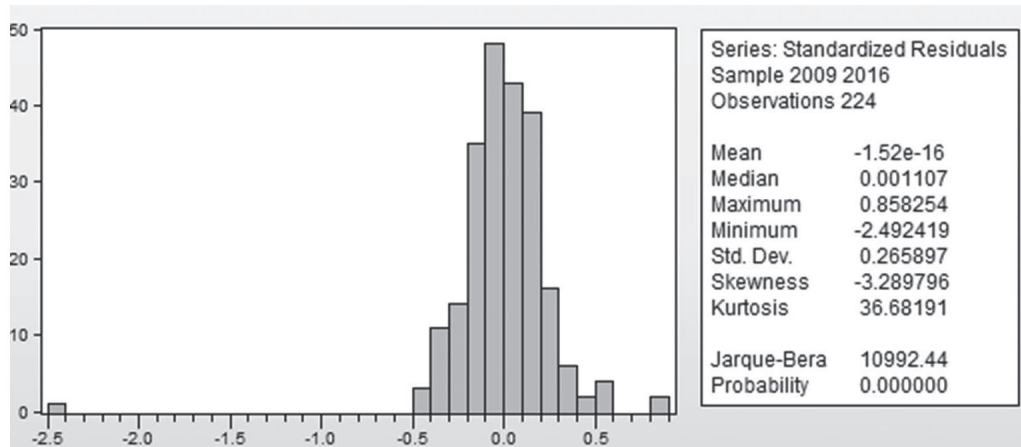


Figure 1: Normality Test Results - Model 1

Panel Regression Results - Model 2

The panel regression results reported in Table 3 were generated using Eviews 7 software. Based on the diagnostic analysis, we concluded that the fixed effects model specification is appropriate for the study. The panel regression results suggest that dividend per share, fixed asset turnover have a positive and statistically significant impact on firm value (measured via market-to-book-value ratio). On the contrary, “firm size, debt ratio have a negative and statistically significant effect on firm value (measured via market-to-book-value, ratio)”. However, several variables (i.e., dividend payout, dividend yield, and total capital) remained insignificant in the results. These mixed results partially support the dividend relevance theories, which imply that the dividend payments of a business entity influence its value. Moreover, the results also support the view that a firm’s size and its efficiency in utilizing assets affect its valuation. The results are broadly consistent with previous related research.

The statistical results reported in Table 3 also indicate that the model is statistically significant at the 1% level. The adjusted R^2 value is 0.8613. It means that approximately 86.13% of the variation in the dependent variable is because of the independent variables comprising of dividend measures and firm-specific attributes.

Table 3: Panel Regression Results - Model 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.305538	0.458044	2.850242	0.0049
DPS	0.006876	0.001904	3.611653	0.0004
DP	0.006588	0.011938	0.551819	0.5817
DY	-0.059523	0.039709	-1.498981	0.1356
DR	-0.334125	0.115854	-2.884020	0.0044
FAT	0.020170	0.005446	3.704009	0.0003
TC	0.001231	0.021080	0.058384	0.9535
FS	0.077851	0.055598	1.400249	0.1631

Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	0.886868	Mean dependent var	1.848688
Adjusted R-squared	0.861382	S.D. dependent var	0.582504
SE of regression	0.216874	Akaike info criterion	-0.051635
Sum squared residual	8.560286	Schwarz criterion	0.588048
Log likelihood	47.78317	Hannan-Quinn criter.	0.206572
F-statistic	34.79855	Durbin-Watson stat	0.788428
Prob(F-statistic)	0.000000		

Figure 2 reports the Jarque Bera normality test results for Model 2. The relatively large and statistically significant Jarque Bera statistic implies that the residuals from Model 2 are not normally distributed.

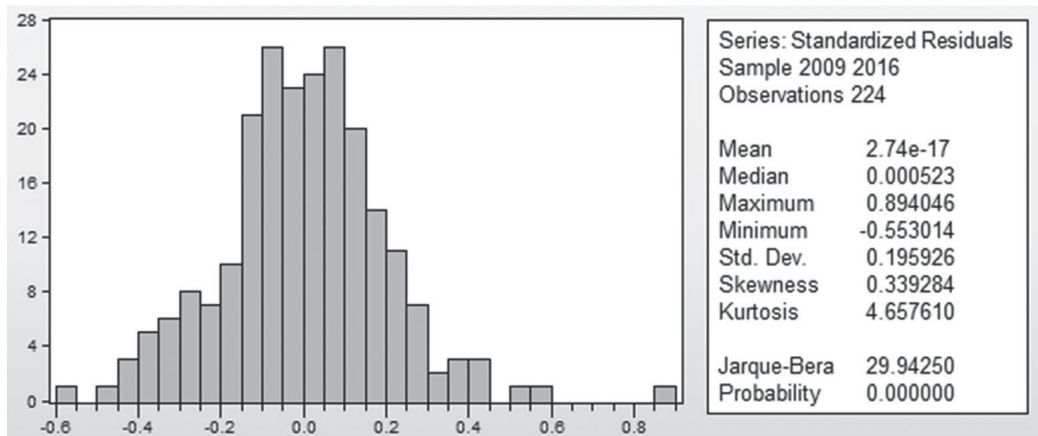


Figure 2: Normality Test Results - Model 2

Panel Regression Results - Model 3

The panel regression results reported in Table 4 were generated using Eviews 7 software. Based on the diagnostic analysis, we concluded that the fixed effects model specification is appropriate for the study. The panel regression results suggest that dividend per share, fixed asset turnover have a positive and statistically significant impact on firm value (measured via market capitalization). On the contrary, total capital, firm size have a negative and statistically significant effect on firm value (measured via market capitalization). However, several variables (i.e., "dividend payout, dividend yield, and debt ratio") remained insignificant in the results. These mixed results partially support the dividend relevance theories, which imply that the dividend payments are a predictor of firm value. Moreover, the results also support the view that a firm's size and its efficiency in utilizing assets influence its valuation. The results are broadly consistent with previous research on the determinants of firm value.

The statistical results reported in Table 4 also indicate that the model is satisfactory. The adjusted R² is 0.6633, which means that 66.33% variation in the dependent variable is because of the independent variables comprising of dividend measures and firm-specific attributes. Further, the F-statistic suggests that the overall model is statistically significant at the 1% level.

Table 4: Panel Regression Results - Model 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.594444	1.876301	4.580524	0.0000
DPS	0.031066	0.007799	3.983564	0.0001
DP	0.028279	0.048901	0.578289	0.5638
DY	-0.091012	0.162661	-0.559520	0.5765
DR	-0.428411	0.474576	-0.902726	0.3679
FAT	0.047049	0.022307	2.109188	0.0363
TC	-0.313391	0.086349	-3.629366	0.0004
FS	-0.600957	0.227747	-2.638700	0.0090
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.725265	Mean dependent var	1.176816	
Adjusted R-squared	0.663375	SD dependent var	1.531193	
SE of regression	0.888390	Akaike info criterion	2.768548	
Sum squared residual	143.6409	Schwarz criterion	3.408231	
Log likelihood	-268.0773	Hannan-Quinn criter.	3.026755	
F-statistic	11.71847	Durbin-Watson stat	1.970559	
Prob F-statistic	0.000000			

Figure 3 reports the Jarque Bera normality test results for Model 3. The relatively large and statistically significant Jarque Bera statistic implies that the residuals from Model 3 are not normally distributed.

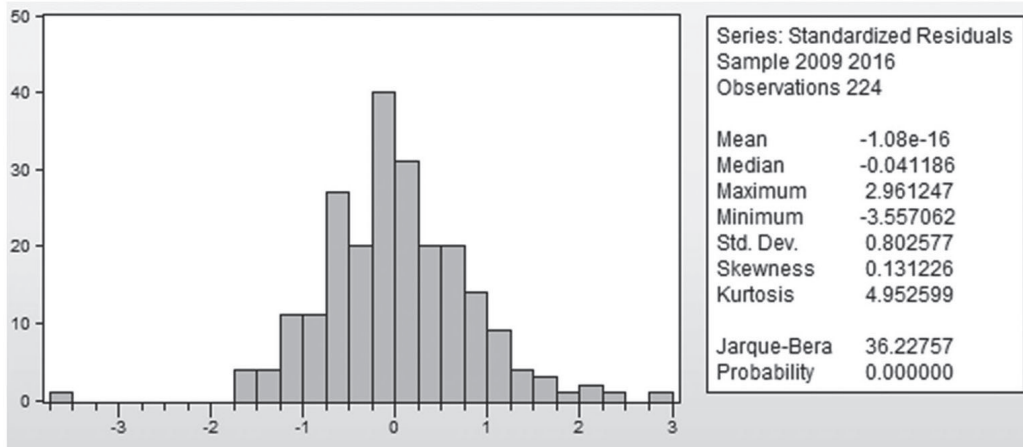


Figure 3: Normality Test Results - Model 3

Conclusion

The determinants of firm value are essential for financial managers that endeavor to maximize shareholder wealth through their investing and financing decisions. However, past studies on the determinants of firm value do not provide much evidence in the context of shariah-compliant companies in developing South Asian countries. Therefore, the study examines the determinants of firm value in Shariah-compliant firms listed on the Pakistan Stock Exchange (PSX) over the period 2009-2016. Based on the regression results, we have concluded that firm value significantly and positively affects dividend per share and fixed asset turnover in all model specifications. Further, both the debt ratio and firm size have a significant adverse effect on firm value. However, both dividend payout and dividend yield did not have a substantial impact on firm value. The mixed results partially support the dividend relevance theories, which imply that the dividend payments influence firm value. Moreover, the results also support the view that a firm's size and its efficiency in utilizing assets influence its valuation. The results are broadly consistent with previous research on the determinants of firm value. The study will facilitate policymakers in developing suitable policies for regulating Shariah-compliant instruments. Likewise, investors looking for Halal returns on their investments may also gain valuable insights about the determinants of firm value in Shariah-compliant organizations. Future studies may analyze the macroeconomic determinants of shariah-compliant companies using a cross-country approach in the South-Asian context.

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