Testing the Pecking Order Theory of Internal Funding Deficit: Evidence from Indonesian Sub-Sector Property and Real Estate

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Abstract: *Property and real estate subsectors in Indonesia are part of the cause to economic augmentation, but in the recent years its escalation has been slowing. Property and real estate fit in a capital-intensive sub-sector, as well as companies requiring huge external capital. External financing is also faced with the risk that the company should be held accountable to those external parties. The objective of this research is to analyze the company's capital structure in the property and real estate sub-sector through testing the pecking order theory. The results of the analysis reveals that the internal funding deficit has a significant positive impact on long-term corporate debt changes in the agricultural sector listed on the BEI. This presents that in determining the company's capital structure policy, companies in property and real estate sub-sector listed on BEI have employed pecking order theory concept.*

Keywords: Property, real estate, capital structure, pecking order theory

1. Introduction

Indonesia's population enlargement continues to increase, indicating that property and real estate industries will expand as well. Moreover, property and real estate sectors give to economic growth in Indonesia too. However, in the last few quarters the increases in supply and demand of commercial property and real estate in Indonesia has been delayed [1].

Property and real estate sub-sector is a capital intensive sub-sector, where capital is apportioned as a fund in the process of purchasing land and construction, as well as companies requiring great capital from external parties. Nevertheless, external financing also stands facing with the risk that the company should be held accountable to those external parties. Thus, it is necessary for consideration for the management for the most appropriate capital structure for property companies and real estate.

Capital structure is very essential in decision making financing the company's operational activities. The enormity of this capital structure depends on the composition of the company's funding sources both internally as well as from external companies. The trade off theory explains if you desire to get huge revenue, then the debt is in big responsibility (Sudana 2011) [2]. While the pecking order theory is a systematic alternative funding company, and the use of less debt to enlarge corporate profits.

Therefore, the purpose of this research is to analyze the capital structure used in the property and real estate sub-sector companies listed on the Indonesia Stock Exchange.
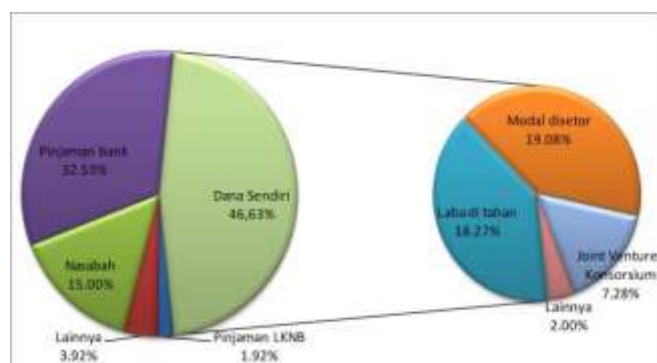

Figure 1: Current capital structure firms in sub-sector property and real estate

2. Literature Review

The capital structure is a combination of debt and equity use as a long-term financing of the company [3]. The capital structure can be defined as a source of companies funding derived from debt and stocks to finance an investment, corporate operations and corporate growth in the future [4].

The Pecking Order Theory explains that companies should consider when deciding the funds use preferences starting from the cheapest funding [5]. The company will firstly use the funds sources derive from the internal of the company (retained earnings), when the capital needs increase, the company will secondly use external debt financing, and finally the company will use internal funds namely equity when the debt is not sufficient to meet the capital requirement. However, according to trade-off theory is that the starting point of a review of the firm's capital structure decision is on the debt-target ratio where tax protection of debt is maximized and the cost of bankruptcy related to debt is minimized [4]. Predicts optimal capital structure will not be achieved by the company, but the company will use external funding when the debt capacity is achieved by following certain principles [8]

3. Methods

3.1 Type and Sources of Data

The type of data used in this research is secondary data. Source of data derived from the financial statements of 15 issuers property and real estate sub-sector during 2010-2015 period, consisting of balance sheet, cash flow statement, statement of changes in equity, profit / loss statement, and notes to the financial statements. The data is obtained by downloading Indonesia Stock Exchange website (www.idx.co.id) , related company website, and also other information that can support this research.

3.2 Anlisis Data

Data analysis method used to answer packing-order theory test in property sub sector company and real estate is regression analysis method of panel data. This analysis instrument is used based on the suitability of the data used that involves cross-section and time series data.

For testing the theory of packing-order on the capital structure is used as follows:

$$\Delta LTD_{it} = \alpha_0 + \alpha_1 DEF_{it} + \varepsilon_1$$

Informayion:
ΔLTD_{it} = Amount of debt change in the long-term debt (long-term debt) of issuer i in year t
DEF_{it} = internal funding deficit of issuer to i in year t
α_0 = constants / intercept

α_1 = regression coefficient which is the coefficient of pecking order theory
ε_1 = Error term

4. Descriptive Analysis

The object of the research is sub-sector companies property and real estate listed on the Indonesia Stock Exchange since January 2010 until December 2015. Based on above criteria, it is obtained 15 companies during six periods of the bookkeeping year. Testing of pecking order theory in this research is done through regression.

The long term debt change in this research is used as the dependent variable to prove the existence of pecking order theory on the issuer of property and real estate sub-sector listed in Indonesia Stock Exchange. Changes of long term debt can be seen in Table 8. The long-term debt value of several publicly-listed property and real estate issuers shows fluctuation. In general, most issuers in the property and real estate sub-sector show positive debt changes. However, there are some emitters that point to negative debt growth trends including JRPT, LAMI, and SMDM. In general, LPKR shows the highest value of long term debt change compared to other issuers and always shows positive debt growth. Besides, SMRA is on the second place of its debts growth changes with an average growth rate of Rp 899 395 million over the past six years. As for the details of long term debt developments in 15 listed property and real estate sub-sector over the last six years are available in Table 1.

Table 1: Changes in long term debt issuers of property and real estate subsectors in 2010- 2013 (in millions of rupiah)

No	Emiten	Tahun						Min	Max	Rata-rata
		2010	2011	2012	2013	2014	2015			
1	BIPP	-745	28283	-3376	55605	14973	43326	-3376	55605	23011
2	BKSL	-62183	55145	512799	1644937	-1092737	132503	-1092737	1644937	198411
3	CTRA	322404	1189840	-720356	1181309	890417	1084370	-720356	1189840	657998
4	DART	-43389	526705	105309	1061003	25673	-296769	-296769	1061003	229755
5	DUTI	-26072	131040	316533	-774294	310460	163276	-774294	316533	20157
6	GMTD	50033	-30287	161797	205154	-68187	-140225	-140225	205154	29714
7	JRPT	566889	-1116951	81996	6090	19450	27721	-1116951	566889	-69134
8	KIJA	522488	479356	747738	424032	504854	894367	424032	894367	595473
9	LAMI	-326589	3671	11506	-31125	1550	3164	-326589	11506	-56304
10	LPCK	-202290	-314572	-62475	-14611	27012	594136	-314572	594136	4533
11	LPKR	2182206	1521265	3323920	2361244	2108154	3163531	1521265	3323920	2443387
12	MDLN	154933	63528	496903	1689957	878243	226468	63528	1689957	585005
13	PWON	-15215	254220	291498	-67127	2228655	324864	-67127	2228655	502816
14	SMDM	-344538	166917	73382	-171874	118201	-113425	-344538	166917	-45223
15	SMRA	151734	475213	-186150	2100010	1430738	1424581	-186150	2100010	899354

(+) Debt increases , (-) Debt decreases

Internal funding deficits are factors that affect companies to use external funding sources. The internal funding decisions indicate that the cash position earned from the company's operations is not sufficient to finance the company's future activities. Internal funding deficit is measured from dividend

payments, investment payments, changes in working capital, minused by the net income of the company [6]. In this research, the internal funding deficit is used as an independent variable to prove the existence of pecking order theory in the property and real estate sub-sector listed on the

BEI. Changes in internal funding deficits can be seen in Table 2. LPKR shows the highest funding deficit value with a value reaching Rp 4 765 571 million, this is what motivated LPKR to increase its debt level where its debt growth rate also showed the highest value compared to other issuers.

Then, the other highest funding deficit value is DUTI with Rp 2 894 322 million, but the value of its debt growth is not in line with the high fund deficit amount.

Table 2: Internal funding deficits of agricultural sector issuers in 2010-2013 (in millions of rupiah)

No	Emiten	Tahun						Min	Max	Rata-rata
		2010	2011	2012	2013	2014	2015			
1	BIPP	24754	70301	178711	14860	-130199	356403	-130199	356403	85805
2	BKSL	2907457	435306	318949	5704767	-3394895	1644282	-3394895	5704767	1269311
3	CTRA	-122080	19319	-1950792	445162	932660	1152909	-1950792	1152909	79530
4	DART	1412627	2972504	1192843	-31996	-41734	282930	-41734	2972504	964529
5	DUTI	2095824	2503093	4906750	1726279	2478642	3655348	1726279	4906750	2894322
6	GMTD	71925	-42217	106116	-41295	685235	-753672	-753672	685235	4349
7	JRPT	589910	-1380698	-373531	-578191	715675	-292755	-1380698	715675	-219932
8	KIJA	668316	2226323	285295	144162	299441	-174560	-174560	2226323	574829
9	LAMI	-603149	-198007	47990	6087	28482	155769	-603149	155769	-93805
10	LPCK	-149906	-126609	431551	333269	924500	1073044	-149906	1073044	414308
11	LPKR	7389322	1966959	4398360	4214132	5532654	5091999	1966959	7389322	4765571
12	MDLN	245134	-97924	1521913	-648819	992029	302206	-648819	1521913	385757
13	PWON	349942	935150	359693	338672	2791379	-358353	-358353	2791379	736081
14	SMDM	1830436	-1168121	1036831	196645	453703	618791	-1168121	1830436	494714
15	SMRA	799430	666164	643473	696721	492389	2232348	492389	2232348	921754

(-) DEF Surplus, (+) DEF Deficit

The internal funding deficit average of property and real estate sub-sector companies is in line with rising long-term debt. This is an early indication that there is a positive relationship between internal funding deficits and long-term debt in issuers, engaged in property and real estate sub-sectors. The value development of LTD and DEF is available in Figure 1.

Figure 2: DEF and LTD value developments in property and real estate sub sector in the year of 2011-

5. Result

Regression analysis, which was used as an evidence of pecking order theory concept, used internal funding deficit as independent variable and long term debt change as dependent variable so that result of analysis based on Random Effect Model method is explained in Table 3.

Table 3: Regression analysis results of Pecking Order Theory panel test data

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.99E+11	1.36E+11	1.462850	0.1478
DEF	0.294125	0.046281	6.355261	0.0000

Based on table 3, it can be seen that the internal funding deficit (DEF) has a probability of less than alpha (0.05) with a coefficient of 0.294125. This means that internal funding deficits have a significant positive effect on long term debt changes. The selection of the best model in panel data regression is conducted by using Chow test and Hausman test. Chow test is a testing method to choose whether the model approach used is pooled least square (PLS) or fixed effect method (FEM), while Hausman test is a test method to choose whether the model used is random effect model (REM) or fixed effect method (FEM). If based on the selected Chow test is pooled least square (PLS), then Hausman test is not necessarily done. The hypothesis used in the Chow test is as follows:

H0: Model pooled least square
H1: Model fixed effect

The rejection criterion used in the Chow test is, reject H0 if the value of P-value <alpha value ($\alpha = 0.05$). The Chow test in this study used the eviews program, where the test results showed that the probability value of cross section F (0.0000) is smaller than the alpha value ($\alpha = 0.05$), so the null hypothesis (H0) is rejected, which means that for the temporary best model to analyze Panel data regression is using fixed effect model (FEM) method (Tabel 4).

Table 4: Analysis Results of Chow Test

Effect Test	Statistic	d.f.	Prob.
Cross-section F	5.144834	(14,59)	0.0000
Cross-section Chi-square	59.840338	14	0.0000

Table 5: Analysis Results of Hausman Test

Test Summary	Chi-Sq Statistic	Chi-Sq.d.f.	Prob.
Cross-section random	0.664603	1	0.664603

Furthermore, is done a testing to select the model of random effect or fixed effect with Hausman test method. The hypothesis used in the Chow test is as follows:

H0: Model random effect
H1: Model fixed effect

The rejection criterion which is used in the Hausman test is, it will reject H0 if the value of P-value <alpha value (α = 0.05). The Hausman test indicates that the value of probability cross section F (0.4149) is higher than the alpha value (α = 0.05), so that the null hypothesis (H0) is rejected, which means that the best model to analyze panel data regression is using random effect model (REM).

The test of classical assumption is conducted in order the regression analysis results could be BLUE (best linier unbiased estimators). The classical assumption tests cover autocorrelation test, heteroscedicity test, and normality test. Based on the result of panel data regression analysis where the best model is chosen, is Random effect model (REM). The benefit of this model is violation of heteroskedasitas and autocorrelation has been truly corrected. As for the other classical assumption test is the normality test. The normality test is implemented to determine whether the data has been normally distributed or not. The result of normality test is presented in Figure 2.
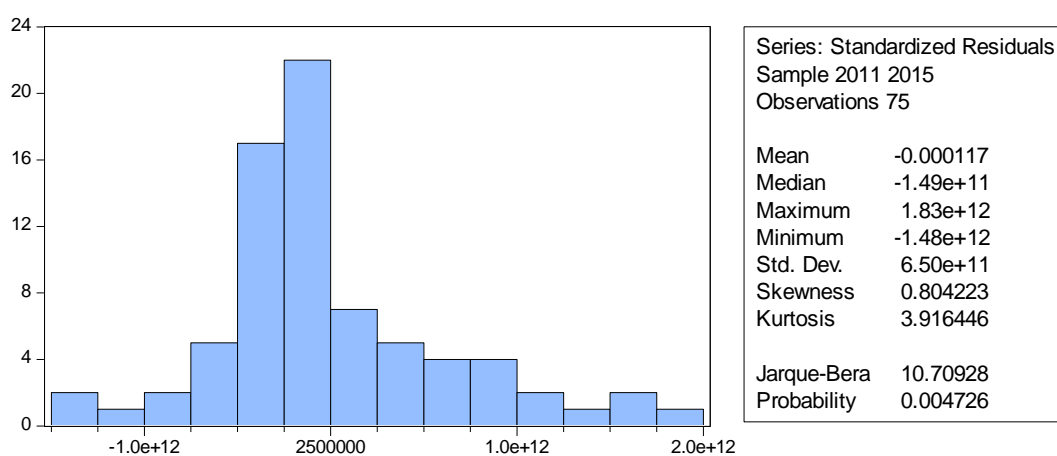
Figure 3: The result of Normality test

Based on above Figure 2, the Jarque-Bera value is getting 10.70928 , that is smaller than the Chi-Square value of 95.08, so that it can be concluded that the residual data is normally distributed. Based on the descriptive statistical value by using the random effect model (REM) in Table 13, it can be seen that the independent variable (internal funding deficit) gets a positive effect on long term debt change significantly. This can be checked from the probability value of t-statistics (0.0000) which is less than the alpha value (5%). The regression equation in the regression analysis of the proof of pecking order theory is as follows:

$$\Delta LTD_{it} = 1.99E + 11 + 0.294125\ DEF_{it}$$

Based on the former Table 6, it is found out that the value of R2 is 0.3572. It indicates that the diversity of internal funding defisit independent variable which is used, could explain the diversity of dependent variables in the model of 35.72% and the rest of it is 64.28% which is explained by the diversity of other independent variables outside the model. F test results to investigate the effect of independent variables on the dependent variable states the value of 40.5757 with a probability value around 0.000 which is smaller than alpha (α = 5%). From the test results, it can be interpreted that the independent variable affects the dependent variable significantly. Meanwhile, t-statistic test result on DEF

variable indicates the value of 6.3552 with probability value 0.0000 which is smaller than alpha (α = 5%). This concludes that the initernal funding deficit (DEF) brings positive effects significantly to long-term debt change (Delta LTD) at 5% real level. This corresponds to the former hypothesis of this study which states that internal funding deficit gives positive influence to long term debt changes.

Table 6: The Result of Regression Analysis Using Random Effect Model (REM) Method

Variabel	Koefisien	t-statistik	Probabilitas
C	1.99E+11	1.462850	0.1478
DEF	0.294125	6.355261	
R-squared	0.357257		
Adjusted R- squared	0.348453		
F-statistic	40.57576		
Prob(F-statistic)	0.000000		

The results of this research analysis demonstrates that the company has pursued the systematic pecking order theory explicitly employing the source of corporate financing from the cut-rate source of financial support. The management side of the issuers in the agricultural sector is recommended to ensue the pecking order theory rule to be exact by using the external financial support hierarchy from the inexpensive resource and keep maintaining the maximum debt level to

lessen the average capital cost. However, the corporate also wants to deem that if the source of debt financing has gone beyond the equity / asset so that it will come into sight high monetary pressure (financial distress) in the upcoming time. This is because the greater the burden of principal and interest on the debt the company should pay, the more likely it is that the company is coming across the financial inconvenience leading to bankruptcy or non-payment.

4.1 Managerial Implication

The above result of research analysis indicates that the company has gone behind the systematic pecking order theory that is exploiting the source of corporate financing from the lowest-cost basis of funding. The management of the issuers in the agricultural sector is recommended to go after the pecking order theory principle by using the hierarchy of external funding from the inexpensive source and keep the highest debt level to diminish the average capital cost. However, the company also needs to regard as that if the source of debt financing has exceeded equity / asset then it will emerge high financial force (financial distress) in the future. This is because the greater the weight of principal and interest on the debt the company pays, the more likely it is that the company is going through financial complexities directing to economic failure or default.

6. Conclusion

The previous results of the analysis on the proof of pecking order theory concept using regression analysis illustrates that the internal funding deficit has a significant positive effect to the alteration of long-term debt of firms in agriculture sector listed on the BEI. This confirms that in determining the company's capital structure policy, companies in the property and real estate sub-sector listed on the BEI have employed the concept of pecking order theory.

The findings indicate that the pecking order theory is an excellent descriptor for deficit firms, but a poor one for surplus firms [7].

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