An Empirical Analysis of Relationships between Capital Structure, Market Power, Profitability and Expenditure

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Abstract

This paper analyzes the important determinants of capital structure in the Indonesian Companies. **Objectives**: This study extends the empirical works on the determinants of capital structure, taking all the relevant independent variables as determinants; it sheds new light on the relationship between business risk and leverage. **Approach**: This paper using Generalized Methods of Moment to analyze capital structure and market power, and profitability in relationships. Capital structure and market power, as measured by Tobin's Q, are shown to have a cubic relationship, due to the complex interaction of market conditions, agency problems and bankruptcy costs. **Result**: The study finds a saucer-shaped relation between capital structure and profitability. The negative relationship between debt ratio and the size of shareholding means that more diffused ownership results in lower leverage, which supports the agency hypothesis. The current results indicate a significant positive relationship of tangibility (FA/A ratio) with debt ratio, which vindicates the trade-off theory that postulates a positive correlation between debt ratio and tangibility since fixed assets act as collateral in debt issues. **Implication**: this study implying for academics can develop capital structure theory, for practitioner as the reference for business decision-making, especially market structure.

Keywords: Capital structure; market structure; profitability; and expenditure

I. INTRODUCTION

Companies have purpose for long term and short term, in short Term Company how get the maximum profit and for the long term how to increase firm value as well as market structure. The relationship between capital structure and market structure has been the subject of considerable debate, both theoretically and in empirical research. Throughout the literature, debate has centered on whether there is an optimal capital structure for an individual firm or whether the proportion of debt usage is irrelevant to the individual firm's value.

Correlation and relationship issue between industry membership and capital structure has received considerable attention. In their review of the capital structure literature, Harris and Raviv (1991) noted that it is generally accepted that firms in a given industry will have similar leverage ratios while leverage ratios vary across industries. Schwartz and Aronson (1967) documented a relationship between industry and capital structure in five industries.

Statement from Modigliani and Miller (1958, 1963) about capital structure irrelevance and the tax shield advantage paved the way for the development of alternative theories and a series of empirical research initiatives on capital structure. The alternative theories include the tradeoff theory, the pecking order/asymmetric information theory and the agency theory. All these theories have been subjected to extensive empirical testing in the context of developed countries, particularly the United States (US) (see Harris & Raviv 1991 for a review). A few studies report on international comparisons of capital structure determinants (Rajan & Zingales 1995; Wald 1999); and there are some studies that provide evidence on the capital structure determinants from the emerging markets of South-East Asia (Annuar & Shamsher 1993; Ariff 1998; Pandey, Chotigeat & Ranjit 2000; Pandey 2001). The recent focus of corporate finance empirical literature has been to identify some 'stylized' factors that determine capital structure.

In their seminal article, Modigliani and Miller (1958 and 1963) demonstrate that, in a frictionless world, financial leverage is unrelated to firm value, but in a world with tax-deductible interest payments, firm value and capital structure are positively related. Miller (1977) added personal taxes to the analysis and demonstrated that optimal debt usage occurs on a macro-level, but it does not exist at the firm level. Interest deductibility at the firm level is offset at the investor level.

With relatively little evidence available on the interaction between capital structure and product market structure, some researchers have recently started investigating this relationship. Brander and Lewis (1986), Maksimovic (1988), Ravid (1988) and Bolton and Scharfstein (1990) variously offer a theoretical framework for the linkage between capital structure and market structure. On a broader front, Harris and Raviv (1991) and Phillips (1995) provide surveys of both the theoretical and empirical research on the relationship between capital

structure and market structure, while studies in the US by Krishnaswamy, Mangla and Rathinasamy (1992), Chevalier (1993) and Phillips (1995) investigate the empirical relationship between capital structure and market structure.

In a recent study, Rathinasamy, Krishnaswamy and Mantripragada (2000) examine this issue in an international context using data from forty-seven countries. All these studies establish a linear relationship, either positive or negative, between capital structure and market structure. Differing from the linear theory, this paper argues that the relationship between capital structure and market structure is cubic. It also shows that the relation of profitability with capital structure is U-shaped or saucer-shaped. The results of the present empirical work vindicate these predictions. To their knowledge, the authors of this work are the first to uncover the cubic relationship between capital structure and market structure, and the saucer-shaped relationship between capital structure and profitability. It is also possible that they are the first to carry out the empirical work on the relationship between capital structure and market structure using data from the emerging Indonesian market.

Other researchers have added imperfections, such as bankruptcy costs (Baxter, 1967; Stiglitz, 1972; Kraus and Lichtenberger, 1973; and Kim, 1978), agency costs (Jensen and Meckling, 1976), and gains from leverage-induced tax shields (DeAngelo and Masulis, 1980), to the analysis and have maintained that an optimal capital structure may exist. Empirical work by Bradley, Jarrell and Kim (1984), Long and Malitz (1985) and Titman and Wessells (1985) largely supports bankruptcy costs or agency costs as partial determinants of leverage and of optimal capital structure.

Our study extends the empirical works on the determinants of capital structure, taking all the relevant independent variables as determinants, it sheds new light on the relationship between business risk and leverage.

The remaining sections of the paper are organized as follows. Following a review of the literature, the theoretical framework of the study is presented, after which there is a description of the data and research methodology. The results of the statistical analyses are then reported, and the paper ends with a summary of the main conclusions.

II.   LITERATURE REVIEW

Market structure is shown to affect capital structure by influencing the Competitive behavior and strategies of firms. Firms In an oligopolistic market will follow the strategy of maximizing their output in favorable economic Conditions to optimize profitability (brander & lewis 1986). The theory also holds in unfavorable economic Conditions; firms would take a cut in production and reduce their profitability. Shareholders, though, while enjoying increased wealth in good periods, tend to ignore a decline in profitability in bad times. This is due To the fact that unfavorable consequences are passed onto lenders because of shareholders' limited liability Status. Therefore, the oligopolistic firms, in contrast To firms in competitive markets, would employ higher Levels of debt to produce more when opportunities to earn higher profits arise. The implied prediction of the Output maximization hypothesis is that capital structure And market structure have a positive relationship.

Much of the previous empirical work on the determinants of borrowing decisions of firms has tended to concentrate on the factors predicted by the static trade-off theory of capital structure, which is based on a trade-off between the tax advantages of debt financing and the costs of financial distress. As discussed in Myers (1984), the static trade-off theory implies that the actual debt ratio reverts towards a target or optimum, and it predicts a cross sectional relation between debt ratios and asset risk, size, profitability, tax status and asset type. The results of the empirical literature confirm some of these predictions in that firms in the same industry, facing similar conditions, risk characteristics and tax status, have similar leverage ratios. Moreover, on balance the evidence from these studies lends support to the negative impact of business risk on corporate borrowing decisions. However, there are conflicting conclusions on the impact of other firm specific variables.

From Agency costs theory statement, the theory supports the use of high debt, and it is consistent with the prediction of the output maximization hypothesis. Jensen and Meckling (1976) argue that the shareholders-lenders conflict has the effect of shifting risk from shareholders and of appropriating wealth in their favor as they take on risky investment projects (asset substitution). Hence, shareholders, and managers as their agents, are prompted to take on more borrowing to finance risky projects. Lenders receive interest and principal if projects succeed, and shareholders appropriate the residual income; however, it is the lender who incurs the loss if the project fails.

In the corporate finance, capital structure increases the chances of financial distress and bankruptcy. Firms face costs of financial distress when they are unable to service debt. They will have high debt ratios if these costs are zero or trivial (Scott 1976; Kim 1978). Since costs of financial distress are non-trivial and highly leveraged firms can actually go bankrupt, firms with a high probability of bankruptcy will have a low debt ratio. The chances of bankruptcy for firms with large reserve funds are relatively less, but unleveraged firms with high profitability and large reserve funds have a great competitive advantage. These firms with 'deep purses' may not

only survive but they also gain by driving their rival firms into bankruptcy (Brander & Lewis 1986; Bolton & Scharfstein 1990).

Firms in this situation can follow a policy of aggressive production and predatory price cutting to eliminate their rivals by forcing them into financial distress. This strategy pays off, particularly when external funding is not available to the firms that are the target of the predatory price behavior. The implication of this model is that the unleveraged firm with deep purses (high profitability and reserve funds) has the incentive to increase their output in order to drive their competitors into bankruptcy. Empirically, a negative relationship can be predicted between capital structure and market structure.

Asymmetric information theory or the pecking order predict a negative relationship between capital structure and market power. Myers (1977) provides a model under which debt causes under-investment (asset substitution). In this scenario, firms reject those profitable, low-risk investment projects that have the possibility of passing on benefits from shareholders to lenders. Furthermore, internal financing is cheaper than external debt or equity financing due to asymmetric information. Higher debt makes higher output costly for a leveraged firm. In a competitive market, unleveraged or low-leveraged rival firms will intensify competition by increasing their output and/or lowering prices. If the leveraged firms continue borrowing to meet the competition, they may face financial distress and bankruptcy.

Study of Krishnaswamy, Mangla and Rathinasamy (1992) find a positive relationship between debt and market structure, measured by the Lerner index. Chevalier (1993) provides evidence in support of a negative relationship between capital structure and market structure. This result is consistent with bankruptcy costs or the asymmetric information/pecking order hypotheses. Phillips (1995), using price and quantity data for market structure, finds a positive link between capital structure and market structure, consistent with the output and limited liability effect model. In a study of international firms from forty-nine countries, Rathinasamy, Krishnaswamy and Mantripragada (2000) also report a positive relationship between capital structure, measured by total debt ratio (TDR); and long-term ratio and market structure, measured by Tobin's Q.

Profitability is an important independent variable that has an influence on capital structure. As per the asymmetric information hypothesis of Myers (1977) and Myers and Majluf (1984), firms, irrespective of their market power, would depend on internally generated funds for their expansion since external funds involve higher costs. This suggests a negative relationship between capital structure and profitability, which results of empirical studies support (Kester 1986; Friend & Lang 1988; Titman & Wessels 1988; Rajan & Zingales 1995; Michaelas, Chittenden & Poutziouris 1999). But the alternative interest/tax shield hypothesis (Modigliani & Miller 1963) predicts a positive relationship between capital structure and profitability.

In adverse market conditions, their limited liability status provides protection to shareholders against the risk-taking production decision and it is the lenders that would suffer. Thus, a firm's debt level will increase as it gains market power reflected in Q. On the other hand, as debt increases, there are significant costs in terms of increased probability of bankruptcy and financial distress. This cost would be accentuated by the behavior of no-debt or low-debt firms with 'deep purses'. They would resort to predatory price behavior and lead their rivals to bankruptcy. This argument suggests a negative relationship between capital structure and Q. These two opposing effects point to the possibility of a nonlinear relationship between capital structure and market power (Pandey, 2004).

As a firm starts gaming market dominance, it will increase debt to increase its production and income; that is, as firms' market power increases, they employ more debt to pursue their output maximization strategy. This attracts rival firms to intensify competition by cutting price and/or output. At the intermediate level of market dominance when competition intensifies through price cutting, higher costs of debt squeeze the profitability of highly leveraged firms, increasing their chances of financial distress and bankruptcy. Leveraged firms react by reducing debt or by increasing production through improved assets utilization. However, after consolidating their position, firms at a higher level of market dominance once again leverage the use of debt to expand their production.

Furthermore, Firms in a position of strong profitability and high market dominance that has reserve funds can adopt a high-risk production strategy and use more debt. Thus, a cubic relationship can be predicted between capital structure and market power. The relationship between capital structure and risk have been describe by Myers (1984) that points out the lack of sufficient evidence for a relationship between capital structure and risk. According to the trade-off theory, a higher debt ratio increases the probability of financial distress. With positive financial distress/bankruptcy costs, the risk affects a firm's debt ratio. Ross (1985) demonstrates a theoretical inverse relation between cash flow beta and financial leverage. A theoretically and empirically sound measurement of risk is the firm's unleveraged beta. Chung (1989) shows that the relationship between capital structure and the unleveraged beta is negative. Thus, a negative relationship can be predicted between leverage and risk; however, it is shown that for a negative relationship between risk and leverage, bankruptcy costs should be quite large (Castanias 1983; Bradley, Jarrell & Kim 1984).

Gosh et al. (2000) using development expenditure and advertising expenditure as determinant of capital structure. Gosh et al. (2000) confirm the usefulness of taking growth of assets, fixed asset ratio, R & D expenditure and advertising expenditure as the determinants of capital structure. At the same time, our results show that the relationship between business risk and leverage is quadratic, and it is first increasing and then decreasing — a relationship more close to the traditional theory and contradicts the results obtained by Kale, Noe and Ramirez (1991). But the problem of omitted variables remains as the known determinants 'explain' a very small percentage of the variation in capital structure.

Something about Bankruptcy has argued by Rajan & Zingales (1995) that large firms are likely to be more diversified and less prone to bankruptcy. They are also expected to incur lower direct costs in issuing debt. Thus, large firms are expected to employ a higher amount of debt than small firms. The empirical evidence is mixed. A large number of studies find a significant positive relationship between size and debt ratio (Lasfer 1995; Rajan & Zingales 1995; Barclay & Smith 1996; Berger, Ofek & Yermack 1997). Kester (1986) and Remmers et al. (1974) find no significant effect of size on capital structure.

Base on several argue above, tangible assets act as collateral and provide security to lenders in the event of financial distress. Collaterally also protects lenders from the moral hazard problem caused by the shareholders-lenders conflict (Jensen & Meckling 1976). Thus, firms with higher tangible assets are expected to have a high level of debt. As regards the empirical evidence, some studies report a significant positive relationship between tangibility and total debt (Titman & Wessels 1988; Rajan & Zingales 1995).

III. RESEARCH METHODS

A. Sample

Financial data and capital market data are collected for all firms listed in Indonesia Stock Exchange from financial report database of Indonesia Stock Exchange and database of IDX Corners of Universitas Brawijaya. The period's coverage is over the years 2009-2011. Companies with missing data are excluded from the study. The study also excludes:

(1) The financial and securities sector companies, as their financial characteristics and use of leverage are substantially different from other companies.

(2) Companies with zero sales and negative equity are also omitted.

After eliminating outliers, the sample size is 197 companies for each period. The data of those companies is adjusted, which changes their financial year. Such changes result in one year with missing data and the subsequent year's data of more than twelve months. The subsequent year's data is annualized first, and then the missing data is substituted by the mean value.

B. Measures

Rajan and Zingales (1995) argue that the definition of capital structure would depend on the objective of the analysis. For example, for agency problem-related studies, capital structure may be measured by total debt-to-firm value ratio. Debt can be divided into its various components, and numerator and denominator can be measured in book value and market value terms. This study defines the dependent variable—capital structure—as total debt-to-assets (or debt-to-capital employed); it is the measure of capital structure most often used in empirical studies. Total debt includes interest-bearing long-term and short-term debt. Assets include fixed assets and those current assets that are financed by debt. In an accounting sense, this is equivalent to capital employed, including shareholders' funds (equity) and short-and long-term debt.

The theoretical definition of Q is the ratio of market value of the firm to replacement cost of assets. It is not easy to get replacement cost data in developing countries. Chung and Pruitt (1994) show that Q could be effectively defined as the sum of the market value of equity and book value of long-term debt and net current assets (current assets minus current liabilities) divided by the book value of equity, long-term debt and net current assets. Like Rathinasamy, Krishnaswamy and Mantripragada (2000), the current study uses this measurement.

Pandey (2004) argue his studies so far have predicted a linear relationship between capital structure and market power. It is argued here that this relationship could be a cubic relationship, the reasons being as follows. A firm in an oligopolistic condition sustains its aggressive production and high-income strategy by employing higher level of debt. Shareholders of the firm gain in terms of increased wealth.

C. Data Analysis

The estimation model uses panel data. Panel data, unlike cross-section data, allow controlling for unobservable heterogeneity through individual (firm) effect (ty). Dummies for time variables are also included to measure temporal effect. This helps in controlling the effect of macroeconomic variables on capital structure. Thus, the study uses a two-way, fixed-effect model. The fixed-effect model controls for unobservable heterogeneity; but provides biased results if endogenous variables are included. To resolve this problem, this study estimates the model using the Generalized Method of Moments (GMM), which controls the problem of

endogeneity by using instrument variables. Furthermore, to eliminate individual effect, the study uses the cross-section first differences of variables in the model estimation.

The estimation equation follows:

$$TRD_{it}=\beta_0+\beta_1 Q_{it}+\beta_2 Q^2_{it}+\beta_3 Q^3_{it}+\beta_4(EBIT/A)_{it}+\beta_5(EBIT/A)^2_{it}+\beta_6(EBIT/A)^3_{it}+\beta_7 LnRD_{it} \qquad +\beta_8 LnADV_{it}$$
$$+\lambda_1 GA_{it}+ \lambda_2 BETA_{it}+ \lambda_3 LnA_{it}+ \lambda_4 LnNSH_{it}+ \lambda_5 FA/A_{it}+e_{it}$$

Total debt-to-asset ratio (TDR) at book value is the dependent variable. Independent variables include Tobin's Q, profitability, growth, systematic risk, size, ownership (number of shares) and tangibility. Tobin's Q is calculated as the sum of the market value of equity and book value of long-term debt and net current assets (current assets minus current liabilities) divided by the book value equity, long-term debt and net current assets. R & D expenditure (LnRD) measured as total cost or expenditure for Research and Development activity for increasing product quality. Advertising expenditure (LnADV) measured as total cost or expensive for Promotion activity for increasing product sales. Growth (GA) is measured as one plus annual change in assets. Profitability is defined as earnings before interest and taxes, divided by assets or capital (EBIT/A). Systematic risk is measured by unleveraged or asset beta.

First, the equity beta for each firm is calculated using the weekly share price data. The calculated equity beta for each company is unleveraged for its level of leverage. In the equation, this is referred to as BETAA. Size is measured as the natural log of assets (LnA). Ownership is measured by the natural log of number of outstanding shares (LnNSH). It is assumed that a larger number of shares imply diffused ownership. Tangibility is defined as fixed assets divided by assets (FA/A).

IV.   RESULT

Table 1 (provides means and standard deviations of the dependent and independent variables for each year from 2009 to 2011 and for the period 2009-2011. The average TDR for the period 2009-2011 is 24,91%. However, TDR has been steadily increasing over years, ranging from 24% in 2009 to 25% in 2011.

The Q ratio has shown fluctuations during 2009-2011. It was lower in 2009-2010, corresponding with the financial and stock market crisis in Indonesia. Research and Development expenditure has shown fluctuate during 2009-2010. Advertising expenditure also increases significantly in the last three years. Assets growth was quite high for year from 2009-2011. Profitability also increases significantly in the last three years. Other variables was increase for year from 2009-2011.

Table 1. Summary Statistic Descriptive

		2009	2010	2011	Total 09-11
TDR	Means	0.2472	0.2491	0.2510	0.2491
	Standard Deviation	0.1756	0.1769	0.1782	0.1769
Tobin's Q	Means	3.2654	3.2901	3.3149	3.2901
	Standard Deviation	3.0978	3.1212	3.1447	3.1212
EBIT/A	Means	0.2110	0.2126	0.2142	0.2126
	Standard Deviation	0.1988	0.2003	0.2018	0.2003
LnRD	Means	1.1474	1.0789	2.1334	1.4532
	Standard Deviation	0.9876	0.7688	0.8595	0.8720
LnADV	Means	1.9879	2.1442	2.3005	2.1442
	Standard Deviation	1.0912	0.9577	0.8242	0.9577
Growth	Means	0.4758	0.4693	0.4728	0.4693
	Standard Deviation	0.7684	0.7742	0.7800	0.7742
BETTA	Means	1.1244	1.1328	1.1414	1.1329
	Standard Deviation	0.4565	0.4600	0.4635	0.4600
Ln Aset	Means	3.4357	3.4616	3.4878	3.4617
	Standard Deviation	0.8988	0.9056	0.9124	0.9056
LnNSH	Means	7.9877	8.0480	8.1087	8.0481
	Standard Deviation	2.3457	2.3634	2.3812	2.3634
FA/A	Means	0.5977	0.6022	0.6067	0.6022
	Standard Deviation	0.3954	0.3984	0.4014	0.3984

Table 2 provides a correlation matrix for the pooled sample of 591 firms/years observations. The study finds that size (LnA) and Q ratio have a significant positive relationship with TDR , while risk (unleveraged or asset beta, BETAA) and profitability (EBITA/A) have a significant negative relationship. Other significant relationships exist between risk and size and size and ownership (LnNSH). The negative relationship between risk and size implies that the large firms, being more diversified, have lower systematic risk. The positive relationship between size and ownership indicates that the large-sized Indonesian firms have more diffused ownership.

Table 2. Correlation Matrix

	TDR	Q	EBIT/A	LnRD	LnADV	Growth	Beta	LnA	LnNSH	FA/A
TDR	1.0000									
Q	0.2987	1.0000								
EBIT/A	−0.2634	0.1647	1.0000							
LnRD	0.3543	0.1623	−0.0045	1.0000						
LnADV	−0.5467	0.1866	−0.0065	0.1211	1.0000					
Growth	−0.3265	0.0376	0.1675	0.2231	0.0056	1.0000				
Betaa	−0.5236	0.0654	0.0966	−0.0049	−0.0024	0.0057	1.0000			
LnA	−0.2467	−0.1558	0.1534	0.2322	−0.0083	0.0754	−0.2565	1.0000		
LnNSH	0.1567	−0.0354	−0.0863	−0.1232	−0.0012	−0.0642	−0.1676	0.9454	1.0000	
FA/A	−0.0266	−0.0575	0.0358	−0.0023	−0.0021	−0.4652	−0.0736	−0.0735	−0.3454	1.0000

Table 3 presents results of the GMM estimation. The main concern here is to test the specification about the relationship between capital structure (TDR) and market structure (or power) (Q ratio). As predicted, the study finds that the coefficients of variables Q and Q are positive and the coefficient of Q^2 is negative. All these coefficients are significant at the 1% level of significance, which supports a cubic specification for the capital structure - market structure relationship for Indonesian firms. This evidence is interpreted as consistent with the economic theory of output maximization and the finance theories of agency costs and bankruptcy costs. For a given initial range of Q ratio, any increase in this ratio leads firms to increase output and take more risk to maximize shareholders' wealth. This causes rivalry in the market and competition intensifies, particularly from unleveraged firms. The fear of bankruptcy and loss of investment and profitability obliges leveraged firms to reduce debt. Hence, for some intermediate range of Q the competition forces leveraged firms to lessen debt. Finally, for well-established, profitable firms with a very high Q ratio and low probability of financial distress and bankruptcy, the output maximization seems to dominate the relationship between capital structure and the Q ratio.

The study also finds expected signs of the coefficients of profitability variables, $(EBIT/A)$, $(EBIT/A)^2$ and $(EBIT/A)^3$. The coefficients of $(EBIT/A)$ and $(EBIT/A)^3$ are, respectively, negative and positive and statistically significant at the 5% level of significance. The coefficient of $(EBIT/A)^2$ is not statistically different from zero. Thus, these results confirm a saucer-shaped relationship between debt ratio and profitability. This evidence is interpreted as a trade-off between the effects of asymmetric information, agency costs and tax benefits. For a given initial range of profitability, any increase in this ratio

leads firms to internally finance their output growth and minimize their cost of financing. It is also likely that at relatively lower levels of profitability, firms may not have much incentive to issue debt, as other non-debt tax shields may be available to them.

Table 3. Result of GMM Model on Panel Data

Variables	Coefficient	t-statistic	p-value
TDR	0.0164	8.956	0.000
Q	0.0473	5.846	0.000
Q^2	−0.0346	−4.645	0.000
Q^3	0.0045	2.866	0.028
(EBIT/A)	−0.0265	−3.646	0.007
$(EBIT/A)^2$	0.0845	0.983	0.127
$(EBIT/A)^3$	0.3644	2.986	0.032
LnRD	0.2112	3.453	0.009
LnADV	0.1234	3.535	0.008
Growth	−0.0236	−3.767	0.006
Beta	−0.0212	−4.655	0.000
LnA	0.2767	7.866	0.000
LnNSH	−0.2287	−2.789	0.030
FA/A	0.0513	1.275	0.098
Adjusted-R Square	: 0.654		
j-statistic	: 16.767		
N	: 591		

There may also exist an intermediate range of profitability where firms do not have sufficient incentive either to increase or decrease debt any further. Finally, firms that have higher levels of profitability can exploit their market power in a situation of intensifying competition by increasing their borrowings to expand their output. Pandey (2004) argue this strategy is also of benefit in that such firms have more profits to shield from taxes. Furthermore, agency costs will be higher once firms reach high levels of profitability.

The coefficients of other control variables are also statistically significant. Consistent with the option model of Myers (1977), Pandey (2004) and the pecking order hypothesis of Myers and Majluf (1984) the results of this study show a significant positive relationship between LnRD and debt ratio and positive relationship between LnADV and debt ratio. Contradict with Ghosh (2000) R & D expenditure and advertising expenditure shows a significant negative relationship with capital structure in year 1982, but positive relationships in 10 years later, years 1992 for the between LnADV and debt ratio. However, advertising expenditure was also significant at the 5 percent level. The positive signs for both R & D expenditure and advertising expenditure contradict with the conclusions reached by Harris and Raviv (1991).

The results of this study show a significant negative relationship between growth and debt ratio. The study also finds a negative relationship between (systematic) risk and debt ratio, which is consistent with the trade-off theory. The positive relationship between size and debt ratio is evidence in favor of the hypotheses that larger firms tend to be more diversified and less prone to bankruptcy and the transaction costs of issuing debt is smaller. The negative relationship between debt ratio and the size of shareholding means that more diffused ownership results in lower leverage, which supports the agency hypothesis. The current results indicate a significant positive relationship of tangibility (FA/A ratio) with debt ratio, which vindicates the trade-off theory that postulates a positive correlation between debt ratio and tangibility since fixed assets act as collateral in debt issues. Consistent with the option model of Pandey (2004).

Kale, Noe and Ramirez (1991) found the relationship between business risk and leverage to be quadratic – first decreasing and then increasing, we have found it to be the opposite – first increasing and then decreasing. This conforms to the traditional theory which suggests that when risk is low, higher will be the debt level, but with higher risk, debt level should be lower.

The two-way (firm and time) fixed effects model and the fixed firm effects model were also employed (results not reported). Consistent with the result of Pandey (2004). Both models gave results similar to the GMM results. The fixed firm effects model was estimated with standard and White's heteroscedasticity-consistent t-values as well as with autocorrelation correction. For all variables, White's heteroscedasticity-consistent t-values were significant at the 5% level, and the autocorrelation-corrected estimates of variables also remained

significant and were as per prediction. Thus, the results of estimations of the fixed firm effects and the two-way effects models were similar to the results obtained from the more robust GMM estimation.

V.   CONCLUSION

The above review of empirical research cited numerous studies which had documented a relationship between industry membership and capital structure and market structure. In this study, empirically we examines the relationship between capital structure and market structure using data for 197 Indonesian companies for the period from 2009 to 2011. The estimation method uses the GMM on panel data. The study provides new insights into the way in which the capital structure, measured by total debt-to-assets ratio; and market structure or power, measured by Tobin's Q ratio, are related. Tobin's q defined as the market value of the company divided by the replacement cost of capital. If Q is high, the housing market value is high relative to the cost of replacement of capital, and capital building and equipment will be relatively cheap to the market value of the company.

The tendency of companies who increasingly use debt, without realizing it gradually, will lead to increasingly severe liability for the company to pay off the current (pay back) the debt. The results support the prediction that capital structure and market structure/power have a cubic relationship; that is, at the lower and higher ranges of Tobin's Q, firms employ higher debt; and at intermediate range, they reduce their debt. This study also shows a saucer-shaped relationship between capital structure and profitability because of the interplay of agency costs, costs of external financing and the interest/tax shield. In addition to the Q ratio and profitability, other independent variables are included in the estimation.

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