

The Effect of Company’s External and Internal Factors to Firm’s Value with Capital Structure as Intervening Variable in Listed Construction’s Company in Indonesia

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Abstract—Aim of this study focused on impact of company’s external (inflation) and internal (tax shield, profitability, growth, size, assets) factors to firm’s value with capital structure as intervening variable in listed construction’s company in Indonesia. Data which being used for this study from company’s financial report from 2014 until 2017. Structural equation modelling chosen as a tool for analyzing data being chose, SMARTPLS 3.0 chosen as a software for discovering the result. The study found out that the growth of the company has a significant impact for capital structure decision making process. Result of this study can be used as a suggestion for stakeholder to developing a better capital structure decision especially in construction industry in Indonesia in order to maximized the value of the company.

Keywords—tax shield, inflation, profitability, companies’s size, companies’s growth, companies’s assets, capital structure, firm’s value

I. INTRODUCTION

Indonesia’s rank in Global Competitiveness Index experienced significant changes from 2014 until 2017. Those changes in general led by pillars which effect the economy of countries, every country have their own pillars need to be resolved. During 2014 until 2017 Indonesia had three pillars which need to be resolved which are infrastructure, corruption, and bureaucracy resulting in declining of the ranking. Changes started to visible during 2018 period, Indonesia’s position in Global Competitiveness Index is corrected by 5 point above previous position. During those period also infrastructure which used to be one of the pillars is replaced by access to financing. It was a result from government policy to build more sufficient infrastructure which considered left behind from another ASEAN country.

The increasing of infrastructure development also gives a significant impact on Indonesian economy. Indonesia’s GDP (Gross Domestic Product) growth since 2015 until 2017 show a significant increase, in 2015 Indonesia’s GDP at 4.9 and in 2016 and 2017 at 5.0 and 5.1 respectively. In general, the development which the Indonesian government applied show a significant result in Indonesia’s economic in general. Using GDP for the measurement not only show the economic

condition of Indonesia in general but it also reveal the composition of what forming the GDP especially by industries.

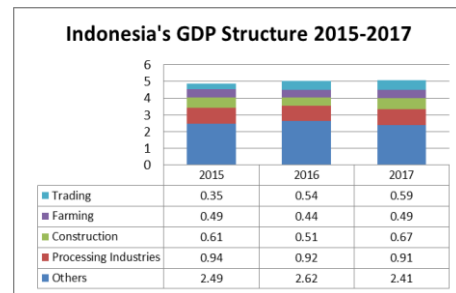


Fig. 1. Indonesia’s GDP structure.

Based on figure 1, it shows Indonesia’s GDP structure from 2015-2017 based on the industries. During those period construction as industry have the second biggest contribution to GDP while the biggest one is processing industry. Despite named as the biggest contributor to GDP, the amount of contribution by processing industry is decreasing in the past three years. Construction industry on the other hand even though experiencing declining as far as 16% in 2016 able to recover and increase their contribution about 31% in 2017.

The contribution which industries opt in to GDP’s structure also resulting a significant effect to the industry itself, particularly construction industry as shown in figure 2.

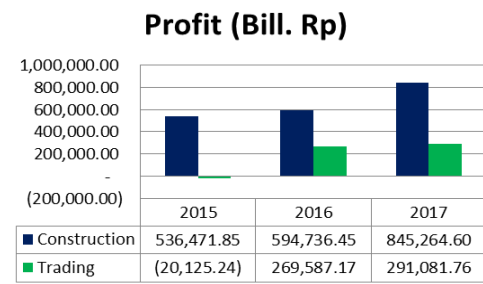


Fig. 2. Construction and trading profit growth.

As shown on figure 2, profit of the industries used as the measurement to reveal the growth of the industries. Both from 2015 until 2017 profit of construction industry show a significant increase from the previous period. Construction

industry grow 10% in 2016 and 30% in 2017. The result both from country and industry of Indonesia regarding government policy for infrastructure shows a possibility from business perspective. Based on the phenomena, the construction industry has a huge possibility to maximize the value of each construction company. Construction company also facing several obstacles to running their project which are, access to capital and capital management. The capital requires to run each of the project is big enough, it force company to rely on external funding which is debt or leverage. The increasing of debt may play role to the increasing of company's value [1]. In order to achieve it, company should have capability to manage their debt so instead become a risk, it will become leverage to company to maximize their profit therefore their value. Debt or liability is one of the component of capital structure besides equity [2]. In other words, company which have capability to manage their capital structure well should able to maximize their value.

II. LITERATURE REVIEW

Based on the previous study, there are several factors company need to consider in order to achieve optimal capital structure which eventually lead to maximized value. Factors which may affect company's capital structure decision might come from company's internal or external, or even from both of them.

A. Profitability

Profitability often used as one of the factor that effect company's capital structure, through profitability company may make a decision to their capital structure whether using internal or external funding. In general, company with a huge profitability tend use those profit as internal funding rather than using debt as their main source of funding Baltaci and Ayaydın [3]. It can be said that company with great profitability tend to use less debt as their source of funding. Several studies also agree to those statement such as from [4-6].

H1: Profitability have positive impact on capital structure.

Aside from the effect of profitability to capital structure, there are another effect that may cause by profitability which is the effect to company's value. Based on previous study Li-Ju Chen and Shun-Yu Chen [7], it stated that profitability have significant effect to company's value. Profitability become a beacon to investor regarding the condition of companies, either company make profit or loss profit it will determine investor's action to company. Action which investors made will affect the value of the company itself.

H5: Profitability have positive impact on company's value.

B. Company's Size

Another internal factor need to be considered is company's size. Company's size refers to access to company internal information. Information regarding company's financial condition become one of the factor to accessing external funding. Based on study done by Serrasqueiro et al [4], easier access to company's internal information should give company cheaper administration fee therefore easier access to acquire debt. It can be said that bigger the company's size, easier to acquire debt. Those

statement is relevant with several studies such as Belanes [8] and Zou and Xiao [9].

H2: Company's size has positive impact on capital structure.

The effect which company's size to capital structure decision eventually effect to company's value. Based on Saona and Martin research, company's size has a significant effect on company's value [10]. Bigger the size of the company means greater their assets and need more elaborate management to manage those assets. Assets with a good management will maximized company's value.

H6: Company's size has positive impact on company's value.

C. Company's Growth

Company's growth also one of the factor which effect company's capital structure decision. Based on previous study by Mayo et al., greater the growth of company, it makes company tend to choose external funding than internal funding [11]. A growing company need a big amount of fund therefore, it can not rely only in internal funding to avoid shortage of fund so company need to find external funding e.g. debt, investment, etc. Several previous study also found similar result such as Gill et al., [12], and Shanmugasundaram [13].

H3: Company's growth has positive impact on capital structure.

Previous study also found out that company's growth also effects company's value. Research done by Saona and Martin [10] found out that company's size has significant effect on company's value. Same as profitability, company's growth become a beacon to investor whether company in a good condition or bad condition. Company's condition financially effects investor decision to those companies, either they will invest or they will not. Investor behavior effect company's stock in stock market which eventually their value.

H7: Company's growth has positive impact on capital structure.

D. Assets Tangibility

Assets tangibility refer to assets own by companies, in capital structure it become a warranty to creditor. Assets tangibility also effect asymmetric information and have a reverse connection to each other [4]. High asymmetric information will result hesitation from creditor, creditor will assess that those company will not able to payback debt and interest which they proposed so it will be difficult to company with small assets tangibility. Same result found on several previous study e.g. Toumi [14] and Karadeniz [15].

H4: Assets Tangibility have positive impact on capital structure.

E. Tax Shield

Tax shield is a benefit after using debt as source of funding. In general, tax shield able to make company to use less debt [16]. Benefit which company acquire by having tax shield is reduction on tax cost. Based on those statement it can be concluded that tax shield have their own effect on capital structure. Aside from using debt, need to be reminded that the

amount of benefit from tax shield also depends on level of tax [17]. Higher the level of tax it will make company to use more debt. Several studies e.g. Rajagopal [18], Huang and Ritter [19], Bauer [20] found a different result, tax level have a reverse connection to capital structure.

H8: Tax Shield have negative impact on capital structure.

F. Inflation

Internal factors which described before give a better picture of capital structure based on past condition [17]. In order to have optimal capital structure continuously company need to have a prediction to what will happen next, on of factor that can give those perspective is inflation. Inflation impact the reduction of tax shield, so the real value of tax reduction to debt expected to be high in high inflation expectation [21]. It can be concluded that higher the inflation expectation will be resulting on higher debt. Similar statement also found on several previous studies e.g. Barry et al., [22], Noguera [23], and Koksall and Orman [24].

H9: Inflation have positive impact on capital structure

G. Capital Structure

Capital structure decision may have effect on company's value. As mention before that optimal capital structure means that the management of company able to manage their fund both equity and liability effectively. Effective use of both source of fund will lead to effective operation and eventually lead to a better result in this case is able to make profit. Profit that able to produce by company will ensure investor regarding their action to the company. Previous study done by [25] found same result that capital structure has a significant effect on company's value.

H10: Capital Structure have positive impact on company's value.

Based on previous studies and theory that have been collected, it is concluded this research will have 10 hypothesis that will be used to analyze current phenomena and data which author have. The hypothesis which have been constructed is shown in conceptual framework in figure 3. On figure 3 shown that there are direct and indirect connection between independent variable and dependent variable. Direct effect only applied to three independent variable based on previous studies.

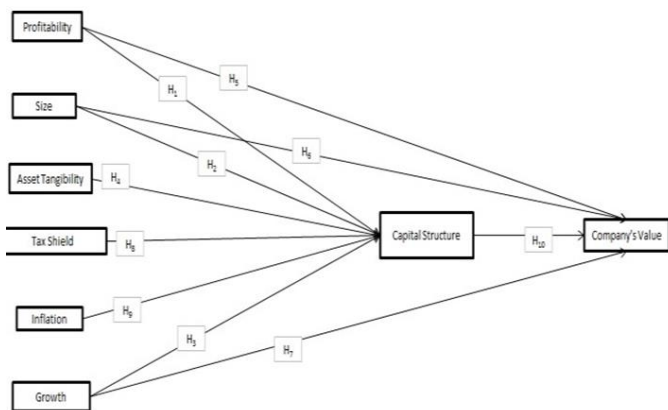


Fig. 3. Conceptual framework.

III. METHODS

This research uses secondary data from financial reports of construction companies listed in Indonesia Stock Exchange (IDX). Financial reports from 2014 until 2017 was used as data for this research and Indonesian currency (IDR) is mandatory for the data that will be used for this research. There are 19 constructions company's financial reports is analyzed for financial ratio which is used for later analysis.

There are 8 variables that need to be described, in order to described all variables which is used author using indicator of financial ratios to better description.

TABLE I. INDICATOR OF VARIABLES

No	Variables	Indicator	Formula
1	Tax Shield	NDTS	Depreciation/Total Assets
		NDTSR	Depreciation/EBITDA
2	Profitability	PROF	(EBIT-Depreciation)/total aset
		ROE	Profit/equity
		ROA	Profit/Total Assets
3	Company's Size	SIZE	Ln(Total Assets)
		SIZET	Ln(Total Revenue/12)
		SIZER	Ln(Total Revenue)
4	Company's Growth	GROWTH	(Total assets t-total assets t- 1)/total assets
		IOE	Investment/profit
		INVOS	Investment/sales
5	Assets Tangibility	FAR	Fix Assets/Total Assets
		TANGA	(Inventory+fix assets)/total assets)
		FAG	(Fix Assets t-fix assets t-1)/fix assets t
6	Inflation	INF	Inflation Changes 2014-2018
7	Capital Structure	DCR	Total debt/(total
		S.Mod	Total debt/total assets
8	Company's Value	Q	(Equity Market Value+D)/(Equity Book Value+D)

Table 1 show indicators of variable to better understanding the description of each variable which used for this research. There are several variables that have more than one indicator, the purpose of it is lead to analysis tools that used for this research.

This research uses Structural Equation Modeling (SEM) with Partial Least Square (PLS) as approach to analyzing the data. In general, there are two main steps of analysis by using SEM with PLS approach which are measurement model, and structural model test. SmartPLS 3.0 is used as the software to analyze the data.

A. Measurement Model

The purpose of measurement model is to test the validity and reliability of the data used before continue to next step. Validity test can be measured by using Average Variance Extracted (AVE) in the software. Minimum score used as the benchmark for validity test is from 0.5 until 0.6.

Reliability test also done in this step by using both Cronbach's alpha and composite reliability. Minimum score used as the benchmark is same as validity test which is from 0.5 until 0.6 for alpha score. Composite reliability is used the final step in validity and reliability test, because by using PLS there are several iterations need to be done therefore, to conclude validity and reliability test composite reliability test is used with the same minimum benchmark.

B. Structural Model Test

Structural model test is used to find the correlation between the structure by using t test, meanwhile R square test is used to find out how big the effect of each independent variables to dependent variables. Both of the test can be done by using bootstrapping function in the software. Benchmark for t test is using statistical value, hypothesis is accepted if the t value is greater than 1.96 with level of significance is 5%. Value of the R square test by using bootstrapping will give a picture of the proportion of independent variables describe dependent variables.

IV. ANALYSIS AND DISCUSSION

Data which acquired from financial reports need to be processed year by year from 2014 until 2017 in the form of ratios, then those data can be processed by using software. As mention before the first step is do a measurement model to test the validity and reliability of the data. Using the same benchmark as mention before the result of Cronbach’s alpha is shown in table 2.

TABLE II. CRONBACHS ALPHA RESULTS

Variables	Alpha	Criterion
Tax Shield	0.772	Acceptable
Profitability	0.321	Not Reliable
Size	0.763	Acceptable
Growth	0.357	Not Reliable
Assets Tangibility	1.000	Very Good
Inflation	1.000	Very Good
Capital Structure	1.000	Very Good
Company’s Value	1.000	Very Good

Based on table 2 company’s growth and profitability is not reliable to be used based on Cronbach’s alpha test. There is a tendency that the result of alpha tend to smaller than another reliability test, to avoid that tendency another test need to be done which are composite reliability and AVE.

As mentioned before that there are several iterations need to be done to achieve valid and reliable data, one of the way to achieve that is using Confirmatory Factor Analysis (CFA). First and last iteration will be shown in table 3 and table 4 respectively.

TABLE III. FIRST ITERATION

Variable: Tax Shield		
Indicator	Loading Factor	Information
NDTS	-0.798	unused
NDTSR	-0.034	unused
Variable: Profitability		
Indicator	Loading Factor	Information
PROF	-0.304	unused
ROE	0.992	used
ROA	0.268	unused
Variable: Company’s size		
Indicator	Loading Factor	Information
SIZE	0.462	unused
SIZET	0.98	used
SIZER	0.98	used
Variable: Company’s growth		
Indicator	Loading Factor	Information
GROWTH	0.899	used
INVOS	0.613	used
IOE	0.062	unused

Table 3. Cont.

Variable: Assets tangibility		
Indicator	Loading Factor	Information
FAG	0.846	used
FAR	-0.71	unused
TANGA	-0.776	unused
Variable: Inflation		
Indicator	Loading Factor	Information
INF	1.000	unused
Variable: Capital Structure		
Indicator	Loading Factor	Information
DCR	0.699	used
DER	-0.665	unused

Fist iteration of CFA is shown on table 3. Based on the table there are several indicators that will not be used because the value of loading factor is less than 0.5. Unused indicator is shown on yellow color. This result can be categorized as not optimal so continuous iteration need to be done until the result can be categorized as optimal like shown on table 4.

TABLE IV. LAST ITERATION

Variable: Tax Shield		
Indicator	Loading Factor	Information
NDTS	0.909	used
NDTSR	0.896	used
Variable: Profitability		
Indicator	Loading Factor	Information
ROA	1.000	used
ROE	0.213	used
Variable: Company’s size		
Indicator	Loading Factor	Information
SIZE	0.355	used
SIZET	0.996	used
SIZER	0.996	used
Variable: Company’s growth		
Indicator	Loading Factor	Information
GROWTH	0.980	used
INVOS	0.406	used
Variable: Assets tangibility		
Indicator	Loading Factor	Information
FAG	1.000	used
Variable: Inflation		
Indicator	Loading Factor	Information
INF	1.000	used
Variable: Capital Structure		
Indicator	Loading Factor	Information
DCR	1.000	used

As shown on table 4 it is the last iteration of CFA, based on the table there are several indicators gone missing it is because those indicators cannot meet the require benchmark when the test is categorized as optimal. If we look closely ROE, SIZE, and GROWTH still below the minimum required. The reason why it is used is based on the next step which are composite reliability test and AVE like shown on table 5.

TABLE V. CR AND AVE RESULT

Variable	CR	AVE
Tax Shield	0.898	0.814
Profitability	0.606	0.522
Size	0.861	0.704
Growth	0.687	0.563
Assets Tangibility	1.000	1.000
Inflation	1.000	1.000
Capital Structure	1.000	1.000

Based on the result of CR and AVE on table 5 it is revealed that with current iteration of CFA the data that used is optimal because both of CR and AVE have score greater than 0.5. After

the validity and reliability of data is achieved, next step need to be done is by doing t test on both direct and indirect effect as shown on table 6 and table 7 respectively.

TABLE VI. DIRECT EFFECT.

Capital Structure Correlation	t test	Sig. Criterion	Relation	Information
Tax Shield → Capital Structure	1.276	< 1.963	Negative	Deny hypothesis
Profitability → Capital Structure	0.696	< 1.963	Negative	Deny hypothesis
Company's Size → Capital Structure	0.181	< 1.963	Negative	Deny hypothesis
Company's Growth → Capital Structure	2.152	> 1.963	Positive	Accept hypothesis
Asset Tangibility → Capital Structure	0.687	< 1.963	Negative	Deny hypothesis
Inflation → Capital Structure	0.405	< 1.963	Negative	Deny hypothesis
Company Value Correlation	t test	Sig. Criterion	Relation	Information
Profitability → Company Value	1.420	< 1.963	Negative	Deny hypothesis
Company's Size → Company Value	1.205	< 1.963	Negative	Deny hypothesis
Company's Growth → Company Value	0.200	< 1.963	Negative	Deny hypothesis
Capital Structure → Company Value	0.109	< 1.963	Negative	Deny hypothesis

Table 6 shows the result of t test in direct effect. The table shows that from 10 hypothesis was analyzed, only one hypothesis accepted which is company's growth have a positive effect on capital structure, that hypothesis have to test value greater than 1.96 so it is accepted. All hypothesis

regarding the effect of independent variables to company's value is rejected because their t value is smaller than 1.96. As mention before, aside from direct effect there are also indirect effect based on the conceptual framework which will be shown on table 7.

TABLE VII. INDIRECT EFFECT

Company Value Correlation	t test	Sig. Criterion	Relation	Information
Profitability → Company Value	0.113	< 1.963	Negative	Deny hypothesis
Company's Size → Company Value	0.018	< 1.963	Negative	Deny hypothesis ng
Company's Growth → Company Value	0.101	< 1.963	Negative	Deny hypothesis
Asset Tangibility → Company Value	0.139	< 1.963	Negative	Deny hypothesis
Tax Shield → Company Value	0.116	< 1.963	Negative	Deny hypothesis
Inflation → Company Value	0.059	< 1.963	Negative	Deny hypothesis

Based on table 7, the result of t test for indirect effect is denied for all the hypothesis because their t value is smaller than 1.96. It is show that for construction company with current phenomena only growth of the company will effect capital structure decision. Based on the result of the analysis, R square test need to be done to make sure that independent variables in this research have enough proportion to describe dependent variables.

higher fund, therefore external funding needed to fund their projects. Regarding those statement in realty government of Indonesia provide several alternative to funding their project such as government investment, country bond, etc. Government of Indonesia also provide warranty to creditor to make sure each project able to run smoothly. Those policies should help construction company to run their project smoothly.

TABLE VIII. R SQUARE TEST

Variable	R ² test	R ² Adjusted
Company's Value	0.845	0.785
Capital Structure	0.638	0.457

Based on table 8 it is shown that dependent variable can describe company's value as big as 84.5% and the rest of 15.5% need to be described by another independent variable beside the one that used for this research. Another result shows that variable independent can describe capital structure as big as 63.8% and the rest of 36.2% need to be described by another independent variable.

Based on the result of this study, with current phenomena in Indonesia only company's growth that will effect capital structure decision. This is based on the statement of previous study [26], that company with high growth opportunity need

V. CONCLUSION

This study concludes that only growth opportunity effect construction company capital structure decision, another internal and external factor show no significant effect on capital structure decision. Keep in mind that the result of this study only based on previous study, the theory of capital structure is set aside to avoid misleading, but if comparison of the result is being made with the theory also it may cause implication to the result of this study with a different result may happen.

REFERENCES

- [1] M.A. Farooq and A. Masood, "Impact of financial leverage on value of firms: Evidence from cement sector of Pakistan," *Research Journal of Finance and Accounting*, vol. 7, no. 9, pp. 73-77, 2016.

- [2] N. Ng and H. Bundala, "Do tanzanian companies practice pecking order theory, agency cost theory or trade-off theory? an empirical study in tanzanian listed companies," *International Journal of Economics and Financial Issues*, 2012.
- [3] N. Baltacı, and H. Ayaydın, "Firm, country and macroeconomic determinants of capital structure: evidence from Turkish banking sector", *EMAJ: Emerging Markets Journal*, vol. 3, no. 3, pp. 47-58, 2014.
- [4] Z. Serrasqueiro, M.R. Armada and P.M. Nunes, Pecking order theory versus trade-off theory: Are service SMEs' capital structure decisions different?, 2011.
- [5] R. Kaur and N.K. Rao, "Determinants of capital structure: Experience of Indian cotton textile industry," *Vilakshan, XIMB Journal of Management*, vol. 6, no. 2, pp. 97-112, 2009.
- [6] J. Viviani, "Capital structure determinants: an empirical study of French companies in the wine industry," *International Journal of Wine Business Research*, Vol. 20, No. 2, pp. 171-94, 2008.
- [7] Li-Ju Chen and Shun-Yu Chen, The influence of profitability on firm value with capital structure as the mediator and firm size and industry as moderators. *Investment Management and Financial Innovations*, 2011.
- [8] A. Belanes, "Islamic versus conventional banks: a comparative analysis on capital structure," *Afro-Asian Journal Finance and Accounting*, vol. 5 no. 3, pp. 248-264, 2015.
- [9] H. Zou, and J.Z. Xiao, "The financing behavior of listed Chinese firms," *The British Accounting Review*, vol. 38, pp. 239-58, 2016.
- [10] P. Saona and P. San Martín, "Determinants of firm value in Latin America: an analysis of firm attributes and institutional factors," *Review of Managerial Science*, vol. 12m no. 1, pp. 65-112, 2016.
- [11] V. Moyo, H. Wolmarans and L. Brümmer, "Trade-off or pecking order: Evidence from south african manufacturing, mining, and retail firms," *The International Business & Economics Research Journal (Online)*, 2013.
- [12] A. Gill, N. Biger, C. Pai and S. Bhutani, The determinants of capital structure in the service industry: Evidence from United States, *The Open Business Journal*, vol. 2, no. 1, pp. 48-53, 2009.
- [13] G. Shanmugasundaram, "Intra-Industry Variations of Capital Structure in Pharmaceutical Industry in India," *International Research Journal of Finance and Economics*, vol. 16, pp. 162-174, 2008.
- [14] K. Toumi, W. Louhichi and J.L. Viviani, "Alternative financial decision principles: Theoretical foundations of Islamic banks' capital structure," In *Recent developments in alternative finance: Empirical assessments and economic implications* (pp. 157-172), 2012,
- [15] E. Karadeniz, S. Yilmaz Kandir, M. Balcilar Y. Beyazit Onal, "Determinants of capital structure: evidence from Turkish lodging companies," *International Journal of Contemporary Hospitality Management*, vol. 21, no. 5, pp. 594-609, 2009.
- [16] H. DeAngelo and R.W. Masulis, "Optimal capital structure under corporate and personal taxes," *Journal of Financial Economics*, vol. 8, pp. 3-29, 1980.
- [17] M.Z. Frank and V.K. Goyal, Capital structure Decisions; which factors are reliably important? *Financial Management*, vol. 38, pp. 1-37, 2009,
- [18] S. Rajagopal, "The portability of capital structure theory: Do traditional models fit in an emerging economy?," *Journal of Finance and Accountancy*, vol. 5, pp. 1-17, 2011.
- [19] R. Huang and J.R. Ritter, "Testing theories of capital structure and estimating the speed of adjustment," *Journal of Financial and Quantitative analysis*, vol. 44, no. 2, pp. 237-271, 2009.
- [20] P. Bauer, "Determinants of capital structure: empirical evidence from the Czech Republic," *Czech Journal of Economics and Finance*, vol. 54, pp. 2-21, 2004.
- [21] R.A. Taggart, *Secular Patterns in the Financing of US Corporations*, in B.M. Friedman, Ed., *Corporate Capital Structures in the United States*, Chicago, University of Chicago Press, 1985.
- [22] C.B. Barry, S.C. Mann, V.T. Mihov and M. Rodriguez, "Corporate Debt Issuance and the Historical Level of Interest Rates," *Financial Management*, vol. 37, pp. 413-430, 2008.
- [23] J.D.J. Noguera, *Inflation and Capital structure*. CERGE-EI Working Paper Series, no, 180, 2001.
- [24] B. Köksal and C. Orman, "Determinants of capital structure: evidence from a major developing economy," *Small Business Economics*, vol. 44, no. 2, pp. 255-282, 2015.
- [25] N. Driffield, V. Mahambare and S. Pal, How does ownership structure affect capital structure and firm value? Recent evidence from East Asia 1. *Economics of Transition*, vol. 15, no. 3, pp. 535-573, 2007.
- [26] J. Ramalho and J. Silva, "A two-part fractional regression model for the financial leverage decisions of micro, small, medium and large firms," *Quantitative Finance* 9: 621-636, 2009.