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## Article

# Market power versus capital structure determinants: Do they impact leverage?

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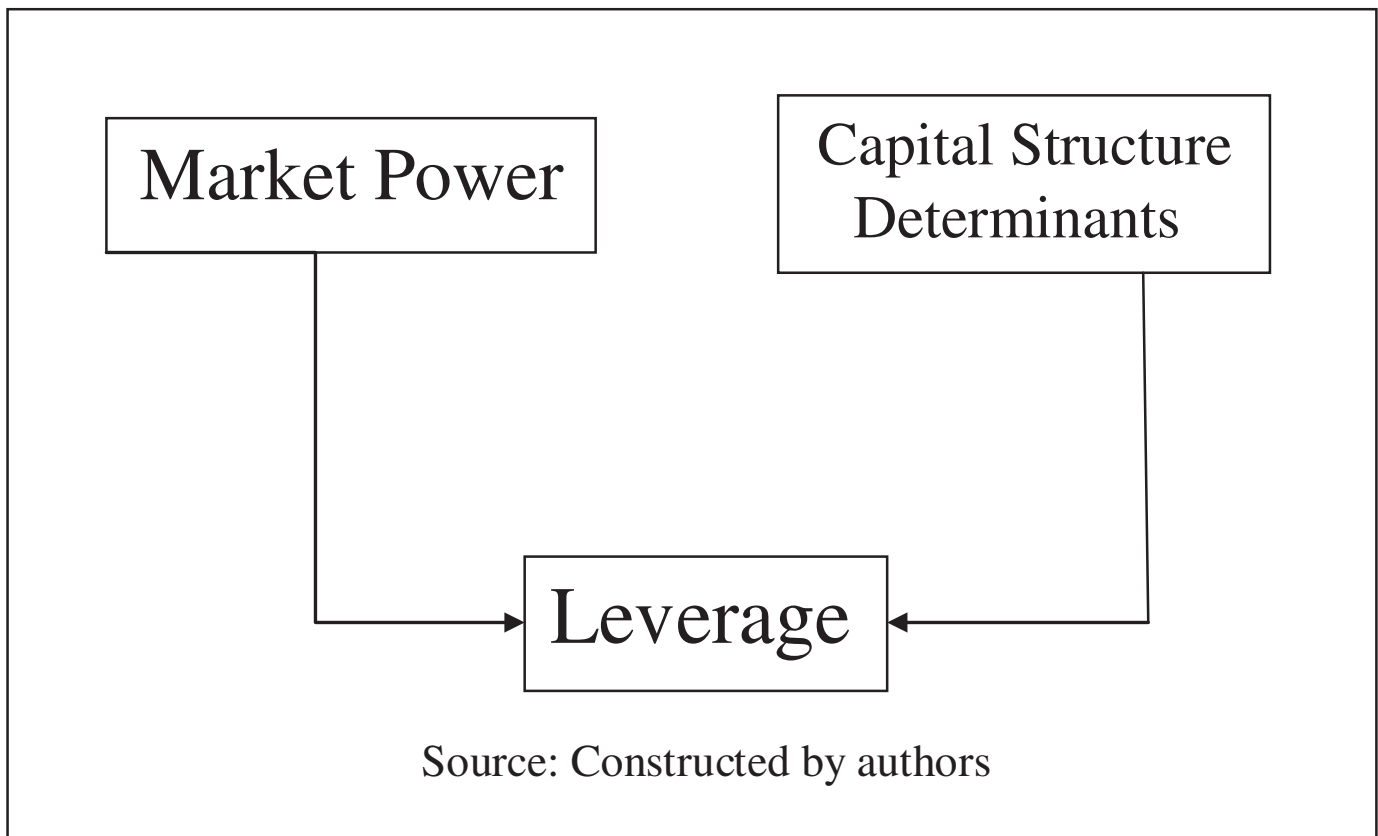
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## FINANCIAL ECONOMICS | RESEARCH ARTICLE

# Market power versus capital structure determinants: Do they impact leverage?

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**Abstract:** The purpose of this study is to investigate the association between market power and capital structure. This study will further provide a logical explanation towards the factors affecting capital structure. This study analysed 176 non-financial Pakistani companies listed on Karachi Stock Exchange over the period of 2003–2012. Capital structure has been tried to investigate with a different perspective by investigating its association with market power. It has been seen that there is a significant and positive relation between market power and capital structure. Size and liquidity remained significantly negative with capital structure, whereas profitability and dividend payout remained significantly positive with capital structure. To the best of authors' knowledge, this is the first study that investigates the relationship between market power and capital structure in any developing economy by employing the data of non-financial Pakistani firms.

**Subjects:** Economics, Finance, Business & Industry; Economics; Finance

**Keywords:** capital structure; leverage; corporate finance; trade-off theory; pecking order theory; market power; Pakistan

### 1. Introduction

For all business firms, decisions regarding capital structure are very important. Within the corporate business form, usually it is the management's job to make decisions about capital structure in a manner that the value of firm is maximized. Though, firm value maximization is not a simple task



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### PUBLIC INTEREST STATEMENT

Capital structure possesses a complex mechanism in the field of corporate finance, which has been studied since more than five decades. Because of its puzzling situation, the findings differ from one market to another. This study provides results on capital structure determinants by employing a unique and new dimension into it (i.e. market power), which has rarely been investigated in any developing markets yet. Results indicate that almost 50% of the assets of Pakistani firms are backed by debt during the period of this study. Findings further show that the larger firms having more liquid assets do not increase their debt levels. However, profitable firms which manipulate their market share prices and pay dividends tend to increase their debt levels. The data were gathered from eight different non-financial sectors, i.e. automobile & parts, chemicals, construction & materials, electricity, food processors, oil & gas, textile and household goods.

because it entails the selection of equity and debt securities in an equitable amount taking into account the different benefits and costs attached to these securities. An incorrect decision during the process of selection of securities might lead an organization to financial suffering and ultimately towards bankruptcy. The correlation between the value of firm and decisions of capital structure has been widely studied in the last few decades. Usually, financial markets can facilitate a firm in acquiring funds in order to finance its investments in the two manners: by means of issuing corporate stocks (equity market) or by means of issuing a debt instrument (bond or credit markets). In this case, the word “Capital Structure” denotes the manner in which a firm finances its investments by means of some blend of debt and equity. Though, equity and debt are extremely dissimilar compared with nature, they harmonize one other like the sources of funding for projects of corporate investment. Consequently, for every investment, the tactic is to stumble on the finest combination of both. If a firm possesses excessive debt, it might overstretch its capability of servicing the debt and can become predisposed to corporate changes and downturns in rates of interest, and so is likely to be viewed as financially risky. In contrast, excessive equity reduces the interest of ownership, displays the firm to external reign and generally points out that the firm is not efficiently utilizing its money to acquire assets of business. This might be depressing to financiers, as it represents fewer profits being given out to them.

It is indicated by Wald (1999) that organizations may considerably manipulate firms’ decision of capital structure and that monitoring and agency problems, whereas being in all countries might generate different results. Although most of the research outcomes have been originated from the developed economies’ experience that have various organizational similarities (Bevan & Danbolt, 2002; Rajan & Zingales, 1995; Wald, 1999), slight research has been carried out to expand our knowledge about capital structure in developing nations that encompass dissimilar organizational structures.

Capital structure possesses a puzzling nature (Titman, 1984), which still remains the same (Umar, Tanveer, Aslam, & Sajid, 2012). Hence, this study tries to further explore the capital structure determinants and investigates the matter by employing market power into it. Market power is considered to be an important part of any organization. Therefore, it is important to see what impact it has on leverage and external financing and how firms deal with the leverage by controlling share pricing or production. Furthermore, this study employs the data of non-financial firms of Pakistan. Studies on this issue in Pakistan are still rare and that even present dissimilar results. Not only this, this is the first study in Pakistan which investigates the relationship of market power with leverage ratio. The results of this study will also help understand the nature of capital structure in other developing countries as well. In addition, this study employs market power as an explanatory variable, which has not been investigated yet in Pakistan.

## 2. Literature review

An essential matter in corporate finance involves understanding of how firms choose their financing choices and it is apparent that there is no consensus on theories that explains a firm’s perfect capital structure (Seifert & Gonenc, 2010). Modigliani and Miller (1958) initiated the first study on capital structure which hashes out that the capital structure is immaterial in a corporate world without taxes, transaction costs or other market imperfections.

### 2.1. Modigliani–Miller theorem

This groundbreaking study was presented by Modigliani and Miller (1958) on an assumption that there is the existence of market perfection in capital market. Therefore, the market operates without transaction costs and bankruptcy costs, and information is available for everyone in the market. Modigliani and Miller (1958), in other words, asserted that financing decisions of firms are undertaken with identical interest rate and without tax. As a result, cost of equity is same for firms which are, both, leveraged and non-leveraged. For the non-leveraged firm, premium is included for financial risk. Ultimately, these assumptions are pointing out that the firm value is not dependent on its capital structure. Modigliani and Miller (1958) first began this groundbreaking work on capital structure in the field of Corporate Finance. According to Modigliani–Miller theorem, in perfect capital markets, no impact of leverage can be seen on firm value. This theorem documented that firm’s value is not affected by debt–equity ratio.

## 2.2. Trade-off theory

Trade-off theory by focusing on cost and benefit analysis of debt predicts that there is an optimal debt ratio which helps to maximize the value of a firm. Optimal point can be hit when the benefits of debt issuance countervails the increasing present value of costs related to more debt issuance (Myers, 2001). Major benefit of debt is to minimize the interest payments. Such benefits stimulate firms to use debt. Miller (1977) explains this simple effect gets complicated with the existence of personal taxes and sometimes with non-debt tax shields (DeAngelo & Masulis, 1980). Moreover, equity issuance means to move away from optimum; therefore, this can be considered as a bad news. Myers (1984) further documented that they would opt to issue equity if they feel it is mispriced in market. On the contrary, investors become conscious that the equity issuance is fairly priced or mispriced. Consequently, equity issuance leads investors to react negatively and management doesn't show any interest to issue equity.

## 2.3. Pecking order theory

Pecking order theory, proposed by Myers (1984), explains that firms most likely prefer to finance new investments, first with internally raised funds, i.e. retained earnings, then with debt and issue equity as a final resort. This theory explains the financial decision-making of the firms. According to Shyam-Sunder and Myers (1999), pecking order theory anticipates the impacts of profits correctly. Whereas, according to Fama and French (2002) and Frank and Goyal (2003), the theory has few other complications as well. And currently, it is not that much helpful in managing firms' financial resources.

## 3. Independent variables

### 3.1. Size

It appears that there is an accord among theories regarding the positive impact of size over capital structure of firm, however, their rationalization varies. From the trade-off theory's viewpoint, companies exchange between the advantages of leverage, for example, tax savings or alleviation of agency problems adjacent to the leverage costs, for instance, the bankruptcy costs. Conversely, it is argued by Rajan and Zingales (1995) that the bigger companies have a tendency to be greatly diversified and as a result they less frequently experience the bankruptcy. Therefore, a viewed positive dependence is anticipated between firm size and leverage. On the other hand, due to information asymmetries, undersized companies are probable to experience increased costs for the purpose of acquiring external finances. Furthermore, it is disputed by Bevan and Danbolt (2002) that because of credit rating, bigger firms are more on the verge of holding access to financing of non-bank debt. Consecutively, this also would propose a positive correlation between debt and size.

To measure the size of a firm, natural logarithm of sales is used in this study, this measure is also consistent with many previous studies (e.g. Hernádi & Ormos, 2012; Rajan & Zingales, 1995; Titman & Wessels, 1988). This measure makes the variations smooth in the figure over the time period.

### 3.2. Tangibility

Collateralized assets are deemed as a vital tool that influences the firm's decision of capital structure. Tangible assets might be utilized as collateral. Therefore, the greater the percentage of tangible assets, the lesser is the risk of creditor, and sequentially, the assets' value will be higher in the incident of liquidation and bankruptcy. It is declared by Booth, Aivazian, Demircug-Kunt, and Maksimovic (2001) that "The more tangible the firm's assets, the greater its ability to issue secured debt and less information revealed about future profits" (Booth et al., 2001). Experimental researches that provide support towards this association are carried out by Rajan and Zingales (1995) and Titman and Wessels (1988).

We expect positive relation between tangibility (TANG) and leverage (Chen, Chen, Chen, & Huang, 2013; Rajan & Zingales, 1995). We use fixed assets over total assets (FA/TA) as a proxy to determine firms' tangibility, as computed by Chakraborty (2013).

### 3.3. Profitability

Profitability can be described as the proportion of earnings before interest and tax (EBIT) and depreciation to total assets (TA) (Huang & Song, 2006). Even though, a great deal of hypothetical work is being carried out since Modigliani and Miller (1958), no reliable empirical results have been achieved in this regard until now. From the trade-off theory's perspective, the more is the company lucrative, the superior the leverage must be because of debt tax deductibility of payment of interest. It is further argued by Rajan and Zingales (1995) that suppliers of debt must be more eager to lend to firms that are profitable.

This study expects negative relation between leverage and profitability, empirical evidence has shown that profitability is negatively correlated with debt ratios (Bevan & Danbolt, 2002). Profitability (PROF) is measured as earnings before interest and tax over total assets (EBIT/TA) as previously measured by Booth et al. (2001) and Shah and Khan (2007).

### 3.4. Dividend payout

Signalling models of capital structure anticipate that greater leverage relates to greater cash flow. Signalling models explain that costs of information asymmetry and outside capital reduce when the firms with financial leverage pay dividends. Debts are chosen by firms in such a way that these could reduction in asymmetric information could provide more benefits than cost of signalling. When there is asymmetric information, the problems of underinvestment arise (Myers & Majluf, 1984). Such problems are tackled by firms by not paying dividends much and saving financial slack. Myers and Majluf (1984) anticipate that the more asymmetric information will result lower dividends. However, this anticipation is contrary to the predictions made by dividend signalling model (Bhattacharya, 1979). Interaction between dividend payout and capital structure has also been discussed by Deangelo, Deangelo, and Stulz (2006). On the basis of dividend lifecycle theory, Deangelo et al. (2006), Fama and French (2001), and Grullon, Michaely, and Swaminathan (2002) examine the interaction between dividend payout and equity capital mix. They find that the firms with higher ratio of retained earnings to total equity (RE/TE) are likely to pay more dividends.

Al-Najjar (2011) explains that payment of dividend can be perceived as an indication of better financial rank and, consecutively, greater debt-issuing capability. Al-Najjar (2011) could not find any association between capital structure and dividend payments. This study measures dividend payouts (DPO) as dividend per share over earning per share as a proxy to measure DPO (Al-Najjar, 2011).

### 3.5. Liquidity

Liquidity has both negative and positive impact on capital structure decisions, hence, the net effect is unidentified (Abu Mouamer, 2011). Companies with higher ratios of liquidity might relatively encompass higher debt level because of their capability to meet debt obligations. This debate indicates a positive correlation between a firm's debt ratio and liquidity. Alternatively, availability of more liquid assets shows that those assets will be used as a source of financing when required in future. Thus, this suggests negative association between debt ratio and liquidity ratio. Myers and Rajan (1998), in this regard, showing negative relationship between liquidity ratio and debt ratio, further argue that when the liquidity's agency cost is high, creditors restrict the amount of debt to firm. Likewise, picture of asset liquidity is not clear to the institutional investors. Higher liquidity ratio may indicate a negative sign and shows that the company is facing problems related to opportunities to decide about the long-term investment. Therefore, ratio of liquidity may pose negative sign in support of institutional financiers. Nevertheless, higher ratio of liquidity poses positive sign from company, as it shows that the company is capable of meeting its obligations and has lower bankruptcy risk.

To gauge this effect, the research utilizes the quotient of current assets to current liabilities as an alternative intended for the liquidity of the assets of a firm (Al-Najjar, 2011).

#### 4. Market power

Recently, a very few studies have analysed market power's (MP) impact on capital structure (Al-Shubiri, 2011; Pandey, 2004), which further needs to be investigated. Pandey (2004) defines structure of market in terms of firm's market power. Market power implies a firm's control upon volume or price of production. In functioning expressions, market power means a company's oligopoly, monopoly or competitive power. It is stated by Rathinasamy, Krishnaswamy, and Mantripragada (2000) that market structure (power) can be calculated by means of the Lerner index, or Tobin's Q, or the Herfindahl-Hirschman index. It is shown by Lindenberg and Ross (1981) that Tobin's Q (or just Q) is hypothetically a strong and realistically the most influential indicator of the company's market power. Q of every company will be equivalent to one in a competitive market. Companies with Q greater than one are likely to direct competitive advantage either monopoly or oligopoly power. Therefore, Pandey (2004) delineates the market power with regard to Q. There is furthermore a realistic rationale in support of making use of this description of market power. Within developing nations, quantity or segmental data and price are not accessible for computing the Herfindahl-Hirschman index or Lerner index.

This study also measures market power with Tobin's Q. Positive relation is expected between market power and capital structure here in this study.

##### 4.1. Methodology

Independent variables and dependent variable have been selected in accordance with the academic literature. Consequently, methodology has been described here to test different hypotheses and analyses those variables empirically. To construct the model, panel data techniques have been used. Panel data consist of both the time series elements and cross-sectional elements; time series elements reflect the time period of the study (2003–2012) and cross-sectional elements reflect (176) non-financial companies.

$$LEV = \beta_0 + \beta_1 (SIZE)_{it} + \beta_2 (TANG)_{it} + \beta_3 (PROF)_{it} + \beta_4 (DPO)_{it} + \beta_5 (LIQ)_{it} + \beta_6 (MP)_{it} + \varepsilon_{it}$$

where LEV is the leverage ratio of a firm; SIZE is the size of a firm; TANG is the tangibility of a firm; PROF is the profitability of a firm; DPO is the dividend payout; LIQ is the liquidity of a firm; MP is the market power of a firm.

##### 4.2. Data

Every year State Bank of Pakistan publishes balance sheet analyses; the data utilized in this study were collected from those statements. Financial institutions have been excluded in this study as they are the primary source of financing. Hence, their capital structure differs from the non-financial companies. This study analyses the data of 176 non-financial companies listed on Karachi Stock Exchange (Pakistan) from the year 2003 to 2012.

##### 4.3. Dependent variable

Capital structure may be comprehensive, hence measured differently. This study uses leverage ratio to measure capital structure. Therefore, it would be appropriate to discuss about the methodology employed in this study to measure capital structure.

Following Mateev, Poutziouris, and Ivanov (2013), this study measures dependent variable by leverage ratio (LEV), that is, total debt to total assets.

$$\text{Leverage (LEV)} = \frac{\text{Current Liabilities} + \text{Non-Current Liabilities}}{\text{Total Assets}}$$

#### 5. Empirical results and discussions

Table 1 below presents the descriptive analysis of capital structure determinants and market power. The mean value of leverage (LEV) shows that the 51.18% of the total assets are backed by external financing. While comparing this statistic, according to Rajan and Zingales (1995), firms of Pakistan

**Table 1. Descriptive analysis of market power and determinants of capital structure**

Variables	Observations	Mean	SD	Minimum	Maximum
LEV	1760	0.5118	0.1910	0.00	1.08
SIZE	1760	14.833	1.9309	6.15	20.12
TANG	1760	0.4960	0.2598	0.00	1.09
PROF	1760	0.1085	0.1546	-0.77	0.93
DPO	1760	0.0447	0.0229	0.01	0.17
LIQ	1760	1.0256	0.4977	-0.91	2.62
MP	1760	0.0527	0.0310	0.01	0.30

**Table 2. Correlation matrix of market power and determinants of capital structure**

Variable	LEV	SIZE	TANG	PROF	DPO	LIQ	MP
LEV	1						
SIZE	-0.212**	1					
TANG	0.038	-0.203**	1				
PROF	0.052*	0.225**	-0.107**	1			
DPO	0.073**	-0.027	0.007	0.006	1		
LIQ	-0.319**	0.227**	-0.338**	0.261**	-0.039	1	
MP	0.068**	-0.065**	0.004	0.049*	0.016	-0.030	1

Note: Dependent variable: LEV.

\*Level of significance at  $p < 0.05$ .

\*\*Level of significance at  $p < 0.01$ .

**Table 3. Regression analysis of market power and determinants of capital structure**

Independent variable	Coefficient	t-value	P-value
SIZE	-0.019**	-8.157	0.000
TANG	-0.075**	-4.332	0.001
PROF	0.215**	7.533	0.000
DPO	0.446*	2.447	0.025
LIQ	-0.135**	-14.600	0.000
MP	0.221**	1.638	0.006
R <sup>2</sup>		0.29	
Adj. R <sup>2</sup>		0.27	
F-value		47.23**	0.000

Note: Dependent variable: LEV.

\*Level of significance at  $p < 0.05$ .

\*\*Level of significance at  $p < 0.01$ .

come across as more leveraged as compared to those of Thailand, Zimbabwe, Brazil, Jordan, Mexico and Malaysia. In addition, Tables 2 and 3 below present the correlation and regression, respectively.

## 6. Conclusion and discussion

This study tried to examine the determinants of capital structure of Pakistani non-financial firms and the factors that influence capital structure decisions. This enlightens the knowledge on explanatory variables and assists to understand the problems related to capital structure. We conducted the empirical tests that help us to clarify the puzzling results of determinants. Capital structure decisions are influenced by many variables, i.e. firm size, profitability, DPO and liquidity. Size and liquidity were negatively significant with leverage, which demonstrates that the larger companies having more liquid assets tend to lessen their debt levels. Wald (1999) and Booth et al. (2001) also showed



negative relation between size and leverage. They justify this negative sign with the hypothesis of market timing, i.e. large companies issue shares (financial securities) when market conditions of firm are good. Same is the case with the firms having more tangible assets. Profitability, DPO and market power remained positive. However, profitable Pakistani companies which pay dividends tend to increase their debt levels. It is further argued by Rajan and Zingales (1995) that suppliers of debt must be more eager to lend to firms that are profitable. Firms which can manipulate market price of their financial securities successfully tend to increase their debt for further growth opportunities.

Furthermore, this research employed a unique variable which has not been tested yet on Pakistani non-financial companies, i.e. market power. The impact of market power on capital structure remained highly significant and positive, which means that the firms which try to manipulate their share prices in market or control their production accordingly, tend to increase their debt levels. Regression analysis shows the significance of all the capital structure determinants that are employed in this study.

Further research can be carried on by employing short- and long-term debt ratios along with total debt ratio to examine the different behaviours of firms with respect to debt levels. In addition, more firm-level variables (e.g. dividend, firm age and uniqueness) and country-level determinants (interest rate, stock market development, gross domestic production and inflation) may also be employed to have a better insight on capital structure. Generalized method of moments may also be employed to see the differences among the results.

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#### Cover image

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