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Independent Business Review Volume: 01, No: 2, July 2008

2008-07-01

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The Pecking Order Theory: Evidence from Manufacturing Firms in Indonesia

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ABSTRACT

This paper examines the pecking order theory and the extent to which evidence from manufacturing firms in Indonesia supports it. Based on this, the paper goes on to analyse the determinants of the capital structure of firms in this sector of the Indonesian economy. To test the pecking order hypothesis, this study uses newly retained earnings, net debt issues, and net equity issues as dependent variables, and financial deficit as independent variable. The paper analyses the determinants of capital structure by using short-term and long-term liabilities as dependent variables, and profitability, growth, firm size, financial deficit, and asset tangibility as independent variables.

The present study chooses manufacturing sector companies listed in the Indonesian Stock Exchange for data availability, and ordinary least squares regression to analyze the data. The analysis shows that financial deficit has significant negative effect on newly retained earnings, but significantly positive influence on both net equity and net debt issues. These findings tend not to support the pecking order theory that retained earnings are the first preferred funding source and equity the last resort. The conclusion therefore is that evidence from firms in the Indonesian manufacturing sector does not support the pecking order theory.

Keywords: Pecking order theory, Trade-off theory, Capital structure

INTRODUCTION

A fundamental issue in corporate finance is understanding how firms choose their capital structure in the course of their operations. For a long time, trade-off theory seemed to have offered an explanation following Modigliani and Miller (1958, 1963) whose research had sparked off the debate on whether or not there is an optimal capital structure. That is to say whether there is a level of combination

of debt and equity in a company's capital structure which maximizes the company's market value or minimizes its cost of capital. The proponents of trade-off theory argue that firms tend to identify their optimal capital structure by comparing the costs and benefits of additional debt to equity capital. Such benefits of debt include provision of tax shield through tax deductibility of debt interest and reduction of agency problem.

Myers (1984) and Myers and Majluf (1984) disagreed with the proposition of trade-off theory. They, instead, propounded the pecking order theory. The pecking order theory describes a hierarchy of choices involved in determining a firm's capital structure. Myers (1984) criticizes the trade-off theory in that "... observed debt ratios will reflect the cumulative requirement for external finance - a requirement cumulated over an extended period". The pecking order theory hypothesizes that when companies need new funds for investment, retained earnings would tend to be their first choice. Variables that drive this choice are information asymmetries and transactions costs. When it exhausts internal funds, the firm will then issue debt, hybrid securities, and equity as a last resort. Part of the objective of this hierarchy of choices is avoidance of ownership dilution.

The purpose of this paper is to examine the extent to which evidence from manufacturing firms in Indonesian supports the pecking order theory and, on the basis of our findings, to analyze the determinants of capital structure in Indonesian firms in the manufacturing sector. The paper argues that financing deficits have negative significant effect on retained earnings but positive significant influence on net debt and net equity issues. Thus, when firms face high financing deficits, they tend to use more net equity than net debt issues in their capital structure decisions. Meanwhile, when they face low deficit, they use more retained earnings in their capital structure.

The rest of this paper is divided into 4 sections. Section 2 reviews the relevant literature on the pecking order hypothesis and highlights some of the empirical findings. Section 3 discusses the data and methodology used for the study. Sections 4 and 5 present the study results and conclusions respectively.

LITERATURE REVIEW

As indicated in Section 1, the argument of the pecking order theory is that firms tend to follow a specific order of preference in their financing decisions involving long-term capital structure. The first preferred mode of financing is retained earnings. The advantage of financing through retained earnings is absence of flotation costs involved in debt or equity issues. Furthermore, retained earnings do not entail external scrutiny by the capital market or any of its institutions. If internal

funds are insufficient to meet total long-term financing needs, the firm would then resort to debt financing as the second source in the financial hierarchy. Issue of debt has a major advantage in not resulting in any dilution of equity capital ownership. The second means of financing in the hierarchy is issuance of preference capital and such other hybrid securities as debt covenants and convertibles. The least preferred mode of long-term financing is issue of equity, which comes only as a last resort. The pecking order theory may therefore be described as a firm's financial behavioral approach to capital structure formulation. It is based on the premise that capital-financing decisions should be made in a way that is least inconvenient to company management.

Some major studies have investigated how well the pecking order hypothesis agrees with what obtains in practice. Such a study by Seifert and Gonenc (2007), for example, investigated whether there was evidence in the behaviour of firms in the USA, UK, Germany and Japan to support the theory. The study findings did not support the theory in the USA, British and German firms. It was different in Japanese firms where evidence was generally favourable. The study found the results "consistent with the notion that relative transactions costs for debt and equity may be an important influence on financing decisions of firms in Japan". Meanwhile, in Germany, firms finance their deficit with new issues of equity.

From the study results of Pandey (2001), Malaysian firms tend to employ low debt ratios. The debt ratios were generally stable during the periods 1988-1991 and 1992-1995. They increased during the 1996-1999 period. Malaysia experienced a financial crisis in 1997 and consequently went through economic slow down. Companies suffered losses with falling market capitalization. This perhaps contributed to increased debt ratios after 1996. The study by Kayhan and Titman (2007); found that the influence of cash flows; investment expenditure and stock price history tend to affect corporate debt ratios over time. They also found that issuing equity when stock prices are relatively high has only a weak effect on observed debt ratios, but that stock price changes and firms' financial deficits have relatively strong effects on capital structures with a tendency to persist for quite some time. Zoppa and McMahon (2002) found that operating profitability and enterprise size significantly influence total debt to total funding ratios for the business concerns that they studied. The implication of this finding is that the less profitable a small and medium scale enterprise (SME) is, the less self-sufficient it would be in reinvestment of profits, and therefore the more likely it tends to depend upon debt financing for its assets and activities. It therefore follows that the larger a small and medium enterprise (SME) is in terms of assets, the more likely it will tend to depend on debt financing for those assets. Empirical evidence in developed countries shows that firm characteristics have different impact on different types of debt. The study now examines a number of these characteristics.

(i) Growth Opportunities

According to this theory, growth causes firms to shift financing from new equity to debt, as they need more funds to reduce agency problems. The findings of Kim and Sorensen (1986), Smith and Watts (1992), Wald (1999), Rajan and Zingales (1995), and Booth et al. (2001) suggest that growth opportunities are negatively related to leverage. Titman and Wessels (1988) also find a negative relationship. However, Kester (1986) reports a positive relationship between leverage and growth.

(ii) Profitability

The pecking order theory predicts that profitable firms with few investments would tend to have little debt. Since the market value of such firms would increase with profitability, the negative relationship between book leverage and profitability would also hold for market leverage. Huang and Song (2002) find that profitability is strongly negatively related to total leverage. Chang (1999) shows that profitable firms tend to use less debt. Meanwhile, Jensen, Solberg and Zorn (1992) find a positive relationship.

(iii) Size

The prediction of the pecking order theory on firm size is a negative relationship between leverage and size, with larger firms exhibiting increasing preference for equity relative to debt. Drobetz and Fix (2003), find that firm size is positively related to leverage, Marsh (1982), Rajan and Zingales (1995), Wald (1999), and Booth et al. (2001), find leverage to be generally positively correlated with company size. Huang and Song (2002) find that size is positively related with total liability. The studies by Marsh (1982) concluded that large firms more often choose long-term debt while small firms choose short-term debt. According to Whited (1992) small firms cannot access long-term debt markets since their growth opportunities often exceed their assets that could have served as collateral.

(iv) Asset Tangibility

On the relationship between asset tangibility and capital structure, some researchers have found asset tangibility to be positively related to leverage. Huang and Song (2002) find that debt ratio is positively correlated with tangibility, the change of total liabilities ratio is significantly positively correlated with the change of tangibility.

RESEARCH METHODOLOGY

A. Data Description

The data of companies have been collected from the Indonesia Stock Exchange (www.idx.co.id)(IDX) Main Board companies, and macro economic data from the Indonesia statistical centre (BPS) (www.bps.go.id) from 1994 to 2005. The sample size comprised 18 companies for each period in the study, and only includes the manufacturing sector companies of LQ 45 Index as sample. LQ 45 Index is one of Indonesia's Stock Exchange Index, which consists of 45 firms from many sectors.

B. Measurement of Dependent Variables

The selection of dependent variables follows the definitions of variables in Fama and French (1999) but with appropriate modification. Different forms of corporate capital financing have been defined as follows: Internally generated funds or retained earnings are the earnings available to the firm for capital expenditure. This is the sum of the income from operations, extraordinary items, depreciation expenses (if available), and deferred income taxes (if available), less the dividends paid on common and preferred stock. External funding includes debt (net debt issue) and equity financing (net equity issue).

A firm's long-term and short-term liability is calculated from the ratio of the firm's long-term (short-term) liability to its total asset. Equity funding is defined as the net flow from the sale and repurchase of stock, which balances the cash flow identity. A firm's equity financing is therefore measured from the ratio of the firm's net flow of stock to its investment.

C. Measurement of Independent Variables

The selection of independent variables is primarily guided by the results from previous empirical studies of Pandey (2001) and Seifert and Gonenc (2007). The following are the equations the paper uses in this study:

$$\textbf{Net Debt Issue} = a + b\ \textbf{Deficit} + u \ldots\ldots (1)$$

$$\textbf{Net Equity Issue} = a + b\ \textbf{Deficit} + u \ldots\ldots (2)$$

$$\textbf{New Retained Earning} = a + b\ \textbf{Deficit} + u \ldots\ldots (3)$$

$$\textbf{Retained Earning} = a + b\ \textbf{Profitability} + c\ \textbf{Growth} + d\ \textbf{Size} + e\ \textbf{Deficit} + f\ \textbf{Tangibility} + u \ldots\ldots (4)$$

Short Term Liability = a + b Profitability +
c Growth + d Size + e Deficit + f Tangibility + u ..... (5)

Long Term Liability = a + b Profitability +
c Growth + d Size + e Deficit + f Tangibility + u ..... (6)

Total Liability = a + b Profitability +
c Growth + d Size + e Deficit + f Tangibility + u ..... (7)

Equity = a + b Profitability +
c Growth + d Size + e Deficit + f Tangibility + u ..... (8)

Where the terms are defined as follows:

Deficit – The definition based on Seifert and Gonenc (2007) is simply the net amount of debt and equity the firm issues in a given year.

Growth opportunities - According to the pecking order theory, there is a positive relationship between debt ratio and growth. Akhtar and Oliver (2006) define growth opportunities facing the firm as the average percentage change in total assets over the previous four years. In this research, the paper measured growth as the change in total assets.

"As implied by the pecking order theory, we hypothesize that growth is positively related to debt ratios".

Profitability - The negative relationship between book leverage and profitability holds for market leverage. Chen and Hammes (2003) measured profitability by using, as in Rajan and Zingales (1995), the ratio of earnings before tax, interest payments, and depreciation (Ebitda) to the book value of assets. Akhtar and Oliver (2006) define profitability as the average net income to total sales for the past four years. In this research we measure profitability by using earnings before interest and taxes divided by total assets.

"Following the pecking order hypothesis, we hypothesize that profitability has a negative relation with debt ratios.

Size - Akhtar and Oliver (2006) define firm size as the natural logarithm of total assets. In this research we also measure size as natural logarithm of total asset.

"In view of the empirical evidence, we could hypothesize that size has a positive association with long-term debt and a negative relationship with short-term debt".

Tangibility – In the study by Huang and Song (2002), tangibility is measured as fixed assets scaled by total assets. Drobetz and Fix (2003) use the ratio of fixed assets to total assets to measure tangibility. Here the study measures tangibility as fixed assets divided by total assets.

"We should expect a positive relationship between tangibility and long-term debt ratio and a negative relationship between tangibility and short-term debt ratio".

D. Interpretation of the Empirical Results

There are 8 equations in this study. Equations 1 to 8 will be analysed using ordinary least squares regression. The purpose is to examine causal relationships between each dependent variable and one or more independent variables. Regression measures the degree of relationship between two or more variables in two different but related ways. The models of the relationship are hypothesized, and estimates of the parameter values are used to develop the estimated regression equation.

The first step in the data analysis is to examine the relationship between deficit (Def) as independent variable and retained earning (RE), net equity issue, and net debt issue, as dependent variables. The objective of this step is to determine whether or not pecking order theory holds with what obtains in manufacturing firms in Indonesia.

The second step of in the data analysis is to explore the determinants of capital structures, by testing the influence of long-term liability, and short-term liability on tangibility, profitability, growth, deficit, and size.

RESULTS

A. Interpretation of the Change of New Retained Earnings, Net Debt Issues, and Net Equity Issues

Table I. The Change of New Retained Earnings, Net Debt Issues, and Net Equity Issues

Year	New Retained Earnings	Net Equity Issues	Net Debt Issues	Deficit
1995	0.0261333	0.056942492	0.157795565	0.214738057
1996	0.0525584	0.034893497	0.107769261	0.142662758
1997	0.010185	0.055618513	0.288560038	0.344178551
1998	0.1284373	-0.083096047	0.10828711	0.025191063
1999	0.0343071	0.038790237	-0.06024632	-0.02145608
2000	0.1077305	-0.011725358	0.007103919	-0.00462144
2001	0.0396426	-0.078906465	0.133401268	0.054494802
2002	0.0055149	0.033067167	-0.059600822	-0.02653366
2003	0.0130448	0.054125771	0.045725444	0.099851215
2004	0.0591024	0.010651038	-0.003409255	0.007241784
2005	0.0162657	0.027616427	-0.05604168	-0.02842525
Average	0.0448111	0.012543388	0.060849503	0.073392891

Table I above reports yearly average data on capital structure components from 1995 to 2005 consists of 4.48% new retained earnings, 1.25% net equity issues, and 6.1% net debt issues over the entire period.

It also shows 1998 as the year in which the highest frequency of retained earnings of 12.8% was issued. The highest frequency of net debt was 28.9%, issued in 1997, while that of financing deficit was 34.4% in 1997, the year of Indonesia's economic crisis in each case. For net equity, the year of the highest frequency of 5.7% was in 1995, while the lowest frequency of – 8.3% of issuing net equity was recorded in 1998.

B. Interpretation of Regression Results of the Variable, Deficit, on New Retained Earnings, Net Debt Issues, and Net Equity Issues, on Capital Structure

Table II. Regression Results of Deficit on New Retained Earnings, Net Debt Issues, and Net Equity Issues on Capital Structure

Deficit on :	**R Squared**	**t**	**Sig.**
New Retained Earnings	0.250	-8.063	0.000
Net Debt Issues	0.651	19.066	0.000
Net Equity Issues	0.102	4.701	0.000

The results for equations 1, 2, and 3 are presented in table II. From this table, one can conclude that financing deficit has negative significant effect on retained earnings. This implies that when firms face high financing deficit, they do not use retained earning as the first financing choice of capital structure. The deficit, on the other hand, has a positive significant influence on each of net debt issues and net equity issues. These findings tend to indicate that when Indonesian firms face high financing deficit, they tend to use more net equity and net debt issues as their main sources of capital structure. Meanwhile when the firms face low financing deficits, they tend to use more retained earning in their capital structure. These findings do not support the proposition of the pecking order theory that sees retained earning as the first preferred funding source; debt issues the second, and equity as the last.

Table II also shows the coefficient of determination, or simply R-square. Its value is always between 0 and 1, and it can be interpreted as the percentage of variation of the response variable explained by the regression line. R-square shows a predictor deficit of 0.250 with new retained earnings as dependent variable. This means that 25% of the reasons why the firms used retained earnings in their capital structure could be explained by the existence of financing deficit.

With net debt issues as dependent variable, R-square shows a predictor deficit of 0.651, thereby indicating that 65.1 % of all the reasons why firms use net debt issues in their capital structure when faced with high deficit were explained by the existence of variable financing deficit. Finally, R-square with net equity issues as dependent variable, shows a predictor deficit as 0.102. It then means that 10.2 % of all the reasons why the firms use net equity issues when faced with high financing deficit was influenced by the existence of the deficit.

C. Interpretation of Determinants of Retained Earning, Liability, and Equity Capital Structure

Table III. Results of Regression of Equation 4

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.412	.362		-1.138	.257
	PROF	.826	.138	.459	5.997	.000
	GROW	-.124	.126	-.139	-.987	.325
	SIZE	1.821E-02	.012	.090	1.496	.136
	DEFI	-6.69E-02	.136	-.074	-.492	.623
	TANG	.150	.053	.172	2.858	.005

a. Dependent Variable: RE ASS

In equation (4), the paper regresses retained earning, RE, on profitability, growth, size, deficit, and asset tangibility in equation 4 as follows:

Retained Earning = a + b Profitability + c Growth + d Size + e Deficit + f Tangibility + u..... (4)

Table III shows that growth and financing deficit have negative effects, while size has a positive effect, on retained earnings; but none of them is significant. Profitability, which one may define as earnings before interest and taxes (EBIT) divided by total assets, has a positive significant regression coefficient on retained

earning, with 0.000 level of significance and 5.997 t-values. This suggests that highly profitable firms are more likely to use internal financing sources for their investments than those with low profitability.

Asset tangibility, as measured by the ratio of fixed asset to total assets, has positive significant regression coefficient on retained earnings, with 0.005 level of significance and 2.858 t-values. This suggests that high firms with highly tangible assets, as measured above, are more likely to use internal financing for their investments than those with low asset tangibility.

Table IV. Results of Regression of Equation 5

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.319	.459		-.695	.488
	PROF	7.776E-02	.176	.038	.442	.659
	GROW	.646	.153	.670	4.216	.000
	SIZE	2.041E-02	.016	.090	1.301	.195
	DEFI	-.832	.166	-.858	-5.014	.000
	TANG	-9.32E-02	.072	-.092	-1.294	.198

a. Dependent Variable: STL ASS

The next regression is short - term liability (STL) on profitability, growth, size, financing deficit, and asset tangibility:

Short Term Liability = a + b Profitability +
c Growth + d Size + e Deficit + f Tangibility + u ..... (5)

From table IV above, it can be seen that profitability and size both have positive but no significant effects on short term liability. However, tangibility has neither positive nor significant influence on short term liability. Growth, as measured by the change in total assets, has positive significant regression coefficient on short term liability, with 0.000 level of significance and 4.216 t-values. This result suggests that high growth firms are more likely to use short term liability than low growth firms.

Deficit as measured by net debt issue plus net equity issue has negative significant regression coefficient on short term liability, with 0.000 level of significance and -5.014 t-values. The paper interprets this to suggest that high deficit firms are less likely to use short term liability than low deficit firms. Meanwhile, Shyam-Sunder and Myers (1999) find that firms with higher financial deficit tend to increase their leverage.

Table V. Results of Regression of Equation 6

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.516	.368		-1.404	.162
	PROF	-.428	.141	-.251	-3.036	.003
	GROW	-.218	.123	-.268	-1.773	.078
	SIZE	2.591E-02	.013	.136	2.061	.041
	DEFI	.144	.133	.176	1.082	.281
	TANG	.303	.058	.355	5.244	.000

a. Dependent Variable: LTL_ASS

Long term liability (LTL) is regressed on profitability, growth, size, deficit, and tangibility in equation 6 as follows:

Long Term Liability = a + b Profitability +
c Growth + d Size + e Deficit + f Tangibility + u ..... (6)

The regression results, shown in table V, suggest that financing deficit has positive effect on long term liability but not significant. However, growth has negative influence on long term liability and is also not significant.

The study measures size by the natural logarithm of total assets. The result shows positive significant regression coefficient on long term liability, with 0.041 level of significance and 2.061 t-values. This result suggests that large firms are more likely to use long term liability to finance their investments than small firms. This is understandable as large firms tend to be less risky than small firms, and therefore have easier access to long-term loan market. According to Whited (1992), small firms cannot access long-term loan markets because their growth opportunities are inadequate to support their assets that would be needed to serve as collateral for loans. Titman and Wessels (1988) offer additional explanation that larger firms have easier access to capital markets because of lower cost of borrowing, possibly because of lower risk. In the event of default, governments are likely to save larger firms than smaller firms.

Tangibility, as measured by the ratio of fixed asset to total assets, has positive significant regression coefficient on long term liability, with 0.000 level of significance and 5.244 t-values, thus suggesting that firms with high tangibility asset are more likely to use long term liability to finance their investments than low tangibility asset firms. Profitability, as earlier defined, has negative significant regression coefficient on long-term liability, with 0.003 level of significance and -3.036 t-value. Hence, highly profitable firms are more likely to use less long term liability than low profitable firms.

Table VI. Results of Regression of Equation 7

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.630	.487		-3.349	.001
	PROF	-.529	.185	-.237	-2.853	.005
	GROW	.473	.169	.426	2.795	.006
	SIZE	7.813E-02	.016	.311	4.769	.000
	DEFI	-.751	.183	-.672	-4.100	.000
	TANG	7.536E-03	.071	.007	.107	.915

a. Dependent Variable: TL_ASS

Total Liability = a + b Profitability +
c Growth + d Size + e Deficit + f Tangibility + u ..... (7)

From table VI, one can see that tangibility as indicated in equation (7) has positive effect on total liability but is not significant. Profitability, as earlier defined, has negative significant regression coefficient on total liability, with 0.005 level of significance and -2.853 t-values. This result suggests that highly profitable firms would tend to use less total liability than firms with low profitability. Growth as measured by the change in total assets has positive significant regression coefficient on total liability, with 0.006 level of significance and 2.795 t-values. Thus high growth firms are more likely to use more total liability in their capital structure than low growth firms.

Financing deficit, as measured by net debt issue plus net equity issue, has negative significant regression coefficient on total liability, with 0.000 level of significance and -4.100 t-values. This result suggests that high financing deficit firms are less likely to use total liability than low deficit firms. Size as measured by natural logarithm of total assets, has positive significant regression coefficient on total liability, with 0.000 level of significance and 4.769 t-values. This result suggests that large firms are more likely to use total liability than small firms.

Table VII. Results of Regression of Equation 8

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.298	.395		5.824	.000
	PROF	.664	.150	.342	4.422	.000
	GROW	.151	.137	.157	1.104	.271
	SIZE	-6.91E-02	.013	-.316	-5.200	.000
	DEFI	-.188	.148	-.193	-1.264	.208
	TANG	.106	.057	.113	1.852	.066

a. Dependent Variable: EQ_ASS

Equation 8 shows regression of equity on profitability, growth, size, deficit, and tangibility:

Equity = a + b Profitability +
c Growth + d Size + e Deficit + f Tangibility + u ..... (8)

From table VII, one can see that growth and tangibility have positive but not significant effect on equity. On the other hand, financing deficit has negative but not significant influence on equity. Profitability as earlier defined has positive and significant regression coefficient on equity, with 0.000 level of significance and 4.422 t-values. This result suggests that highly profitable firms are also more likely to use equity than those with low profitability.

Size as measured by natural logarithm of total assets has negative significant regression coefficient on equity, with 0.000 level of significance and -5.200 t-values, thus suggesting that large firms are more likely to use less equity than small firms.

R-square in the Appendix with retained earnings as dependent variable and growth, profit, tangibility, deficit, and size as predictors, is 0.326, and adjusted R-square is 0.308. This means that 30.8% of all the reasons why firms use retained earning was influenced by the existence of growth, profit, tangibility, deficit, and size as variables. R- square with short term liability as dependent variable and growth, profit, tangibility, deficit, and size as predictors, is 0.228. Adjusted R-square is 0.204, indicating that 20.4% of all the reasons why firms use short term liability was influenced by growth, profit, tangibility, deficit, and size as variables.

R-square with dependent variable long term liability and predictor's growth, profit, tangibility, deficit, and size, is 0.300. With Adjusted R-square of 0.279, it means that 27.9% of all the reasons why firms use long term liability were influenced by the existence of variable growth, profit, tangibility, deficit, and size.

Finally, R-square with equity as dependent variable and growth, profit, tangibility, deficit, and size as predictors, is 0.310, and adjusted R-square of 0.292. Thus 29.2% of all the reasons why firms use equity can be said to be influenced by the existence of growth, profit, tangibility, deficit, and firm size.

From the correlation table in the Appendix, profit has a negative significant relationship with financing deficit. This implies that firms in the sample with higher profits also tend to have lower financing deficit. Growth has positive significant relationship with deficit. It implies that firms in the sample with higher growth also tend to have higher financing deficit. Growth has negative significant relationship with asset tangibility. It implies that firms in the sample with higher growth have lower asset tangibility. Finally, financing deficit has negative significant relationship with asset tangibility. This implies that firms in the sample with higher financing deficit have lower asset tangibility.

CONCLUSION

The study reported in this paper has found that financial deficit has significant negative effect on retained earnings of firms in the manufacturing sector of Indonesia. Thus when Indonesian firms in the manufacturing sector face high financial deficits, they do not use retained earnings as their first source of investment financing in their capital structure contrary to the proposition of the pecking order theory.

Financial deficit has a positive significant influence on net equity and net debt issues. This finding indicates that when Indonesian manufacturing firms face high financial deficits, they tend to use more net equity and net debt in their capital structure to finance long-term investments. Meanwhile, when the firms face low financial deficit, they tend to use more retained earnings in their capital structure to finance investments. This finding also does not support the proposition of the pecking order theory that retained earnings are the first preferred funding source and equity a last resort. The overall conclusion of the study based on the findings is that the financing behaviour of firms listed in the manufacturing sector of the Indonesia Stock Exchange does not support the propositions of the pecking order theory.

REFERENCES

Akhtar, S. & Oliver, B. (2006). The Determinants of Capital Structure for Japanese Multinational and Domestic Corporations. *Working Paper Series in Finance, 06* (1), 1-28.

Booth, L., Varouj, A., Asli, D.K., & Vojislav, M. (2001). Capital Structures in Developing Countries. *Journal of Finance, 56*, 87-130.

Chang, C. (1999). Capital Structure as Optimal Contracts. *North American Journal of Economics and Finance, 10* (2), 363-85.

Chen, Y. & Hammes, K. (2003). Capital Structure : Theories and Empirical Results - A Panel Data Analysis. *CERGU's Project Reports, 4* (1), 1-32.

Drobetz, W. & Fix, R. (2003). What are the Determinants of the Capital Structure? Some Evidence for Switzerland. *Swiss Journal of Economics and Statistics Working Paper, 4* (3), 1-38.

Fama, E. & French, K. (1999). The Corporate Cost of Capital and The Return on Corporate Investment. *Journal of Finance, 54*, 1939-1967.

Huang, S. G. H. & Song, F. M. (2002). The Determinants of Capital Structure: Evidence from China. *HIEBS (Hong Kong Institute of Economics and Business Strategy) Working Paper,* 1-35.

http://www.hiebs.hku.hk/working_papers.

Jensen, M., D. Solberg, & T. Zorn (1992). Simultaneous Determination of Insider Ownership, Debt and Dividend Policies. *Journal of Financial and Quantitative Analysis, 27*, 247-261.

Kayhan, A. & Titman, S., (2007). Firms' Histories and Their Capital Structures. *Journal of Financial Economics, Elsevier, 83* (1), 1-32.

Kester, C. W. (1986). Capital and Ownership Structure: A Comparison of United States and Japanese Manufacturing Corporations. *Journal of Financial Management, 15*, 5-16.

Kim, W. S. & Eric H. S. (1986). Evidence on the Impact of the Agency Costs of Debt in Corporate Debt Policy. *Journal of Financial and Quantitative Analysis, 21*, 131-144.

Marsh, P. (1982). The Choice between Equity and Debt: An Empirical Study. *Journal of Finance, 37*, 121-144.

Modigliani, F. & Miller, M.H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review, XLVIII* (3), 261-297.

Modigliani, F. & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital. *American Economic Review, 53* (3), 433-443.

Myers, S.C. (1984). The Capital Structure Puzzle. *The Journal of Finance, 39* (3), 575-592.

Myers, S.C. & Majluf, N.S. (1984). Corporate Financing and Investment Decisions when Firms Have Information that Investors Do Not Have. *The Journal of Financial Economics, 13* (2), 187-221.

Pandey, I. M. (2001). Capital Structure and the Firm Characterstics: Evidence from an Emerging Market'. *IIMA Working Paper, No.* 2001-10-04, 1-19.

Rajan, R. G. & Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. *Journal of Finance, 50* (5), 1421-1460.

Seifert, B. & Gonenc, H. (2007). The International Evidence on the Pecking Order Hypothesis. T*he Journal of Multinational Financial Management,* 1-34.

Shyam-Sunder, L. & Myers, S.C. (1999). Testing Static Trade-off against Pecking Order Models of Capital Structure. *Journal of Financial Economics, 51,* 219-244.

Smith, C. & Ross, W. (1992). The Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies. *Journal of Financial Economics, 32,* 263-292.

Titman, S. & Wessels, R. (1988). The Determinants of Capital Structure Choice. *The Journal of Finance, 43* (1), March, 1-19.

Wald, J. K. (1999). How Firm Characteristics Affect Capital Structure: An International Comparison. *Journal of Financial Research, 22* (2), 161-187.

Whited, T. M. (1992). Debt, Liquidity Constraints, and Corporate Investment: Evidence from Panel Data. *Journal of Finance, 47,* 1425-1460.

Zoppa, A. & McMahon, R.G.P. (2002). Pecking Order Theory and the Financial Structure of Manufacturing SMEs from Australia's Business Longitudinal Survey. *School of Commerce Research Paper Series, 2*(1), 1-29.

APPENDIX

Results of Regression

Regression (1)

Net Debt Issue = a + b Deficit + u

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.807[a]	.651	.649	.144369865	2.271

a. Predictors: (Constant), DEFI

b. Dependent Variable: NETDEB

Correlations

		NETDEB	DEFI
Pearson Correlation	NETDEB	1.000	.807
	DEFI	.807	1.000
Sig. (1-tailed)	NETDEB	.	.000
	DEFI	.000	.
N	NETDEB	197	197
	DEFI	197	197

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.056E-03	.011		.192	.848
	DEFI	.802	.042	.807	19.066	.000

a. Dependent Variable: NETDEB

Regression (2)

Net Equity Issue = a + b Deficit + u

Correlations

		NETEQ	DEFI
Pearson Correlation	NETEQ	1.000	.319
	DEFI	.319	1.000
Sig. (1-tailed)	NETEQ	.	.000
	DEFI	.000	.
N	NETEQ	197	197
	DEFI	197	197

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.319[a]	.102	.097	.144369865	2.271

a. Predictors: (Constant), DEFI

b. Dependent Variable: NETEQ

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.06E-03	.011		-.192	.848
	DEFI	.198	.042	.319	4.701	.000

a. Dependent Variable: NETEQ

Regression (3)

New Retained Earning = a + b Deficit + u

Correlations

		NEWRE	DEFI
Pearson Correlation	NEWRE	1.000	-.500
	DEFI	-.500	1.000
Sig. (1-tailed)	NEWRE	.	.000
	DEFI	.000	.
N	NEWRE	197	197
	DEFI	197	197

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.500[a]	.250	.246	9.909E-02	1.883

a. Predictors: (Constant), DEFI

b. Dependent Variable: NEWRE

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.183E-02	.007		8.394	.000
	DEFI	-.233	.029	-.500	-8.063	.000

a. Dependent Variable: NEWRE

Regression (4)

Retained Earning = a + b Profitability +c Growth + d Size + e Deficit + f Tangibility + u

Correlations

		RE_ASS	PROF	GROW	SIZE	DEFI	TANG
Pearson Correlation	RE_ASS	1.000	.487	-.258	.040	-.387	.199
	PROF	.487	1.000	-.064	-.106	-.365	.010
	GROW	-.258	-.064	1.000	-.040	.865	-.127
	SIZE	.040	-.106	-.040	1.000	-.033	-.053
	DEFI	-.387	-.365	.865	-.033	1.000	-.129
	TANG	.199	.010	-.127	-.053	-.129	1.000
Sig. (1-tailed)	RE_ASS	.	.000	.000	.287	.000	.003
	PROF	.000	.	.187	.069	.000	.445
	GROW	.000	.187	.	.287	.000	.038
	SIZE	.287	.069	.287	.	.323	.231
	DEFI	.000	.000	.000	.323	.	.036
	TANG	.003	.445	.038	.231	036	.
N	RE_ASS	197	197	197	197	197	197
	PROF	197	197	197	197	197	197
	GROW	197	197	197	197	197	197
	SIZE	197	197	197	197	197	197
	DEFI	197	197	197	197	197	197
	TANG	197	197	197	197	197	197

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.571[a]	.326	.308	.183452268	.493

a. Predictors: (Constant), TANG, PROF, SIZE, GROW, DEFI

b. Dependent Variable: RE_ASS

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.412	.362		-1.138	.257
	PROF	.826	.138	.459	5.997	.000
	GROW	-.124	.126	-.139	-.987	.325
	SIZE	1.821E-02	.012	.090	1.496	.136
	DEFI	-6.69E-02	.136	-.074	-.492	.623
	TANG	.150	.053	.172	2.858	.005

a. Dependent Variable: RE_ASS

Regression (5)

Short Term Liability = a + b Profitability +c Growth + d Size + e Deficit + f Tangibility + u

Correlations

		STL_ASS	PROF	GROW	SIZE	DEFI	TANG
Pearson Correlation	STL_ASS	1.000	.305	-.066	.094	-.285	-.082
	PROF	.305	1.000	-.090	-.036	-.371	-.130
	GROW	-.066	-.090	1.000	-.044	.866	-.161
	SIZE	.094	-.036	-.044	1.000	-.052	.112
	DEFI	-.285	-.371	.866	-.052	1.000	-.131
	TANG	-.082	-.130	-.161	.112	-.131	1.000
Sig. (1-tailed)	STL_ASS	.	.000	.196	.112	.000	.144
	PROF	.000	.	.122	.320	.000	.047
	GROW	.196	.122	.	.284	.000	.018
	SIZE	.112	.320	.284	.	.249	.073
	DEFI	.000	.000	.000	.249	.	.045
	TANG	.144	.047	.018	.073	.045	.
N	STL_ASS	169	169	169	169	169	169
	PROF	169	169	169	169	169	169
	GROW	169	169	169	169	169	169
	SIZE	169	169	169	169	169	169
	DEFI	169	169	169	169	169	169
	TANG	169	169	169	169	169	169

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.477[a]	.228	.204	.2191360	.945

a. Predictors: (Constant), TANG, SIZE, PROF, GROW, DEFI

b. Dependent Variable: STL_ASS

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.319	.459		-.695	.488
	PROF	7.776E-02	.176	.038	.442	.659
	GROW	.646	.153	.670	4.216	.000
	SIZE	2.041E-02	.016	.090	1.301	.195
	DEFI	-.832	.166	-.858	-5.014	.000
	TANG	-9.32E-02	.072	-.092	-1.294	.198

a. Dependent Variable: STL_ASS

Regression (6)

Long Term Liability = a + b Profitability + c Growth + d Size + e Deficit + f Tangibility + u

Correlations

		LTL_ASS	PROF	GROW	SIZE	DEFI	TANG
Pearson Correlation	LTL_ASS	1.000	-.343	-.156	.188	-.017	.423
	PROF	-.343	1.000	-.090	-.036	-.371	-.130
	GROW	-.156	-.090	1.000	-.044	.866	-.161
	SIZE	.188	-.036	-.044	1.000	-.052	.112
	DEFI	-.017	-.371	.866	-.052	1.000	-.131
	TANG	.423	-.130	-.161	.112	-.131	1.000
Sig. (1-tailed)	LTL_ASS	.	.000	.021	.007	.415	.000
	PROF	.000	.	.122	.320	.000	.047
	GROW	.021	.122	.	.284	.000	.018
	SIZE	.007	.320	.284	.	.249	.073
	DEFI	.415	.000	.000	.249	.	.045
	TANG	.000	.047	.018	.073	.045	.
N	LTL_ASS	169	169	169	169	169	169
	PROF	169	169	169	169	169	169
	GROW	169	169	169	169	169	169
	SIZE	169	169	169	169	169	169
	DEFI	169	169	169	169	169	169
	TANG	169	169	169	169	169	169

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.548[a]	.300	.279	.1756274	1.043

a. Predictors: (Constant), TANG, SIZE, PROF, GROW, DEFI

b. Dependent Variable: LTL_ASS

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.516	.368		-1.404	.162
	PROF	-.428	.141	-.251	-3.036	.003
	GROW	-.218	.123	-.268	-1.773	.078
	SIZE	2.591E-02	.013	.136	2.061	.041
	DEFI	.144	.133	.176	1.082	.281
	TANG	.303	.058	.355	5.244	.000

a. Dependent Variable: LTL_ASS

Regression (7)

Total Liability = a + b Profitability + c Growth + d Size + e Deficit + f Tangibility + u

Correlations

		TL_ASS	PROF	GROW	SIZE	DEFI	TANG
Pearson Correlation	TL_ASS	1.000	-.051	-.154	.341	-.229	.021
	PROF	-.051	1.000	-.064	-.106	-.365	.010
	GROW	-.154	-.064	1.000	-.040	.865	-.127
	SIZE	.341	-.106	-.040	1.000	-.033	-.053
	DEFI	-.229	-.365	.865	-.033	1.000	-.129
	TANG	.021	.010	-.127	-.053	-.129	1.000
Sig. (1-tailed)	TL_ASS	.	.237	.016	.000	.001	.386
	PROF	.237	.	.187	.069	.000	.445
	GROW	.016	.187	.	.287	.000	.038
	SIZE	.000	.069	.287	.	.323	.231
	DEFI	.001	.000	.000	.323	.	.036
	TANG	.386	.445	.038	.231	.036	.
N	TL_ASS	197	197	197	197	197	197
	PROF	197	197	197	197	197	197
	GROW	197	197	197	197	197	197
	SIZE	197	197	197	197	197	197
	DEFI	197	197	197	197	197	197
	TANG	197	197	197	197	197	197

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.454[a]	.207	.186	.2468630	.540

a. Predictors: (Constant), TANG, PROF, SIZE, GROW, DEFI

b. Dependent Variable: TL_ASS

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.630	.487		-3.349	.001
	PROF	-.529	.185	-.237	-2.853	.005
	GROW	.473	.169	.426	2.795	.006
	SIZE	7.813E-02	.016	.311	4.769	.000
	DEFI	-.751	.183	-.672	-4.100	.000
	TANG	7.536E-03	.071	.007	.107	.915

a. Dependent Variable: TL_ASS

Regression (8)

Equity = a + b Profitability + c Growth + d Size + e Deficit + f Tangibility + u

Correlations

		EQ_ASS	PROF	GROW	SIZE	DEFI	TANG
Pearson Correlation	EQ_ASS	1.000	.438	-.033	-.359	-.187	.138
	PROF	.438	1.000	-.064	-.106	-.365	.010
	GROW	-.033	-.064	1.000	-.040	.865	-.127
	SIZE	-.359	-.106	-.040	1.000	-.033	-.053
	DEFI	-.187	-.365	.865	-.033	1.000	-.129
	TANG	.138	.010	-.127	-.053	-.129	1.000
Sig. (1-tailed)	EQ_ASS	.	.000	.321	.000	.004	.027
	PROF	.000	.	.187	.069	.000	.445
	GROW	.321	.187	.	.287	.000	.038
	SIZE	.000	.069	.287	.	.323	.231
	DEFI	.004	.000	.000	.323	.	.036
	TANG	.027	.445	.038	.231	.036	.
N	EQ_ASS	197	197	197	197	197	197
	PROF	197	197	197	197	197	197
	GROW	197	197	197	197	197	197
	SIZE	197	197	197	197	197	197
	DEFI	197	197	197	197	197	197
	TANG	197	197	197	197	197	197

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.556[a]	.310	.292	.2000910	.659

a. Predictors: (Constant), TANG, PROF, SIZE, GROW, DEFI

b. Dependent Variable: EQ_ASS

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.298	.395		5.824	.000
	PROF	.664	.150	.342	4.422	.000
	GROW	.151	.137	.157	1.104	.271
	SIZE	-6.91E-02	.013	-.316	-5.200	.000
	DEFI	-.188	.148	-.193	-1.264	.208
	TANG	.106	.057	.113	1.852	.066

a. Dependent Variable: EQ_ASS