

# The impact of financial leverage on return and risk



In this paper the author explained that each has an inherent risk in its operation which is generally related to the economic conditions in which the firm is operated. Business risk and the economic is not related to the firm financial structure but it is the function of economic conditions. Financial risk is another risk which is resulted from the financial decisions with the debt and preferred stock. Stock -holders have already bearing a risk which comes from the firm's operations whereas financial risk is an additional risk which cause change in earnings due to leverage induction. The decision of the firm to undertake an investment affects its economic risk whereas the decision to finance the investment with the debt creates the financial risk. The level of interest rate affects all the firms as each individual is differing from the other firms in characteristics, from which firm decide to issue equity or debt.

According to Levi and Sarnat (1994) the business or economic risk is related to the industry to which the firm is belonging and cause by the change in economic conditions. On the other word, business risk shows the firm's assets riskiness if the firm don not use the debt. The business risk can be measure through standard deviation of return on assets (ROA). The business risk not only fluctuates from industry to industry but also various among in the firms belonging to the same industry. The firm's business risk is depending on various numbers of factors. According to Brigham and Gapenski in 1994, there are some important factors influences the business risk. These includes demand variability, sales price volatility, input cost variability, ability to adjust output prices for in input cost, ability to develop new products in a timely, cost effective manner and the extent to which costs are fixed(operating leverages). Making investment with the debt and preferred stock may increase the potential return against the common

stockholders. Stable income of the firm shows the brighter future of the firm by increasing in the debt. It means that there is less probability that the firm's net operating income is less than the interest which the firm has to pay against the borrowing. The traditional theories on the weighted averages cost of capital shows that if a firm introduces financial leverages into its capital structure, initially it will decrease the borrowing cost of capital, it is because of deduction of interest on the debts against the higher non-tax cost of capital for the new equity. The long term financial policy of the firm may be affected because of location of earning distribution, stability of sales and earnings, risk of bankruptcy, dividend policy, control and the agency cost. The operating leverage level affects the level of the financial leverage. The firm's financial leverage increases the rate of return on the common stock equity. As the greater proportion of debt, has increased the risk of the stockholder. In the good economic conditions, the financial leverage impact will be positive. The higher the degree of leverage reflects the greater firm's business risk.

The firms have taken loan to raise cash for operations. In this paper, the authors have analyzed that there are two types of leverages which the profitability and valuing to the firm. The measurement of leverage is total liabilities to equity. Some liabilities are arises from bank loans and bonds whereas some results from the transactions with the suppliers, customers and employees who are engaging in operations. Firms are less perfect than the capital markets because their operations are involved in buy and sell in input and output markets. Their research was related whether a dollar of operating liability is priced differently from a dollar of financial liability on the

balance sheet. It means that the price to book ratio depend on the configuration of book value. The expected rate of return on the book value determined this ratio. Financial statements analysis provides the information that help to differentiate the shareholder's profitability, arising from the borrowing activities. Leverages equations explained about whether the type of liability is favourable or unfavourable. The results in this article also revealed that financial statement analysis is not only differentiate the operations from financing activities but also tell about the future profitability among the firms. The following equation is splinting the effects of financing liabilities and operating liabilities on shareholder's equity.

Return on common equity (ROCE) = Comprehensive Net Income

Common Equity

Where

Common equity = operating assets + financial assets - operating liabilities - financial liabilities

Or

Common equity = net operating assets - net financing debt

the above mean that investment in the inventory will be reduced in case of making too much investments in inventories. Net financing means that a firm cannot buy the bond with the excess cash from the operations. The income statement can also provide information that comes from financial and operating activities.

Comprehensive net income = operating income - net financing expense

Operating income is earned in operations and net financing expense is incurred in the financing of operations. The authors also analyzed that if the financial assets are more than financial liabilities,

Financial leverage is negative. It means that the financial leverage lowers the return on common equity over return on assets. Financial statements provides three types of leverages equations which are based on fixed accounting relations and the firms must hold the leverages at a given point in time. Financial liabilities are contraction obligations for the repayment of loans with some financial charges. High profitable firms might be take more leverage because of unfavourable risk is lower. Operating leverage is also provided the changes in the future profitability.

### **(Stomper & Zulehner, Why Leverage Distorts Investment , 2004)**

Many theories of capital structure explain the firms financing choices because of trade off between costs and benefits of leverages. The studies of Jensen and Mecking in 1976 and Myers in 1977 have analyzed the conflicts of interests between the firm's owners and their creditors. These types of conflicts change the investment decision as the leverages changes their objectives functions. Management chooses such investment policy which maximizes equity value rather than maximizes the firm value. The strategic effects of leverages was explained by Titman (1984), Fudenberg and Tirole (1986), Brander and Lewis (1986) and Maksimovic (1986). their papers clarified that why the leverages affects the firm's strategy. The directions of

the effects depend upon on the nature of firm's interaction in oligopolistic situation. The models of Brander and Lewis (1986), Showalter (1995) demonstrate that leverage can make a firm more or less aggressive competitor. Leverages effects the firm's investment decisions in two way, first leverages increase the profitability with which a firm fail to pay its debt, as a result discouraging the investments in case if future profits are discounted at high rate. Second reason is levered firms investment policy depend upon the debt maturity structures so the firms shift their profit of those period in which the earnings are too high to cover the debt charges. If firm remain solvent, the leverage changes the s the firm's marginal rate of substitution between current and future profits. To attract investments firms cut their prices at the cost of decreasing their current profits. They had also pointed out anther effect which was that in non defaulted states, the leverages change the marginal rate of substitution between current and future profits which used by the firms in making investment decisions for the purpose of maximize equity value. For this purpose those firms are considerable which cuts the prices of their output to attract additional customers and invest in market share. The authors used Limited Liability Effect model to reveal the fact that DLL-effect changes the firms' investments. This model effects the firms' investments in market share to over and under investment. They concluded, leverages affects firm' pricing strategies in that case their future profits are depend on their market share. Levered firms make fewer investments in market shares because they discounted the future profits at high rate. The objectives functions are not change because of their nature of investment decisions.

## **(Aly & Tuan, Association between Accounting and Market-Based Risk Measures , 2005)**

In this article the authors examined the systematic risk and stock prices with help of cost structure of the firm. Systematic risk arises because of the firm fixed claims but having variable revenues. The fixed claims are associated with the debt financing. Shareholder systematic risk is depending upon the ratio of fixed cost to the total cost and leverage or gearing ratio give this relationship. There are two major components, financial leverage and operating leverage. Financial leverage is based on the level of interest paid irrespective to the profitability. Operating leverage is degree of rate of change in profit before interest and dividend with respect to change in the level of sales. The operating and financial leverage both have considered in empirical studies. Earlier studies have proved that accounting beta role was considerable in developing a positive relationship between operating leverage and the systematic risk. The knowledge based labour, research cost or other capital incentive costs and scale based production may also create fixed cost which enhances the shareholder risk. This means that operating and financial leverages are independent to each other which give total leverage. But this view was criticised in 1983 by Huffman by using an option of pricing approach, she took the assumption fixed investment depend upon the level of previous debt risk. Mandelker and Rhee in 1984, found that operating and financial leverage had impact on beta and there was a significant relationship between these two variables. In 1989, Huffman discovered a negative relationship between the operating leverage and systematic risk which was opposite to the findings of Mandelker and Rhee. Ilford in 1996 had also reported a positive correlation between DOL , DFL ,

systematic risk and unsystematic risk, however, financial was related to the total and unsystematic risk but not to the systematic risk. According to the studies of Armstrong in 2002 raises the notion that because of change in corporate behaviour the flexible firms and labour markets have also impact on basic cost behaviour. The financial managers have to face more operating risk so they should adopt financial plan to get appropriate level of stock risk. In 2003, Rosett found that there was weak relationship between operating leverage and market risk but labour cost variable was an important variable. From the authors studies they had concluded that there was a strong relationship between operating leverage and financial leverage but the financial leverage was not more important than the operating leverage as the operating fixed cost have the greater impact on the market risk. Theoretically and empirically, the function of operating leverage has important for risk management and asset allocation within the firm and also for pricing of risk of financial markets.

### **(Baum, Stephan, & Talavera, Macroeconomic Uncertainty and Firm Leverage, 2005)**

In this article the author analyzed the factor which influences the leverage level. The purpose of borrowing is make capital investment are existing payment of debt. Some time some firm make changes in the amount of debt they issue just before the official announcement. In 1958, Modigliani and Miller derived from their theoretical results that financial and real variables are irrelevant for a firm's capital structure under perfect capital market. Most of the studies show a positive relationship between liquid asset holdings and the firms' investment decisions. And some other studies show firm's specific



characteristics define the firm leverage such as cash holdings, total assets, and the investment to capital ratio. They formulate a model which predicted that an increase in the macroeconomics uncertainty cause a decrease in leverage. According to them, the companies will issue less debt in times of greater macroeconomic uncertainty. Firms make their debt on the bases of future profits and investments. They have constructed four types of alternative macroeconomic uncertainty which are the conditional variances of index of leading indicators index of industrial production, the rate of consumer price inflation and return on the S&P 500 stock market index. From their results it is suggested that macroeconomic uncertainty has impact on the non- financial companies' capital structure and affect their investments. In most of the countries the monetary policy has a tendency to be constant in the direction of change in monetary instruments with reversals.

### **(Faulkender & Petersen, Does the Source of Capital Affect Capital Structure?, 2005)**

In this article the authors said that the trade off theory, the firms determine their leverage ratio by manipulative the tax advantages, costs of financial distress, mispricing, and incentive effects of debt against equity. Firms which have greater tax advantages over the debt, they have lower financial distress. When the firms determine that the total benefit from the debt is positive then they form their capital structure by issuing more additional debt and decrease the equity. There is an assumption that leverage is the function of firm's demand for the debt. By considering the tax benefit of the debt, Graham argued in 2000 that the firms loose opportunity to enhance

the wealth by increasing the leverage and reducing the tax payments on the assumption that other debt cost are correctly measure. Debt ratios also depend upon the firm's characteristics. The differences in the leverage may be because of the product of the firm with different characteristics. The firms always try to secure their funding for those projects having positive net present value NPV. But if the lenders are unable to evaluate the quality of investment easily then it will be difficult for the firm to raise the desire and sufficient amount of capital for all the good projects. The financial intermediaries mostly the banks also may have an advantage over arm's length lenders (bond markets) after giving the capital to the firms. The firms which are riskier, smaller and less known mostly borrow the capital from the banks whereas well known larger firms mostly borrow from the arm's length capital markets. In the imperfect market the cost of capital is not only depend on the risk of their project but also on the resources which are needed to confirm the viability of their projects. The cost of the debt is paid by the borrower in the form of interest. They observed that the level of the debt is the function of supply and demand of the firm for debt. These both are depend upon the price of debt capital and the supply and demand factors.

$$Q_{\text{demand}} = \hat{\alpha}_0 \text{Price} + \hat{\alpha}_1 X_{\text{demand factors}} + E_{\text{demand}}$$

$$Q_{\text{supply}} = \beta_0 \text{Price} + \beta_1 X_{\text{supply factors}} + E_{\text{supply}}$$

They are using the data of 1986-2000 and exclude the firms having assets or sales less than \$1million. They had measures debt to the asset ratio; the debt includes both long and short term debt.

From their results, the firms which borrow from the financial intermediaries have lower leverage because of cost monitoring the imperfect financial contracts. Certain parts of the capital markets also affects the firms borrowing. The v firms can moves from the private debt markets to the public debt market because banking capital markets have more dramatical impact than the public markets.

(Amjed, The impact of financial structure on profitability: Study of Pakistan's Textile Sector, 2007)

In this article the author main point that the capital structure affects the cost of capital of a firm and as a result of this the performance of the firm also affected. The firm must use an optimal combination of debt and equity to enhance the wealth of shareholders which s the main objective of the firm. In this paper the author analyzed the relationship between the capital structure and profitability of the Pakistan textile industry. According to the studies of d Bradley, Larrel and kim (1984) and Almazan and Molina (2005), the firms related to the same industry develop the similar capital structure. Eli Schwartz (1959) reported that optimal capital structure fluctuates in different industries because of the reason that the typical asset structure and profit stability which help in determining the inherent risk are differ for different types of production and the borrowing power of the firms are also differ. According to the Modigliani and Miller (1958) studied reflected that in the perfect market conditions the market value of any firm and the cost of capital are independent in its capital structure. According to the pecking order theorists Myers (1984), Myers and Majluf (1984), and Shyam-Sunder and Myers (1999), first the firms should have internally generate the sources

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of financing then from the debt and finally from external equity which is obtained by issuing the stocks. The preferences are recognized by the cost gap between the internal and external sources of funds because of asymmetric information and organization problems. There is a negative relationship between the leverage and profitability of the firm in case if the firm hold the profitability. Booth, Aivaizian, Kunt and Maksimovik,(2001) revealed that if the firm is more profitable if its debt ratio is lower. If the firm can borrow more debt at low rate, the risk associated with the debt is lower as the chances of paying back the funds are increased. Fama and French used in 1998 concluding by using US sample that the relationship between capital structure and the firm profitability is unreliable. Jensen (1986) studied that profitable firms indicates their wealth of the firm by increasing the leverages which result in a positive relation between leverage and profitability. Joshua Arbor (2005) reported that there is a significantly positive relationship between short term debt and profitability and negative association between long term debt and profitability. This indicates that by too much long term debt it will decrease the profits of the firm. He had taken a data of 100 companies from KSE for the period of 1999-2004. The variables used for analyzing are leverage ratio and the profitability. From his results, he explained that the short term debts show positive relationship with the profitability as they are less expensive. While the long term debts has show negativity which means that they are much expensive due to direct and indirect cost.

(Shah & Khan, Determinants of Capital Structure: Evidence from Pakistani Panel Data, 2007)

Capital structure is the combination of debt and the equity which is used by a company in to meet its financing needs. It is the one of the most important decisions which a management should be taken carefully. The capital structure decision includes dividend policy, project financing, issue of long term securities, financing of mergers and buyouts. The objective of the financial manager is to keep the cost of capital lower and increases the value of the firm. Optimal capital structure is the point where the cost of capital is minimum. Most of the work related to the capital structure has been done in the developed countries and a few contribution related to it is by the developing countries. In 1995, Rajan and Zingales have studied the G-7 countries while in 2001 Booth et al extended this working by studying the emerging markets. The conclusions from their studies revealed that there are some features in the capital structure of the firms in different countries are common. But still it is necessary to identify the determinants of capital structure in particle industry or institution. Pakistan is a developing country which has three stock exchanges. Karachi Stock Exchange is the largest one on which more than 700 companies are listed. In Pakistan, the area of capital structure is relatively unexplored like other developing countries. The concept given by Modigliani and Miller has proved that the value of the firm is not depending upon the capital structure decisions under certain conditions. Because of unrealistic assumption in MM, it gave birth to the other theories for research on capital structure. According to trade off theory, optimal leverage adjustment is affected by three factors which are taxes, cost of distress and agency cost. Baxter argued in 1967 that too much use of debt enhances the chance of bankruptcy because the creditors demand extra risk premium. According to him, the firm should not use more

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debt than the tax advantage. Kraus and Litzenberger (1973) argued that if a firm's debt liabilities are greater than its profits then the firm's market value is a function of its debt obligations. DeAngelo and Masulis (1980) studied further on Miller's differential tax model; they had including other non-debt shields such as depreciation charges and investment tax credits. According to their conclusions that each individual firm has an internal optimal capital structure that increases the wealth of the firm. Their studied have based on the data taken from State Bank of Pakistan publications " Balance Sheet Analysis of Joint Stock Companies Listed on The Karachi Stock Exchange Volume-II 1993-1999" and Volume-II 1997-2002. This publication is useful in proving the information related to the key account of the financial statements of listed companies. They have taken the debt to total assets ratio as understudy for leverage (dependent variable) and tangibility, size, growth, profitability, earning volatility, and non-debt tax shields are taken independent variables. Their results show that descriptive statistics is the highest leverage ratio for textile industry but the average profitability of textile industry is negative. The year to year understatement of profit by family controlled firms in the textile industry reflect that they have refuse to pay the government taxes and the shareholder dividend. th negative figure of profit show that on all the average year it decreases the figure of equity and increases the percentage of debt in the entire financing.

### **(Akintoye, Sensitivity of Performance to Capital Structure, 2008)**

In this article the author Ishola Rufus Akintoye (2008) analyzed that the financial leverage measures the financial risk which indicates the company's

percentage change in EPS comes from percentage change in company's EBIT. Financial leverage increases the EPS when the economic are favourable and depresses the EPS when the goings is not favourable for the firm. It was discovered that the firm's financial leverage can increase the shareholders' return and as well their risk. The surplus/deficit will increase/decrease the return on owner's equity. Fix operating cost is consider in operating leverage. Fixed operating cost such as administrative overhead expenses, contraction employees' salaries and mortgage or lease payment that tend to raise business risk. The ongoing short term financial needs may generate a need for long term financing which includes an evaluation of the appropriate mix and the use of debt and equity that form capital structure. By combining the financial leverage and operating leverage we can see the effect of total leverages on EPS with respect to the change in turnover/sales as a result of improving capital structure strategies. The optimal capital structure with equity can minimize the firm's cost of capital and maximize its returns. The different capitals structure and business risks effects are reflected in a firm's income statement. The firm must consider varies factors while formulating the capital structure policy. The firm business risk, tax position and financial flexibility must be taking into the account. These factors are important in determining the target capital structure. The target capital structure may be used as a guide in determining an ideal capital structure which helps to minimize the cost and increases the shareholder's wealth. The desire equity-debt mix has effects both the returns and the risk of a firm. The methodology used by the author is the degree of leverages. He took the EBIT, EPS and DPS as the performance indicators to the sales as to measure the capital structure of selected companies. The operating leverages and financial

leverages together produce wide fluctuations in EPS for the given change in turnover. A small change in sales level will cause a dramatic effect in EPS in case if a firm employs a high level of operating and financial leverages.

### **Degree of Operating Leverage:**

DOL = % Change in EBIT

% Change in Turnover

DOL = %  $\hat{}$  EBIT/EBIT

%  $\hat{}$  Turnover/ Turnover

The following equation is also used for calculating Degree of Operating Leverage

DOL =  $Q(S - V)$

$Q(S - V) - F$

Q is the unit of output, S is the selling price, V is the variable cost, and F is the total fixed costs.

### **Degree of Financial Leverage:**

DFL = % Change in EPS

% Change in EBIT

DFL = %  $\hat{}$  EPS/EPS

%  $\hat{}$  EBIT/ EBIT



## **(Sheikh & Wang, Financing Behavior of Textile Firms in Pakistan, June 2010)**

In this article the authors explored those factors that influence the capital structure of Pakistan textile industry. Capital structure represents the combination of various debt and equity securities hold by a firm. it is very important to choose right set of capital structure as the wrong and quick decision of the management may lead to the financial distress and the firm may bear the cost. It has been recognized that the firm specific characteristics make the combination of debt and equity. These characteristics are profitability, size of the firm, asset structure, growth opportunities and the liquidity position of the firm etc. The financial instruments which are issued by the firm do not affect the productivity and its value. This is the assumption of Modigliani and Miller's which do not hold in the real world. The firm should use much debt because of tax deductible interest payment and in this case the levered firm value becomes more than the unlevered firm by the equal amount of present value of tax savings that are arise from the use of debt. In Pakistan the commercial bank are hesitant in providing long term loans due to risk factor. The author explained the capital structure with the help of different theories. (Trade off theory, Pecking theory, Free cash flow theory). they were selected a sample of 75 companies from the Karachi Stock Exchange for data analysis purpose. They had chosen debt ratio (as measure of leverage) as dependent variable while profitability, size, tangibility, growth opportunities and liquidity are taken as independent variables. According to their results, the average debt ratio among the Pakistani companies was 64. 95%. This indicates that the firms are more levered than those firms in UK, Canada and USA. These firms are

less levered than those in France, Japan, Italy and Germany. Their results suggest that the leverage is negatively correlated with the profitability determinant and positively correlated with the firm size. Negative relationship between the leverage and tangibility determinants shows that the companies with safer and secure tangible assets tend to borrow more from the banks than the companies having risky intangible assets. The highly liquid and profitable firms are preferred to finance new investments from internally available funds. According to the trade off theory the larger firms in Pakistan should operate at high debt level due to diversification risk factor while the smaller firms operate at low leverage as they liquidated when they facing financial crisis. Mostly the firms in Pakistan are dependent on the bank debts because undeveloped and small bond market. Majority of privatized commercial bank in Pakistan have prefer to extent the short term loans as compare to long terms loans. In short the firms in Pakistan are heavily relying on short terms loans. According to Myers, there is no theory to make better combination of debt -equity and no reason to expect that it add value to the firm.

### **(Wasmullah, Toor, & Abbas, Can High Leverage Control the Opportunistic Behavior of Managers: Case Analysis of Textile Sector of Pakistan , 2010)**

This article analyzed the impact of leverage on managerial earnings practices in textile industry of Pakistan. The investors/shareholders have been concerned with the earnings/profit. They had discussed the relationship between earning management and firm leverage among leverage increasing firms and control/highly levered firms. Theoretically they had proven the both the positive and negative association between them. Positive as if a <https://assignbuster.com/the-impact-of-financial-leverage-on-return-and-risk/>

firm highly levered so the manager are engage in increasing the income accruals to meet the investors and lenders expectations. According to Jensen's (1986) control hypothesis, leverage increases control the opportunistic behaviour of the managers as if highly leverage firms can use the free cash flows in services of loans and managers are left with low free cash flows. In this case managers do not invest the amount in decreasing value projects and not depend upon profit management to hide their poor performance. This represents the negative association between leverage and earning management. IN 1985 Healy used total accrual as alternative of earning management but in 1986 DeAngelo argued that it the better measurement of earnings management is change in total accrual. But after five Jones argued with the statement of DeAngelo that non discretionary components of earnings did not remain the same. she had provided a model which explained that economic conditions changes non discretionary components of accruals. Two variables such as change in sales and the level of property can controlled the economic conditions. They had taken the data of 6 years from 2001-2006 of textile industry of Pakistan. According to Jensen (1986), Maloney et al(1993) and Stulz(1990), leverage increases the limit the opportunistic behaviour of managers as require debt payments decrease the amount of cash available to managers for investing in non-value projects. They had obtained the data from the Balance Sheet analysis of Joint stock Companies which are listed on KSE, then classified the firms into increasing leverage firms and control firms. They had taken accruals as dependent variable and debt to equity ratio as explanatory variable.

According to their results, the relationship has been significantly different in leverage increasing firms and control firms. According to control hypothesis,

most of the portion from the low cash flow is expense out in the form of interest in case of highly leverages and as a result the opportunistic behaviour of the manager has been controlled, because they have not enough cash to invest in non value projects and less chances to hide their poor performance. This result leads to make carefully investment in the new projects. It is very difficult to measure the opportunistic behaviour of the firm. The author results supported the control hypothesis. In 2003 DeAngelo argued that total change in receivables are not the discretionary accruals because some portion of accruals is based on previous period's accruals, and some portion of inventory is also depend upon change in sales.

**(Mseddi & Abid, The Impact of Operating and Financial Leverages and Intrinsic Business Risk on Firm Value, 2010)**

The purpose of this article is to examine the fundamental risk determinants of firm value. The goal of the firm has to increase/maximise the firm value and firms constitute their