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CAPITAL STRUCTURE THEORIES ON SMALL COMPANIES

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Abstract: *Companies with small capitalization are considered to have limited capital access because of some restrictions from financial institution as well as capital markets. Under this condition, they may have limitation in applying capital structure theories in their financing decision. This study attempts to explore whether one or some theories apply to their decision making. The theories are pecking order, static trade-off, and agency model theories. This study employs both basic as well extended models, using pooling data. The results show that small caps apply two theories in the financing decision, depending on the availability of sources internal financing and on the use of external financing.*

Key words: *capital structure, small capitalization, pecking order, static trade-off, agency model*

INTRODUCTION

As commonly perceived by academicians as well as investors, companies with small capitalization, or small caps, have a considerable limitation on capital access, in the cases of types, amount, and sources of capital. For example, only a small percentage of small caps go public due to the strong restrictions on companies that intend to access capital from a capital market. The restrictions also come from creditors. Small caps tend to be perceived as high risk companies. Creditors may apply a tight terms of credit to assure the security of the loan.

As far as the theories of capital structure are concerned, it is an interesting issue to explore the way small caps fulfill their capital needs, either for capital expenditures, working capital expenditures, including cash for operational activities. To fulfill these needs, the companies may seek either equity or loan, or combination of them. There may face difficulty in accessing and obtaining the targeted types and sources of capital due to the low bargaining power. The capacity and stability to generate income become the cornerstone to evaluate how much the small caps are able to obtain external funding. If the need is larger than the potential external fund, they may need to obtain capital internally.

Small caps are also concerned with the healthiness of the companies, in terms of financial condition. The amount, types, and composition of capital contribute

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to the companies' conditions. They may solely the capital on the basis on their own capacity or interest. The may also refer to other companies as the benchmark. In terms of benchmarking, there is no study on the way they choose the benchmark. There are two possibilities on choosing the benchmark, i.e. company size or industry. If they refer company size as the benchmark, they adjust the types and composition of capital to mirror other small caps as the benchmark. If this happens, capital structure of small caps tends to be similar. However, if they refer industry as benchmark, they adjust capital structure according to their counterpart in the same industry. If this happens, capital structure of small caps tends to diverse.

In order to understand their behavior of the way they manage capital, this study attempts to employ three theories on capital structure, i.e. pecking order theory, static trade-off theory, and agency model theory.. It is expected that small caps tend to follow a certain theory among those three theories. The finding of this study helps academicians and practitioners in helping small caps in obtaining the right capital to fulfill their needs.

Pecking order theory emphasizes the easiness of capital to be accessed. This theory believes that a company has a certain order of capital based on how easy to be accessed and obtain. Common believe says that earnings after tax or EAT is the easiest source of capital to be collected by management. The only thing to be done by top management is to prepare a proposal on the financing need to be fulfilled. This proposal becomes the basis for negotiation with the board, either non executive board of directors or the board of commissioners, in relation to how much EAT is available to be distributed as dividend and how much to be retained as capital. If the EAT as the internal source of capital is exhausted, companies attempt to obtain other sources or types of capital that is second easiest after EAT, followed by the third easiest, fourth easiest, and so forth, until all capital is fulfilled. Under this approach of fulfilling capital, capital structure is only a consequence, not initially determined or targeted. In practice, Debt-to-Equity ratio, or DER, is not stable. In other words, the change in debt and the change in equity is not in tandem.

Static trade-off theory stresses the existence of a fixed capital ratio as the target of a company, and the ratio is unique for each company. The ratio may be expressed as the Debt-to-Equity Ratio (DER). The theory proposes that a certain DER bears the minimum cost of capital. Ceteris paribus, the minimum cost of capital results in maximum company value. To keep DER constant, the increase (decrease) in debt must be accompanied by the increase (decrease) in equity with the same magnitude. This theory does not put the concern on which type of capital is the easiest to be obtained as the first target, the second easiest, and so on. This is the main difference between the static trade-off theory and pecking order theory.

Agency model theory stands on different perspective. This theory presumes that debt improves the discipline of the agency on managing the company. Public

companies separate the principals and agents. The principals have the access to monitor the deeds of the agents through shareholders meeting that takes place once a year. As a consequence, the ability of the principals in monitoring the agents is very limited. The debt takes the role in promoting the discipline of the agents in managing the company. Creditors always monitor the company regularly and frequently in order to protect the creditors' interest. As long as the creditors consider that the company is managed prudently, principals may believe that agents properly manage the company for their interest. The higher the portion of debt, or higher DER, the more is the concern of the creditors to monitor the company.

The question is which theory is the most appropriate to be implemented by small caps? Small caps are assumed to have limited capability to access sources of capital. They tend to have high risk and, as a result, every type of capital is expensive. This condition may encourage companies to consider a certain approach to fulfilling their capital need that may be able to be explained by a certain theory. Based on the above argument, this paper attempts to answer the following questions. Firstly, is there a financing theory, either agency model theory, pecking order theory, or static trade-off theory, relevant to the way small caps in financing decisions? Secondly, if there is, which theory is relevant?

This paper is organized as follows. The first section is introduction. The second section explains a brief description on the previous studies on the agency model, pecking order, agency model, and static trade-off theories of capital structure. This is then followed by the proposed models and hypotheses. The next section elaborates data employed in this study and their analysis. This paper is closed with the conclusion.

PREVIOUS STUDIES

Comparisons between static trade-off and pecking order theories are quite common. Meyers (1984) is one among many studies on static and pecking order theories. Static trade-off theory is represented by the existence of optimum capital structure. He argues that static trade-off theory stresses the optimum benefit and cost of various sources of financing. Asymmetric information may lead tto moral hazard and adverse selection problem (Myer and Majluf: 1984, Frank and Goyal: 2003 and 2008, Neus and Walter: 2008, and Getzmann et al: 2010). Asymmetric information tends to exploit internal sources of capital, while the absence of asymmetric information give chance to companies to exploit both internal and external sources of capital. Graham and Harvey (2001) confirm the existence both theories in the in practice.

Helwege and Liang (1996) and Shyam-Sunder and Meyer (1999) show similar result when comparing those theories. There is low probability of companies going public to follow pecking order theory. Even though they start to fulfill the capital

need in accordance with pecking order theory, those companies gradually adjust their capital structure to a certain DER that is in accordance with static trade-off theory.

Ang and Jung (1993) argue that companies tend to follow pecking order theory when they face two constraints, i.e. asymmetric information and marginal financing choices. The absence of both constraints encourages companies to fulfill their capital needs in accordance with static trade-off theory. Their research on large companies listed in Korean Stock Exchange indicates the support of static trade-off theory on the companies' behavior.

Studies on static trade-off and pecking order theories are simplified through the methodologies employed. Rafiq *et al.* (2008) and Graham and Harvey (2015) employ same model to explain both theories. Rafiq et al employ a regression with the same dependent and independent variables under parametric and non-parametric models. The relevant theory, either static trade-off or pecking order theory, is indicated by the signs of the coefficients. Graham and Harvey (2015) also use similar approach, i.e. one model for both theories. However, they emphasize that certain independent variables explain the existence of pecking order theory while other independent variables explain the existence of static trade-off theory.

Some studies employ DER to explore the existence of both theories. The first thing to consider when employing DER is to choose whether debt and equity employed are market value or book value. The use of market value leads to the deviation from a fixed DER as the target because both debt and equity prices change regularly. For this reason, book value is more appropriate to be employed (Baker and Wurgler: 2002, and Welch: 2003). By employing book value, Frank and Goyal (2004) find that some companies tend to have similar pace of growths of debt and equity. This indicates the existence of static trade-off theory.

Bagley *et al.* (1998) put their stance differently from many other researchers. They argue that pecking order theory does not need to be confronted with static trade-off theory. Instead, those theories are within a continuum. A company may be allowed to deviate from its optimum capital structure, and it may increase its debt frequently to reach a certain point. Obtaining equity from external parties, however, is infrequent and in a large amount. This behavior may be in between both theories.

Agency model theory uses a different standpoint. The basic idea of this theory is to minimize the asymmetric condition between shareholders as principals and management as agencies. The company may offer a portion of shares to management or increase the debt in order to improve the market discipline (Jensen: 1986, Morck, Shleifer, and Vishny: 1988, Sen and Oruc 2009, and Vo and Nguyen: 2014). In addition, profitable companies tend to use debt. It is because high profit

means a good company and, under this condition, management may be tempted to exploit opportunities to maximize their own interest, not the company or shareholders. What shareholders want to do is to employ debt or distribute its profit as dividend. Under agency model theory, therefore, the more profit means higher dividend and more debt is exploited.

Apart from many attempts to compare those theories, another important concern is about the research design. Many papers employ a model that is able to distinguish the applicability of a theory from the others. Sam-sander and Meyers (1999) employ a simple model which only uses one explanatory variable to identify whether companies employ pecking order theory or static trade-off theory. The explanatory variable is the deficit external financing. Chirinko and Singha (2000) are ones who criticized their model by relaxing the restriction. They argue that pecking order theory is applied as long the coefficient of deficit external financing is close to unity. From that point in time, some other researchers attempt to develop alternative models with various explanatory variables with different explanatory power (for examples, Salami and Iddirisu: 2011, Atiyet: 2012, Ghazouan: 2013, and Glover and Hambusch: 2013, Oolderink: 2013)

Graham and Harvey (2002 and 2015), Rafiq *et al.* (2008), and **Acaravci** (2015) employ a model with some explanatory variables to identify which model is appropriate to explain capital structure behavior. Depending on the explanatory variable and their signs, either plus or minus, their models may distinguish pecking order theory from static pecking order theory. Their models need to be modified in order to be able to include other theories to be tested.

PROPOSED MODELS AND HYPOTHESES

The Basic Models

This study employs small companies with small capitalization, or small caps, listed in the Indonesia Stock Exchange. They are the 40 companies with the lowest market capitalization. To prove the existence of the three theories, i.e. pecking order theory (POT), static trade-off theory (STT), and agency model theory (AMT), this study employs the change in debt as the dependent variable. The change in debt, as aforementioned, may explain whether the companies tend to follow one of those theories.

Suppose a company increases (reduces) its debt level. In other words, $\Delta D_{i,t}$, the change in debt of company i at time t, is positive (negative). This change may be followed by the change in equity. The first source of equity is earnings after tax, $EAT_{i,t}$, i.e. earnings after tax or net profit of company i at time t. The changes in $\Delta D_{i,t}$ and $EAT_{i,t}$ depend on which theory is followed. The relationship among both changes is expressed in the following equation

$$\Delta D_{i,t} = a + bEAT_{i,t} + \varepsilon_t \quad (1)$$

The more general equation employs $\Delta E_{i,t}$ the change in equity of company i at time t, as the independent variable under the following equation

$$\Delta D_{i,t} = a + b\Delta E_{i,t} + \varepsilon_t \quad (2)$$

Consider equation (1). According to POT, the first source of capital is $EAT_{i,t}$. It is because under asymmetric information, the Board of Directors tends to negotiate with the shareholders to keep the profit in the company to enhance its business. If the profit is satisfied to fulfill the capital needs, the company does not need to obtain debt as the additional capital. Under an extreme condition, i.e. the profit is larger than the capital needed, the company may use a portion of the profit to repay the debt, as long as the debt covenant allows the company to do so. As a consequence, the higher profit or $EAT_{i,t}$ leads to the constant or decrease in the debt, $\Delta D_{i,t}$. in terms of the statistical relationship, the coefficient of $EAT_{i,t}$ is expected to be negative even though the relationship may not be strong.

The opposite condition is also similar. Suppose the company suffer losses, or $EAT_{i,t}$ is negative. This condition may lead the company not to expand its business or, under the worse condition, reduce its activity level. However, if the company wants to keep its activity level, it has to obtain new debt to maintain its total assets to compensate the losses. If the company wants to increase its activity level, it has to obtain larger debt as the main source of capital under negative $EAT_{i,t}$. this condition implies that the negative profit is accompanied by the constant or increase in debt. This also means that $\Delta D_{i,t}$ and $EAT_{i,t}$ has a negative relationship, even though the relationship may not be strong.

Now consider equation (2). This is a general condition of the relationship between the change in equity, $\Delta E_{i,t}$, and the change in debt, $\Delta D_{i,t}$. This equation assumes that the source of equity is not only $EAT_{i,t}$, but also others such as a new equity injection from the existing shareholders or from public from public offering. The interpretation of the relationship between $\Delta D_{i,t}$ and $\Delta E_{i,t}$ is similar to the relationship between $\Delta D_{i,t}$ and $EAT_{i,t}$. The positive $\Delta E_{i,t}$, or the increase in equity is accompanied by constant or even negative $\Delta D_{i,t}$. it is only under a special condition, i.e. the need of huge capital increase for expansion, the increase in equity is accompanied by the icrease in debt. Therefore, under a general condition, the relationship between $\Delta D_{i,t}$ and $EAT_{i,t}$ is expected to be negative even though the relationship may not be strong.

The second theory, i.e. STT, has a different approach to the profit available. As mentioned before, the essence of STT is the fixed, targeted debt-to-equity ratio, or DER. In other words, the increase (decrease) in debt is accompanied by the increase (decrease) in equity. In terms of profit, the larger $EAT_{i,t}$, as the main source of equity, is accompanied by the increase in $\Delta D_{i,t}$. If the company is willing to increase

its activity level, it has to obtain both $EAT_{i,t}$ to be retained and $\Delta D_{i,t}$. this takes place when the company has opportunities to expand its business. The increase in $EAT_{i,t}$ must be at the same magnitude with the increase in $\Delta D_{i,t}$. In other words, $EAT_{i,t}$, and $\Delta D_{i,t}$ has positive relationship.

The similar condition also happens if the company suffers losses. If $EAT_{i,t}$ is negative, the company needs to reduce $\Delta D_{i,t}$ to keep DER constant. Under certain condition, reducing $\Delta D_{i,t}$ is not easy because of a strict debt covenant. Under this condition, negative $EAT_{i,t}$, cannot immediately be accompanied by the decrease in $\Delta D_{i,t}$. however, under a normal economic condition, negative $EAT_{i,t}$ is seldom. Therefore, the effect of negative $EAT_{i,t}$, is expected to be not significant. Therefore, the negatve EATi,t is expected to be accompanied by the decrease in $\Delta D_{i,t}$. Under this condition too, $EAT_{i,t}$, and $\Delta D_{i,t}$ has positive relationship.

This relationship is also expected to equation (2). The increase (decrease) in $\Delta D_{i,t}$ is accompanied by the increase (decrease) in $\Delta E_{i,t}$ to keep DER constant. In other words, the relationship between $\Delta D_{i,t}$ and $\Delta E_{i,t}$ is expected to be positive.

The relationships between $\Delta D_{i,t}$ and $EAT_{i,t}$ and between $\Delta D_{i,t}$ and $\Delta E_{i,t}$ under agency model theory or AMT are as follows. According to AMT, a high profit company needs to be watched closely. Shareholders as the principals have a limited access to the inside information. Therefore, shareholders may request the company to borrow capital to improve the market discipline. Creditors or bondholders have concern to review the inside information regularly to assure the safety of their money. The higher the portion of debt, the closer are the creditors or bondholders in inquiring the company. As creditors or bondholders have similar concern with shareholders, i.e. the healthiness of the company and the protection of their wealth, whatever the creditors or bondholders do represents the interest of shareholders.

In other words, higher $EAT_{i,t}$, is accompanied by the higher $\Delta D_{i.t}$. A company with a good performance needs to be watched more closely through creditors or bondholders. Therefore, the relationship between $EAT_{i,t}$ and $\Delta D_{i,t}$ is expected to be positive. This is similar to the relationship between $\Delta E_{i,t}$ and $\Delta D_{i,t}$. The more shareholders put their stake in the company in terms of equity, the more concern for the shareholders to investigate the company through creditors or bondholders. For this reason, AMT expect the positive relationship between $\Delta E_{i,t}$ and $\Delta D_{i,t}$.

In summary, the relationships are as shown in Table 1.

Hypothesis (1): Under pecking order theory, Earnings After Tax or EAT_t of a company has a negative relationship with the Change in Debt or ΔD_t, with the relationship is moderate to strong.

Hypothesis (2): Under pecking order theory, the Change in Equity or ΔE_t of a company has a negative relationship with the Change in Debt or ΔD_t, with the relationship is moderate to strong.

Table 1
The expected relationship between $EAT_{i,t}$ and $\Delta E_{i,t}$ and $\Delta D_{i,t}$

Theory	*The relationship of Independent variable to $\Delta D_{i,t}$*	
	$EAT_{i,t}$	$\Delta E_{i,t}$
POT	(-) Moderate	(-) Moderate
STT	(+) Strong	(+) Strong
AMT	(+) Moderate	(+) Moderate

Note: the independent variables are EATi,t and ΔEi,t,, while the dependent variable is ΔDi,t. The independent variable is regressed individually with the dependent variable in a single regression model for each

Hypothesis (3): Under the stattic trade-of theory, Earnings After Tax or EAT_t of a company has a positive relationship with the Change in Debt or ΔD_t, with the relationship is moderate to strong.

Hypothesis (4): Under the static trade-off theory, the Change in Equity or ΔE_t of a company has a positive relationship with the Change in Debt or ΔD_t, with the relationship is moderate to strong.

Hypothesis (5): Under the agency model theory, Earnings After Tax or EAT_t of a company has a positive relationship with the Change in Debt or ΔD_t, with the relationship is strong.

Hypothesis (6): Under the agency model theory, the Change in Equity or ΔE_t of a company has a positive relationship with the Change in Debt or ΔD_t, with the relationship is strong.

The Extended Models

To advance the models, some other influencing and controlling variables need to be put in the equation. The first two independent variables are $EAT_{i,t}$ and $\Delta E_{i,t}$. The relationships of these tow variables and the dependent variable are as the same as above. The third variable is the Change in Fixed Assets in year t, ΔFA_t. This variable expresses the need of financing, either in terms of debt or equity. Under pecking order theory, the impact of this variable to the debt very much depends on the availability of internal financing. If net profit is sufficient to fulfill the need to increase fixed assets, there is no need to obtain new debt. On the other hand, a portion of debt may be repaid if net profit exceeds the need for fixed assets investment and dividend payment.

Under static trade-off theory, the increase in fixed assets certainly increases both equity and debt. It is because the company wants to keep the debt-to-equity

ratio constant. In other words, static trade-off theory expects the relationship between $\Delta FA_{i,t}$ and ΔD_t is significantly positive. Under agency model theory, the relationship between these two variables tends to be positive but subject to the amount of debt already held by the company. As long as the amount or portion of debt is considered as sufficient to control the company, the increase in fixed assets does not demand the company to increase the debt. However, if the increase in fixed assets is considered significantly enlarge the size of the company and shareholders need additional debt to enhance the control, the relationship between the two variables is positive.

The next independent variable is net external financing, $NEF_{i,t.}$. This represents the amount of new equity acquired from external parties. Under pecking order theory, $NEF_{i,t}$ does not have relationship with $\Delta D_{i.t}$. $NEF_{i,t}$, is important if the company stop obtaining new debt because of some reason, such as the limited capacity to generate funds to repay the debt. This means that $NEF_{i,t}$, only takes place if $\Delta D_{i,t}$ is zero.

The relationship between $NEF_{i,t}$, and $\Delta D_{i,t}$ under static trade-off theory is expected to be positive. It is because if $NEF_{i,t}$, is positive (negative), the amount of debt must increase (decrease), or $\Delta D_{i,t}$, must be positive (negative) to keep the debt-to-equity ratio constant. Under agency model theory, the relationship is slightly similar to the relationship under static trade-off theory, i.e. positive relationship. However, the reason of such a relationship is different. Under agency model theory, positive $NEF_{i,t}$ means higher commitment of shareholders to put their stake in the company. To make sure their money is managed properly, they demand stronger control to agency in managing the company. If they consider the amount of debt is not sufficient to control the company, they ask the management to increase the debt. However, if they consider the amount of debt is sufficient, there is no need to increase the amount of debt.

The last independent variable is the total assets. This variable is used as the controlling variable. Pecking order theory and static trade-off theory do not require a certain kind of relationship even though a positive relationship is preferred. Agency model theory, on the other hand, expects a positive relationship between total assets and debt. Larger total assets may encourage shareholders to enhance the control from creditor as the third party.

In summary, the relationships of those independent variables and ΔDi,t, are as shown in equation (3), and the expected signs are shown in Table 2.

$$\Delta D_{i,t} = a + b_1 EAT + b_2 \Delta E + b_3 \Delta FA_{i,t} + b_4 LA_{t,i} + b_5 NEF_{i,t} + \varepsilon_t \qquad (3)$$

Table 2
The multiple regression model to test pecking order, static trade-off, and agency model theories

Theory	*Relationship*				
	EAT_t	ΔE_t	ΔFA_t	$NEF_{i,t}$	$LA_{i,t}$
POT	-	+			
STT	+	+	+	+	
AMT	+	+	Tend to be +		Tend to be +

Note: the model emplyos five independent variables, i.e earnings after tax of company i a time t $EAT_{i,t}$, the change in equity of company i at time t $\Delta E_{i,t}$, the change in fixed assets of company i at time t $\Delta FA_{i,t}$, net external financing of company i at time t $NEF_{i,t}$, and the logarithm of total assets to represent the size of company of company i at time t $LA_{i,t}$. the dependent variable is the change of company i at time t, $\Delta D_{i,t}$.

RESULTS AND DISCUSSION

This study employs small caps listed in Indonesian Stock Exchange, IDX. The data are extracted from the documents released by the exchange. The companies are listed at the bottom the company list in the exchange based the capitalization. This study employs the data within the period from 2008 to 2014. There are 45 companies. Table 3 shows the statistical description of the variables. Some companies experience of reducing the debt in a certain year. It is indicated by the negative $\Delta D_{i,t}$. However, small caps under study tend to increase their debt, as indicated by the fact that maximum ΔDi,t, is much larger than the absolute value of minimum ÄDi,t.

Some companies also suffer losses within the period under study, as shown as negative EATi,t of minimum $EAT_{i,t}$ in Table 3. However, the amount is not significant compared to the standard deviation as well as the maximum profit. At the same token, most companies attempt to increase their total equity, even though a few companies reduce their equity at a little amount.

All variables have been tested through standard statistical tests, the data distribution, heteroskedasticity, and multicolinearity. After being tested, they are put in the regression according to the proposed model, either in a simple regression or multiple regression. In addition, this study also employs Hausmann tests for every regression model, the test that is suitable for pooling data. The regression results in this paper only the best model among the two alternatives, fixed model and random model.

Table 4 shows the results of two simple regression models. Column (2) shows the regression results of $EAT_{i,t}$ on $\Delta D_{i,t}$. Column (2) explains whether hypotheses 1, 3, and 5, are proven. The coefficient of $EAT_{i,t}$ is positive and not significantly different from zero. This clearly indicates that pecking order theory is not relevant because this theory expects that the sign of the coefficient is significantly negative.

Table 3
Statictical description of dependent and independent variables

Notes	$\Delta LTD_{i,t}$	$EAT_{i,t}$	$\Delta E_{i,t}$	$\Delta FA_{i,t}$	$LA_{i,t}$	$NEF_{i,t}$
Mean	61,988,359	7.84E+08	4.68E+08	93,730,565	12.60	-9.1E+08
Standard Deviation	2,305,189,286	2.28E+09	3.2E+09	1.5E+09	2.95	3.76E+10
Minimum	-7,796,149,000	-3.2E+08	-4,394,969	-1.4E+10	6.80	-2.6E+11
Maximum	25,114,695,000	1.01E+10	3.49E+10	1.28E+10	26.28	2.58E+11

Note: Execpt LAi,t all figures are in Indonesian Rupiah, IDR. LAi,t, is the logarithm of total assets

The positive sign for this coefficient is more relevant to explain the other two theories, i.e. static trade-off and agency model theories. However, the coefficient of $EAT_{i,t}$, is not significantly different from zero. This indicates that the suitability of static trade-off and agency model theories is not proven, even though the positive sign of the coefficient indicates the tendency of the suitability of either static trade-off and agency model theories to explain how small caps behave in fulfilling their capital needs.

Column (3) of Table 4 shows the results of the other regression, i.e. the regression with $\Delta E_{i,t}$, as the only independent variable of $\Delta D_{i,t}$ as the dependent variable. The coefficient is positive and significantly different from zero at the 99% significance level. Similar to the interpretation of column (2) of Table 4, the positive coefficient means that pecking order theory is not relevant in explaining small caps behavior. Instead, static trade-off and agency model theory are more appropriate. Another important note from the regression is R2, the coefficient of determination, which is 84.11%. This is much higher than R2 for the regression shown in column (2), which is -17.81%. Furthermore, R2 shown in column (3) is also much larger than R2 for normal regression results for social studies, including financial research. Therefore, it can be said that the suitability of static trade-off and agency model theories are strongly supported by the regression using the change in equity as the explanatory variable.

As additional analysis, this study put another model, i.e. using both $EAT_{i,t}$ and $\Delta E_{i,t}$, as independent variables with $\Delta D_{i,t}$ as the dependent variable. The regression results are shown in Table 5. The regression shows that both coefficients are significantly different from zero at 99% significance levels. However, the coefficient of $EAT_{i,t}$ is negative while the coefficient of $\Delta E_{i,t}$, is positive. This may indicate the following behavior. If a small cap has profit, the company tends to follow pecking order theory, i.e. it attempts to fulfill its investment needs by retaining its profit as much as possible. Beyond the need for investment, the company may use a portion of net profit to repay its debt, and the rest is used as dividend. However, if the funds required beyond the profit available, the company has to obtain new equity from shareholders. If this is the case, the company attempts to acquire both new

equity and debt at the same time. Therefore, static trade-off and agency model theories are able to explain the behavior of company in the case of new equity injected into the company.

Table 4
The regression results of simple regression models

Independent Variable	*Coefficient Equation (1)*	*Coefficient Equation (2)*	*Pecking order*	*Static trade-off*	*Agency model*
C	-1,546,073 (0.01).	-3.64 E08 (6.38***)			
$\mathbf{EAT^{i,}_{t}}$	0.08 (0.88)		Not relevant	Not relevant	
$\mathbf{\Delta E^{i,}_{t}}$		0.91 (37.98***)	Not relevant	Relevant	Relevant
Adjusted R^2	-17.81%	84.11%			

Notes: Column (2) shows the regression result of $\Delta D_{i,t} = a + bEAT_{i,t} + \varepsilon_t$, while column (3) shows the regression result of $\Delta D_{i,t} = a + b\Delta E_{i,t} + \varepsilon_t$. The figures in the parentheses are t-statistic. The stars attached to the t-statistics indicate the significance level: *** for 99% significance level, ** for 95% significance level, and * for 90% significance level.

Table 5
The multiple regression results of the model with $\mathbf{EAT_{i,t}}$ and $\mathbf{\Delta E_{i,t}}$ as independent variables

Independent Variable	*Coefficient Equation*	*Pecking order*	*Static trade-off*	*Agency model*
C	-3.03E+08(4.24)***			
$\mathbf{EAT_{i,t}}$	-0.300391(6.36)***	Not relevant	Relevant	Relevant
$\mathbf{\Delta E_t}$	0.949115(37.49)***	Not relevant	Relevant	Relevant
Adjusted R^2	87.04%			

Notes: The table shows the regression results of $\Delta D_{i,t} = a + b_1 EAT_{i,t} + b_2 \Delta E_{i,t} + \varepsilon_t$. The figures in the parentheses are t-statistics. The stars attached to t-statistics indicate the significance levels, *** at 99% significance level, ** at 95 significance level, and * at 90% significance level.

Table 6 provides the multiple regression of equation (3). Following the regression results shown in Table (5), this model employs both $EAT_{i,t}$ and $\Delta E_{i,t}$ together with others as independent variables. The results indicate an interesting phenomenon. At a certain level, all three theories seem to be able to explain the behavior of small caps on financing decision. The first two independent variables, i.e. $EAT_{i,t}$ and $\Delta E_{i,t}$ show similar results with those shown in Table (5). The coefficients of both variables are significantly different from zero at 99% significance levels. However, they have different signs, i.e. one is positive while the other is

positive. This finding supports the results shown in Table (5). The significantly negative coefficient of $EAT_{i,t}$ indicates that when a company relies on net profit as the source of capital, the company follows pecking order theory. It exploits net profit as much as possible until exhausted. However, additional need of capital may be fulfilled through the new equity injection by existing shareholders. Under this circumstance, the company requires not only equity injection but also new loans. In this case, static trade-off and agency model theories may explain such a behavior. However, this does not distinguish the suitability of static trade-off theory from agency model theory.

The change in fixed assets, $\Delta FA_{i,t}$, indicates a significant influence of $\Delta D_{i,t}$. The coefficient is positive and significant at 95% significance level. The increase in fixed assets encourages the company to increase its debt. The coefficient of $\Delta FA_{i,t}$ less then one indicates that only a portion of the increase in fixed assets is financed by debt, while the rest is financed by equity. If this behavior constantly takes place, static trade-off theory is more appropriate than agency model theory. However, this study has a limited period. Therefore, which theory between static trade-off and agency model is more appropriate to explain small caps behavior still cannot be distinguished through the relationship between $\Delta FA_{i,t}$ and $\Delta D_{i,t}$ found in this study.

The other two variables may explain which theory between static trade-off and agency model is more appropriate to explain small caps in financing decision. $NEF_{i,t}$ is related to static trade-off theory while $LA_{i,t}$ is related to agency model theory. The coefficient of $NEF_{i,t}$ is positive at 95% significance level. This is as expected according to static trade-off theory. On the other hand, the coefficient of $LA_{i,t}$ is negative at 99% significance level. This is the opposite of expectation according to agency model theory. The larger total assets, the more the company acquires debt. Based on the coefficients of $NEF_{i,t}$ and $LA_{i,t}$, it can be said that static trade-off theory is more appropriate than agency model theory in explaining the behavior of small caps in financing decision.

In conclusion, the behavior of small cap in financing decision is as follows. When small caps need capital, they exploit profit at the first priority as the source of capital. Under this condition, small caps tend to follow pecking order theory. However, when they demand larger capital and, as a consequence, net profit is not sufficient, they attempt to acquire both new equity injection and new debt together. This behavior tends to follow static trade-off theory.

Does it mean that agency model theory is not appropriate to explain small caps behavior in financing decision? This study indicates that the answer is "yes it does". However, this answer may be bias due to the fact that all small caps under study use debt as a source of capital. It seems that debt is a "must" for them. Does it mean that the motivation of using debt at the first time is encouraged because of

the need of tighter control by creditors on the request of shareholders to represent agency model theory, or because of the lack of net profit to represent pecking order? This study does not intend to answer this question. The answer to this question may be found in the further research.

Table 6
The results of multiple regression model.

Variable	*Coefficient*	*Pecking Order*	*Static Trade-off*	*Agency Model*
C	3.95E+09			
	(6.14)***			
$EAT_{i,t}$	-0.240055	Yes	No	No
	(5.73)***			
$\Delta E_{i,t}$	0.835628	No	Yes	Yes
	(25.74)***			
$NEF_{i,t}$	0.00345		Yes	
	(2,40)**			
$\Delta FA_{i,t}$	0.374932		Yes	Yes
	(6.16)**			
$LA_{i,t}$	-3.38E+08			No
	(6.61)***			
Adjusted R2	90.27%			

Notes: Table (6) shows the result of the regression of $\Delta D_{i,t} = a + b_1 EAT + b_2 \Delta E + b_3 \Delta FA_{i,t} + b_4 LA_{t,i} + b_5 NEF_{i,t} + \varepsilon_t$. With ΔDi,t is the change in debt of company I at time t, EATi,t earnings after tax of company I at time t, ΔEi,e the change in equity of company I at time t, ΔFAi,t the change in fixed assets of company I at time t, LAi,t the logarithm of total fixed assets of company I at time t, and NEFit, the net external financing of company I at time t. The figures in parentheses are t-statistics, while the stars attached to t-statistics are the significance level: *** at 99% significance lvel, ** at 95* significance level, * at 90% significance lvel.

CONCLUSION

This paper attempts to explore the applicability and the suitability of three capital structure theories, i.e. pecking order, static trade-off, and agency model theories on small caps, the findings are as follows. At the first stage, it seems that small caps follow pecking order theory. This takes place especially when small caps gain sufficient profits to fulfill their capital needs. They do not need other types of capital, including additional debt.

Their behavior changes when the profits are not sufficient. They may need external financing, in terms of either debt or equity. This is indicated by the significant influence of the change in equity as well as the change in net external financing on the change in debt. Both explanatory variables clearly justify the applicability of static trade-off theory on capital structure when small caps exploit external equity financing. The coefficient of the change in equity less than unity

may indicate that debt-to-equity ratio is less than unity too. Furthermore, the coefficient of net external financing is considerably small. For this, a further study needs to be conducted to explore the optimum debt-to-equity ratio. This is important because most financial institutions including banks set a rule of thumb on this ratio. In general, banks may give loans if the ratio is no more than 2.33, under the condition that the companies have sufficient creditworthiness.

This study shows that agency model theory is not suitable for small caps in capital structure decision. However, this conclusion should be treated in caution. It is because most companies have loans. They may borrow debt because of several reasons, such as benchmarking to their peers and opportunity to borrow offered by financial institutions. If this is the case, majority shareholders may not consider the improvement of market discipline by creditors. This is because majority shareholders mostly are involved in the board of small caps, either in the board of directors or board of commissioners.

There are at least two areas for further studies. Firstly, the use of other explanatory variables to explain the applicability of agency model theory would be beneficial. It is important to identify to what extent loans is important to improve market discipline. By knowing this extent, financial institutions maybe assisted to offer the amount of debt to be offered to small caps in order to make sure that small caps are at the best level of management and, at the same time, to satisfy shareholders. The other research area is to conduct the similar study with the study presented in this paper but employing large caps and, then, to compare the applicability and suitability of those theories to the two different groups of companies.

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