

The Resilience of Central Bank Interest Rate on the Association of Financial Leverage and Firm Performance

Adnan Ahmad

Abdul Wali Khan University Mardan

Pir Bilal

COMSATS University Islamabad, Islamabad Campus

Ihtesham Khan

Abdul Wali Khan University Mardan

Abstract

This study investigates the moderating effect of the Central Bank's interest rate on the relationship between financial leverage and firm profitability. The study uses panel data of Pakistani firms listed on Pakistan Stock Exchange for the period 2009-2016 with fixed effect regression analysis. Firm profitability is used as a dependent variable and is measured by EBIT and ROE while leverage and Central Bank's Interest Rate (SBIR) are used as Independent variables. Results show that leverage is negatively associated and statistically significant with firm performance (FP) while SBIR is negatively related but this relation is statistically not significant. This implies that SBIR has no direct effect on firm performance. The important factor is the composite effect of leverage and SBIR on FP, which is negative and statistically significant. These results imply that the central bank's policy of discount rates has an indirect effect on FP as this policy affects lending decisions of the firm. All these findings are consistent with previous studies. The study adds to the existing literature of banks interest rates and leverage in the sense that when government increases interest rates, it indirectly affects the firm performance as a firm may or may not be able to get credit from these financial institutions. Thus, government and policy makers are to take into account firms' performances and overall capital market while changing the interest rates of the country.

Keywords: Financial leverage; Central bank interest rate; Profitability; Moderating effect

The primary objective of every company is to maximize shareholders' wealth and this can only be achieved if the company's management starts such projects which have a positive net present value to earn more profit (Ajao & Adebayo, 2013). Management is particularly concerned to improve the financial performance of business through the optimal use of such resources; i.e. debt and equity. Firms finance its operations by using debt to increase profitability (Singapurwoko & Wahid, 2011), which is the ultimate aim of a manager to earn profits for the owners as well as his/her personal benefits (Barthwal, 2007). Consequently, the management often makes investments to increase firm performance (FP). The most important factor to increase performance is the capital structure decisions (CS) since it is directly associated with the risk and return of firms (Hasan et al., 2014). Firms can increase its profit and growth opportunities through proper use of leverage. Leverage positively affects the profitability of firms at a certain level and shareholders earn more profit as firms increase the ratio of debt (Chandrakumarmanglam & Govindasamy, 2010). However, beyond a certain limit, use of debt may also be harmful for firm performance (Singapurwoko & Wahid, 2011).

Prior research investigates a variety of associations between leverage and firm profitability, (Ruland & Zhou, 2005; Robb & Robinson, 2008). These studies find a positive relation between leverage and firm profitability. Others such as Negash (2001), Myers (2001) and Phillips and

Sipahioglu (2004) report a negative association between the two variables. However, firm profitability is not only affected by debt financing, but also by some other internal and external factors (Singapurwoko & Wahid, 2011). Internal factors are asset tangibility, firm size etc. while external factors are the macroeconomic factors such as Central Bank discount rate, gross domestic product, inflation and political conditions etc. However, the most influential factor among them is the Central Bank discount rate because it directly borrowing decisions of firms and thus affects firm profitability and firm performance (FP) (Singapurwok & Wahid, 2011).

Discount rate refers to the rate at which Central Bank charges interest on the loans received by commercial banks. As Central Bank discount rate increases, the conventional bank interest rate also increases, which affects their lending and deposits rate decisions. The net income of the firms and their borrowing decision are influenced by the Central Bank discount rate because firms avoiding borrowing more loans as Central Bank rate increases. Moreover, the Credit Channel theory states that monetary policy has a direct effect on interest rate by changing the external finance premium which affects the ability of firms to deploy more funds (Zeitun et al, 2007). Thus, an increase in interest rate affects firm performance because it increases the cost of borrowing and thus limits the capital expenditures of the firms (Zeitun et al, 2007; Chen & Mahajan 2008). Moreover, interest rates and leverage can be the main causes of rising bankruptcy rate, as reported for UK companies (Cuthbertson & Hudson, 1996). Thus, this study is based on the above premise that the Central Bank interest rate is an external macroeconomic factor which affects the management decision of using debt. Specifically, the aim of this study is to investigate the association of the discount rate with firm profitability to determine its association from a larger sample set and secondly and most importantly, the moderating effect of the Central Bank interest rate (policy rate) on the relation between financial leverage and firm profitability in the context of Pakistan.

The study uses secondary data from Pakistan Stock Exchange (PSX) for the years 2009-2016 which is panel in nature from all industries except financial industry. Using fixed effect regression models for a dataset of 880 firm-year observations (110 firms for 8 years), the study finds that leverage and firm performance are positively associated. However, the relation between State Bank Interest Rate/Discount Rate (SBIR)/(DR) and firm performance is negative. This indicate that SBIR have an impact on firm performance which is consistent with Capital Structure theory that interest rates affect the debt structure of the firm and thus at a certain limit would reduce the profitability of a firm.

The results of this study make a contribution to the existing literature by providing evidence about non-financial Pakistani firms listed on Pakistan Stock Exchange for the period 2009-2016. This study uses the SBIR as a moderating variable which makes it different from the existing studies. This paper has a theoretical contribution in different ways. One, this study focuses on CS theories of Trade Off, Agency Cost Theory, Picking Order Theories. This study also adds to economic theory related to discount rate and the market rate. This paper is based on the economic theory which describes the relationship of discount rate and market interest rates with many market players arguing that the gap between the two is becoming larger and larger (Simenolli, 2017). Thornton (1986) argues that the gap between economic theory of discount rate and its practice needs further investigation as discount rate affect the performance of firms in an indirect way. Previous studies have focused on the single industry or have used a limited number of companies as sample. In contrast, this study uses a more detailed representative sample taken from all the non-financial industries of Pakistan to investigate the effect of SBIR with leverage and firm performance. The findings of this study are helpful to the management and shareholders in the sense that while taking capital structure decision, management would tend to be careful about the central bank's interest rates (DR) and its effect on all such decisions. Moreover, policy makers would keep the DR in control to help industry raise more capital and perform better ultimately adding to the overall economic progression of the country. The rest of the paper is schedules as follow; Section 2 reports literature review; section 3 states methodology of the paper in details; results are discussed in section 4 while the last section conclusion of the study.

Financial Leverage and Profitability

Financial leverage and its effect on firm's profitability occupies a large portion of the finance literature (Dean, 1968; Sheel, 1994; Barthwal, 2000). Agarwal and Koneber (1996) highlight the relationship between leverage and firm performance from US market and find that leverage has a negative effect on firm performance. Collecting data from a sample of 383 US firms for the period 1981-1987. Weill (2003) study this association in a cross country environment and report that leverage is positively related to firm performance in France and Germany while negatively related in Italy. He relates his findings to the market structures of these countries and report that market participants act differently in these countries.

Abor (2005) collects data for firms listed in Ghana Stock Exchange for a period of 5 years to analyse the relation between capital structure and firm's profitability. Short term debt ratio, long term debt ratio and total debt ratio are the measures of capital structure while ROA and ROE are the measures of firm profitability. The data is analysed by using panel regression method. It is reported from analysis that the relationship between total debt and total asset and return on equity (profitability) is positive.

Mok et.al (2007) highlight the role of leverage on firm performance as measured by technical efficiency and the impact of efficiency on profitability. The study carried out a sample of 238 large foreign-invested firms in China. Regression and data envelopment analysis (DEA) are applied to estimate the technical efficiency and the effect of leverage on efficiency and profitability. The empirical results suggest that leverage has a positive impact on technical efficiency and that technical efficiency and profitability have a positive relationship.

Zeitun, Tian and Keen (2007) study 167 Jordanian companies during the period 1989-2003 to investigate the effect of capital structure (debt ratios) on firm performance (ROA). The results of the panel data show that capital structure negatively affect the performance of firms. Kang (2011) examines the effect of leverage on the profitability of US lodging companies by retrieving data from Compustate database during the period 2001-2010. Profitability is the dependent variable and is proxy by ROA while leverage is the independent variable measured by LTD/TA. The results indicate a negative effect of leverage on profitability.

Kebewar (2012) analyses 2240 non-listed French companies of services sector during the period 199-2006 to highlight the impact of debt on firm profitability. Profitability is the dependent variable of the study and is proxy by ROA, net income to total assets and EBIT to total assets while the independent variables are debt ratios, tangibility and growth. Generalise method of moment (GMM) is used as a statistical tool. The results of panel data show that debt has no impact on profitability. Tsuji (2013) use panel data analysis to examine the relationship between capital structure and profitability of 73 firms listed on Tokyo Stock Exchange for the period 1981 to 2011. Leverage is used as a dependent variable measured by TD/TA and FL/TA while the independent variable profitability is measured by Sales/TA, GM/TA and EBIT/TA. The data is collected from Tokyo Stock Exchange. The results reveal a negative association between leverage and profitability.

Kebewar (2013) examines the impact of debt on the profitability of firms by collecting data from a sample of 2325 non-listed French companies of trade sector for the period 1999-2006. Profitability is the dependent variable of the study and is proxy by ROA, net income to total assets and EBIT to total assets while the independent variables are debt ratios, tangibility and growth. Generalise method of moment (GMM) is used as a statistical tool. The results of the panel data show a negative impact of debt on profitability.

Saleem et.al (2013) investigate the oil and gas sector of SAARC countries to study the impact of leverage on profitability. The data is taken from the websites of public limited companies for a period of 10 years from 2001 to 2010. Financial leverage and operating leverage are independent variables while the dependent variables are return on equity (ROE), return on investment (ROI) and return on assets (ROA). The statistical tools which are used for analysis include one-way ANOVA and t-test. The results of the study reveal that leverage has a positive impact on firms when their earnings are larger than fixed financial charge. Leverage affect the profitability (ROE, ROA and ROI) of firms and shareholders' wealth can be maximized as firms use more debt.

Raza (2013) analyse the impact of financial leverage on performance for 482 non-financial companies listed in Karachi Stock Exchange for a period of 6 years from 2004 to 2009. The dependent variable is ROE (a measure of performance) and the independent variables are debt to equity ratio and total debt to total assets ratio (a measure of financial leverage). The hypothesis is tested by using panel data analysis. The study reveal that there is a negative relationship between financial leverage and performance.

Rajkumar (2014) highlight the impact of financial leverage on the performance of John Keells Holdings plc in Srilanka for the period 2006 to 2012. The dependent variable is financial performance (as measured by net profit, ROE and return on capital employed) while the independent variable is financial leverage (as measured by debt-equity ratio and debt to total assets ratio). The data is analysed by using regression and correlation analysis. The findings suggest that a negative relation exist between financial leverage and performance.

Banafa and Ngugi (2015) study the manufacturing sector in Kenya to show the impact of capital structure on profitability. The data is collected from all industries listed at the Nairobi Stock Exchange and from senior management employees of the listed industries by using a descriptive survey design. The independent variables are leverage, equity financing, assets tangibility and firm size while the dependent variables are ROA and ROI. It is concluded from analysis that all variables have a positive relation with firm profitability (ROA and ROI).

The above literature report contrasting evidence on the relation of capital structure and firm performance. For example, studies from developed countries report both positive and negative association of the leverage with firm performance (Agarwal & Koneber, 1996; Weill, 2003; Mok et al., 2007; Kebewar, 2013). Similarly, another strand of literature from developing and emerging economies report opposing results (see e.g. Raza 2013; Saleem et al., 2013; Banafa & Ngugi, 2015). These studies report different arguments regarding the association of leverage with firm performance such as different market structures, analyst followings, different institutional environment and above all disclosures of firm fundamental information. Based on the above arguments, we propose the following hypothesis;

H₁: *There is a significant effect of financial leverage on firm's profitability.*

Central Bank Interest Rate and Leverage-Profitability Relationship

Regarding the relevance of Central Bank interest rate in the leverage-profitability relationship, the existent literature is very limited. Prior literature reports a diverse relation between financial leverage and firm profitability. However, none of the above studies take into account the impact of the Central Bank policy rate on the leverage-profitability relationship. A single study that analyses the effect of Central Bank interest rate along with firm's fundamental factors on firm's profitability was carried out by Singapurwoko and Wahid (2011). They examine non-financial companies' listed on Indonesian Stock Exchange for the period 2003 to 2009. The independent variables are equity multiplier, total assets turnover, firm size, industry and Bank Indonesia interest rate (BI) while the dependent variable the study used was return on equity. The hypothesis is tested by using f-test and t-test analysis. The study finds that debt, firm size and total asset turnover positively affect firm profitability (ROE) while the Bank Indonesia interest rate negatively affects firm's profitability.

Another strand of literature on the effect of macroeconomic factors and firm performance is in abundance. For example, Njoroge (2013) study the effects of interest rates on the financial performance of the firm and report that interest rates negatively affect firm performance. Another study is by Geng (2016), where he studies the effect of interest rate on the bank's risks and reports that higher interest rates has a positive association with risk. A similar strand of studies are available on the association discount rates and firm performance (see e.g., Mishak & Nyamute, 2016; Gadzo, 2019). Thus, the previous literature shows that not only firm's fundamental factors affect the profitability but macroeconomic factors must also be considered while determining the association of leverage with firm profitability. An indirect association can be determined based on the premised that once discount rates of the central bank go up, firms find it harder to obtain credit. It is based on the theory that one of the firm's objective is to reduce its cost and thus increase the profits and

wealth of the shareholders. As Central Bank interest rate increases, conventional banks interest rate also increases which in turn affect the borrowing decision of firms. Hence, this study is based on the above premise that the Central Bank discount rate is an external macroeconomic factor which affects the management decision of using debt. Thus, firms in need of capital avoid borrowings when Central Bank increases its interest rate. From the above discussion the following hypothesis is proposed;

H₂: Central Bank interest rate affect the relationship between financial leverage and firm profitability.

Research Methodology

Data Source and Sampling

This study uses secondary data which is panel in nature. The data is downloaded from the State Bank of Pakistan Publication "Balance sheet analysis of joint stock companies listed at Pakistan Stock Exchange" for a period of eight years i.e. 2009-2016. Some of the data has also been taken from the annual reports downloaded from the companies' websites. This publication is useful because it provides information about the key accounts of financial statements of all firms listed at Pakistan Stock Exchange. The sample period from 2009-2016 is selected due to the financial meltdown of 2007-2008 which disturbed almost every sector of the economy of the world. Financial sector companies are excluded from this study because of the difference between the capital structure of financial companies and non-financial companies (Shah & Khan, 2007). All those firms whose data is available for six years is included in the sample. Initially all listed firms are selected for the analysis. However, based on the above selection criteria, the sample reduces to a maximum of 110 firms listed on Pakistan Stock Exchange resulting in 880 firm-year observations for the analyses.

Research Model

In order to test the hypotheses proposed above, the following fixed effect regression model is proposed;

$$FP = \beta_0 + \beta_1 Lev + \beta_2 SBIR + \beta_3 Lev * SBIR + \beta_4 TANG + \beta_5 lnSZ + e$$

where, FP is the firm profitability (firm performance) and is represented by two ratios EBIT and ROE. EBIT is measured as earnings before interest and taxes to total assets (EBIT/Total Assets) and return on equity (ROE) is measured as Net Income/Common Equity; LEV is the independent variable which represents financial leverage and is measured as Total Debt to Total Assets; SBIR represents State Bank of Pakistan Interest Rate; Lev*SBIR is the combination (interaction) of leverage and State Bank Interest Rate; TANG is the independent variable which represents tangibility of assets and is measured as Total Fixed Assets to Total Assets; SZ is the independent variable which represents firm size and is calculated as Natural Log of firm sales.

Dependent Variable

Profitability is dependent variable of this study. Prior researchers use different proxies for firm profitability but this study is using ROE and EBIT as a measures of firm profitability. ROE is used because it shows that how much shareholders earn on their investments during the year. Since the ultimate goal of every firm is to benefit shareholders therefore ROE can be viewed as the bottom-line measure of firm performance. Moreover, ROE is useful in comparing the profitability of one company with the other company (Adongo, 2012). It is calculated as net income over common equity (Singapurwoko and Wahid, 2011). Net income is the amount which is generated by firm after deducting all expenses. On the other hand, shareholders' equity has come from two main sources: the amount which is actually invested by the owners in the company and any extra investment made thereafter plus retained earnings that the firm accumulated from different operations during the year. Another measure of profitability which is used in this study is EBIT. Following Rajan & Zingale (1995) and Kebewar (2012, 2013), this variable is measured as EBIT/Total Assets. This ratio shows the capability of firm's asset to generate profit before the influence of interest and taxes.

Independent variable

Financial Leverage is the independent variable of the study. In finance literature, researchers have used different measures to calculate financial leverage. This study uses Total debt to Total assets as a measure of financial leverage (Phillips & Sipahioglu, 2004). The reason is that, in Pakistan commercial banks are the main sources of debt financing which do not encourage long term

loans. Another reason is that, on average Pakistani firms are small in size due to which they do not access long term loans because of the high cost which is associated with debt financing (Raza, 2013).

Moderating Variable

Macroeconomic factors such as Central Bank Interest Rate, Gross Domestic Product, Inflation and Political Conditions also affect firm's profitability. However, the most suitable factor among them is Central Bank Interest Rate because it directly affects firm profitability as it affects the borrowing decision of firms (Singapurwok & Wahid, 2011). As the discount rate increases, conventional banks interest rates also increase which affects their lending and deposit rate decisions. The net income of the firms and their borrowing decision are influenced by Central Bank rate because firms avoiding borrowing more loans as Central Bank rate increases. An increase in interest rate affects firm performance because it increases the cost of borrowing due to which firms cannot start profitable projects (Zeitun et al., 2007). According to Chen and Mahajan (2008), interest rate affects the investment decisions which in turn affects the value of ROE. Interest rate and leverage are one of the main causes of rising bankruptcy rate among UK companies (Cuthbertson & Hudson, 1996). On the basis of above discussion this study uses the Central Bank (State Bank) interest rate as a moderating variable.

Control Variables

Tangibility of Assets: The collateral value of fixed assets enables the firms to get loans easily at cheaper rates. As loans are easily available to firms having large amount of tangible assets so they can borrow more (Hijazi & Tariq, 2006). Firms with more tangible assets can easily access to external finance which enable them to undertake more profitable opportunities because of having the ability to secure its external finance. Previous studies show that often internally generated funds are not enough to undertake huge investments, therefore firms which are not in a position to secure its external finance avoid profitable opportunities. This shows that tangibility plays an important role in firm profitability. The studies of Salawu et al (2012), Pouraghajan (2102) and Ngugi (2015) find a positive relation between tangibility and profitability. Following Rajan and Zingales (1995) and Frank and Goyal (2007) this variable is measured as fixed assets to total assets.

Firm Size: Firm size is considered an important factor in determining firm profitability. As large firms are more diversified and mature they have the ability to generate more sales which enhance their profitability. Big firms have more investment opportunities because they have captured a large portion of market share, therefore, they enjoy huge profits. The studies of Vijaykumar and tamizhselvan (2010), Singapurwoko and Wahid (2011) and Banafa and Ngugi (2015) find a positive relation between firm size and profitability. Larger firms have more resources and capacities due to which they enjoy economies of scale and recover quickly from economic shocks as compare to small firms. Large firms are able to generate more sales because of better production capacity which increase their profitability (Singapurwok & wahid, 2011). So it is expected that firm size positively influence profitability. The study of Dogan (2013) finds that profitability increases with the expansion of firm size. Therefore, this study uses firm size as a control variable and is measured by taking natural log of total sales.

Data Analysis and Results

Descriptive Statistics

The descriptive statistics of dependent and independent variables are shown in table 1. The dependent variables of this study are EBIT (earnings before interest and taxes) and ROE (return on equity) while the independent variables are leverage, SBIR (State Bank interest rate), Tangibility and firm size. The table shows that the mean value of EBIT is 0.81 with standard deviation of 0.23. This shows that the average gross earning of Pakistani firms is 81%. The average value of ROE is 0.72 with standard deviation of 0.34 which shows that the average net profit of non-financial firms is 26% which shows that firms net performance is increasing during the study period as compare to EBIT.

Table 1. *Descriptive Statistics*

Variables	Mean	Median	St. Dev.	Min.	Max.	Skewness
EBIT	-0.81	-0.95	0.32	-3.98	1.07	-1.96
ROE	-0.92	-1.71	1.78	-8.15	1.54	-1.72
LEV	0.81	1.51	0.88	0.31	1.11	2.12
SBIR	0.31	0.45	0.11	0.11	1.13	-2.01
Lev*SBIR	0.06	0.05	0.02	0.001	0.11	1.12
TANG	0.78	0.98	1.13	0.03	2.23	1.95
SZ	9.17	11.12	2.33	5.74	15.12	1.98

The mean of leverage is 0.51 and the standard deviation is 0.196. This describes that the average level of debt is 51% in the capital structure of firms. The average value of SBIR is 0.11 with standard deviation of 0.01 which indicates that the average interest rate announced by the State Bank is 11% during the study period while the mean value of Lev*SBIR (leverage × State Bank interest rate) is 0.06 with standard deviation of 0.02. The mean value of tangibility and size are 0.47 and 9.17 with standard deviation of 0.25 and 0.55 respectively. The descriptive statistics also depict that the values of EBIT, ROE are highly skewed. Therefore, to normalize the data this study takes the log of EBIT and ROE.

Correlation Analysis

The correlation among dependent and independent variables are given in table 2. There are two dependent variables representing profitability namely EBIT and ROE. The correlation between EBIT and leverage is negatively significant while between EBIT and SBIR is positively correlated. The correlation between EBIT and tangibility is negatively significant while between EBIT and firm size is positive and significant. The second proxy for profitability is ROE. The table shows that the correlation between ROE and leverage is negative and statistically significant while the relation between ROE and SBIR is negative but not significant. Furthermore, the correlation between ROE and tangibility negative while the correlation between ROE and firm size is positively significant.

Table 2. *Correlation Matrix*

Variables	EBIT	ROE	LEV	SBIR	TANG
ROE	0.78**				
LEV	-0.19***	-0.43***			
SBIR	0.35	-0.021	0.23***		
TANG	-0.29***	-0.19	0.13	0.26	
SZ	0.41***	0.34***	0.27***	-0.21***	-0.21**

*** shows the significance level at 5%

Regression Analysis

Since the data is panel in nature, therefore we estimate panel data regression models. Following the standards procedure for panel data analyses, the applied diagnostic tests reveal that the fixed effect model is the suitable technique for estimating the regression model. The diagnostic test we use for this purpose is the Hausman test. The results show that fixed effect model is suitable for this study. The Hausman test result is given in the following table.

Table 3. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	59.543855	6	0.0000

This study uses fixed effect regression analysis to investigate the moderating effect of SBP interest rate on the relationship between financial leverage and firm profitability. The results of the first proxy (EBIT) and second proxy (ROE) of profitability are given in Table 4 and Table 5, respectively.

Table 4 depicts that leverage and EBIT are negatively related to each other. This association is statistically significant with a p-value of ≤ 0.02 . Literature shows that theoretically firms try to reduce its costs and these results are in line with theory of CS that upto a certain level, firms use leverage to produce profits but beyond optimal level, firms performance decline with increase in leverage. One of the reasons of such results could be the CS which is followed by Pakistani firms who normally rely more on lending than equity financing (Raza, 2013). These results are consistent with prior literature who reports similar findings (see e.g., Kebewar, 2012; Kebewar, 2013; Grabrijelic et al., 2013; Tsuji, 2013; and Santosuosso, 2014). The relation between SBIR and EBIT is negative but statically not significant. Economic theory also postulates that interest rate may not directly affect the performance of firms but rather may have an indirect effect on it since lending agencies increase its rate based on the central bank discount rate. This makes it difficult for firms to lend from banks because of the higher interest rates (Kebewar, 2013). However, the most important variable based on the above discussed theory is the association of leverage and discount rate’s combined effect on firm performance. The interaction effect of these variables on the performance of firms is negative and statistically significant. This result indicates that firms’ lending ability reduces when discount rates of the central banks increases and thus it lowers the firm performance. Prior literature is scarce on the interaction effect of discount rate and leverage on firm performance. This study provides a unique contribution to the CS literature. Thus, policy makers may take into consideration these results while deciding on the increase or decrease in the discount rate of the country.

Table 4. Fixed Effect Regression Model Adjusted for EBIT and Leverage

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT	-0.47	0.65	-0.68	0.49
LEV	- 0.93	0.28	-2.78	0.02
SBIR	-2.25	3.55	-0.93	0.46
Lev*SBIR	-1.91	3.14	-6.94	0.00
TANG	-0.76	1.05	-3.44	0.01
SZ	0.55	1.01	4.98	0.00
F value = 7.84***				
R-squared (Adj.) = 0.62				

**shows the significance level at 5% significance level.*

The relation between tangibility and EBIT is negative and statistically significant with a coefficient value of -0.76 (p-value 0.01) which shows that either firm’s performance decreases because of too much investment in fixed assets or they use their fixed assets inefficiently. The results of this study are consistent with the results of Kebewar (2012 & 2013) who report a negative association between tangibility and EBIT. The relation between firm size and EBIT is positive and

highly significant with coefficient value of 0.55 (p-value 0.000) which shows that larger firms tend to be more profitable.

Table 5. *Fixed Effect Regression Model Adjusted for ROE and Leverage*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONSTANT	-1.76	3.54	-1.09	0.27
LEV	-6.61	1.88	-4.91	0.00
SBIR	-9.07	12.55	-0.98	0.58
Lev*SBIR	-12.05	9.61	-6.99	0.00
TANG	-1.30	1.17	-1.98	0.08
SZ	0.52	0.33	8.73	0.000

F value = 23.81* R-squared (Adj.) = 0.69

**shows the significance level at 5%.*

The results of the second model are reported in Table 5. The results show that the relationship between leverage and ROE is negative with a p-value ≤ 0.000 . These results are also in line with the above results of EBIT. Prior literature reports similar findings (Abor, 2005; Singapurwoko & Wahid, 2011; Vintila & Duca, 2012; Sipahioglu, 2004; Osuji & Odita, 2012), Salim & Yadav 2012; and Raza, 2013). The relation between State Bank interest rate (SBIR) and ROE is negative and statistically not significant. Though the relation is as per theory negative but the significance does not stand. It again confirms the theoretical perspective of having a negative impact but not a direct one rather an indirect association with firm performance. These findings are also consistent with the earlier research results of Singapurwoko & Wahid (2011). However, the composite effect of leverage and SBIR on ROE is negative and statistically significant. The relation of control variable of tangibility and ROE is negative and statistically significant which shows that either firms performance decreases because of heavy investment in fixed assets or they use their fixed assets inefficiently (Raza, 2013). These results are consistent with the results of Ogbulu and Emeni (2012) while inconsistent with the results of Poraghajan (2102) who finds a positive association between the two variables. Another control variable, size is positively related to ROE with a significant p-value. This indicates that larger firms tend to be more profitable because of diversified product portfolio. These results are consistent with Singapurwoko and Wahid (2011), Poraghajan (2102) and Akinlo and Asaolu (2012) who find a positive association between firm size and firm performance while inconsistent with the results of Vintila and Duca (2012).

Conclusion

This study is about to investigate the moderating effect of SBP interest rate on the relationship between financial leverage and firm profitability. For this purpose, a sample of fifty Pakistani firms are examined that are listed on Karachi Stock Exchange for the period 2009-2016 by using fixed effect regression analysis. Firm profitability is used as a dependent variable and is measure by EBIT and ROE while the independent variables are financial leverage, State Bank interest rate, tangibility and firm size. The empirical results of the study show that leverage is positively and significantly related to EBIT and ROE which suggest that firm profitability increases with leverage. These findings are inconsistent with the postulation of Pecking Order Theory which states that firms prefer internal financing. The relation of State Bank interest rate (SBIR) with EBIT and ROE is negative and statistically not significant which shows that SBIR has no impact on firm profitability. However, the composite effect of leverage and SBIR on EBIT and ROE is negative and statistically significant. The relation between tangibility and EBIT is negative and statistically significant while the relation between tangibility and ROE is negative and statistically not significant which shows that either firms performance decreases because of too much investment in fixed assets or they use their fixed assets inefficiently. The relation of firm size with EBIT and ROE is positive and highly significant which suggest that profitability increases with firm size.

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