

# Reviewing the Relationship between Capital Structure Policies and the Life Cycle of Listed Companies in Tehran Stock Exchange

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## Abstract

This study was conducted to investigate the relationship between capital structure policies and the lifecycle of listed companies in Tehran Stock Exchange. In order to achieve this aim, a main hypothesis and three sub-hypotheses were developed and a multivariate linear regression was used to test research hypotheses. This research was performed on 187 listed companies in Tehran Stock Exchange based on the information contained in financial reports from 2005 to 2011. In this research companies are divided into two groups: companies in the growth stage and companies in the maturity stage; and capital structure is composed of net debt issue, retained earnings and equity. The research results showed that the effect of the deficit on net debt issue was higher in companies in the growth stage compared to companies in the maturity stage, but was no significant and also the effect of the deficit on net equity and retained earnings in companies in the growth stage was higher compared to companies in the maturity stage and was significant. The research main hypothesis also showed that companies in the growth stage follow the hierarchical theory more than companies in the maturity stage, but it is not significant.

**Key Words:** Capital structure, life cycle, deficit, retained earnings

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## **Introduction**

One of the most important issues in the field of financing is companies' assurance of financing investments in the company's life cycle and increasing returns. This important issue is addressed in the current study. Due to information asymmetry, companies will have different characteristics during their life cycle to meet and achieve the mission and the goal of creating the company. Several researchers in their studies have mentioned that there are four stages for company's life cycle including start-up or emerging stage, grow-up or growth stage, maturity or stability stage and the decline or stagnation stage. In this study, following the study conducted by Utami and Inanga (2012) companies are divided into two groups: companies in the growth stage and companies in the maturity stage. Companies in the maturity stage have lower information asymmetry compared to companies in the growth stage as companies in the maturity stage are older than companies in the growth stage and are closely analyzed and evaluated by analysts and investors and are well known in the market, therefore they should have lower information asymmetry.

According to the prediction of theories, companies with greater information asymmetry problems to take financing decisions must follow hierarchy theory carefully. Generally, the main difference between companies in the maturity stage with companies in the growth stage is not due to that companies in the maturity stage are larger, but because these companies are older, more stable, with more earnings and lower growth opportunities. In general, companies in the growth stage attempt to issue short-term bonds to reduce the information asymmetry. Companies with fewer opportunities for investment and growth use loans and financial facilities for monitoring role. This study focuses on hierarchy theory proposed by Myers (1984). This theory is based on information asymmetry between companies' managers and investors. In this study it is expected that information asymmetry between companies in the growth stage will be lower than companies in the maturity stage. Hence, it is expected that companies in the growth stage follow hierarchy theory more accurately than companies in the maturity stage.

According to the above explanation, company's life cycle can affect capital structure decisions and selection and companies' managers are looking to implement the best capital structure. Although, the subject of many previous studies is investigating factors affecting capital structure selection, there are very few studies conducted on the effect of capital structure on product life cycle. The overall aim of this study is that the effect of capital structure on product life cycle can be measured by a linear regression model.

## **Research literature and background**

As described above, information asymmetry between companies in the growth stage is higher than companies in the maturity stage. Hence, it is expected that companies in the growth stage follow more accurately hierarchy theory than companies in the maturity stage. The company's life cycle can affect capital structure decisions and selection and companies' managers are looking to implement the best capital structure. Hence, the overall aim of this study is that the effect of the deficit on capital structure

can be measured by a linear regression model with focusing on the life cycle. For example Utami and Inanga (2012) in a research examined the relationship between capital structure and life cycle of listed companies in the manufacturing industry in Indonesia Stock Exchange. They selected the period of their study from 1994 to 2007. To test the hypotheses, they used multivariate ordinary least squares regression. They divided companies in their study into two groups of companies in the maturity stage and companies in the growth stage. The results of their study showed that financing had a positive significant effect on the net liabilities and net equity in both companies in the maturity and growth stage and had a negative significant effect on retained earnings; and both companies tried to follow the hierarchy theory. Min-sik Shin et al (2010) in a life cycle test investigated additional earnings and dividend policy in Korea capital market and the results of their research showed that companies in the maturity stage are better candidates for paying dividends in cash when getting additional earnings as they have high profitability power and lower growth opportunities and due to increased profit and rate of return they are able to get loans easily and at low cost.

Kallunki and Silvola (2008) examined the use of activity-based costing system at different stages of the life cycle and concluded that due to changes in information needs of managers, the use of activity-based costing system is different at different stages of the life cycle. The use of activity-based costing system is higher in maturity and resuscitation stages than in the growth stage.

Black (2008) investigated the relationship between earnings and cash flows and company's value at different stages of life cycle. In start-up and decline stages, cash flows are more relevant than earnings and in the maturity stage the reverse holds true.

Aharony et al (2006) examined the comparison of explanatory power of measures based on cash flows and measures based on accruals for explaining the company's value at different stages of life cycle and concluded that the explanatory power of measures based on cash flows is higher in the growth stage and the explanatory power of measures based on accruals is more in maturity and decline stages.

Osta and Gheitasi (2012) evaluated the effect of firm life cycle on the discretionary accruals. In their study they addressed the question that whether firm life cycle affects using discretionary accruals? They divided companies based on Black (1998) model into companies in the growth, maturity and decline stages. Discretionary accruals were estimated by the modified Jones model. Study model was developed by the ordinary least squares regression method during 2005 to 2009. Study results based on data from 140 companies showed that the use of discretionary accruals during the various stages of company life cycle is different, so that the use of discretionary accruals is higher in the growth stage than in the maturity and decline stages.

Karami and Omrani (2010) examined the effect of the life cycle and conservatism on company's value. The results of their research showed that between 2003 and 2008 investors gave more importance (weight) to net operating assets and unusual operating profit of companies in the growth stage compared to companies in the maturity and decline stages. The results also show that investors in the growth and maturity stages give more importance (weight) to net operating assets and unusual operating profit of

conservative companies (compared to companies that use bold accounting procedures) and in the decline stage the reverse holds true.

Karami and Omrani (2010) investigated the effect of life cycle on the relevance of risk and performance measures. The period of this study is between 2001 and 2007. In this study, stock returns were considered as the dependent variable and risk and performance measures were considered as explanatory variables to investigate the relevance of the mentioned measures considering the moderator variable of company's life cycle. The results obtained with Wong's statistical test show that the incremental explanatory power of risk measures has the highest value in the growth stage and has the lowest value in the maturity stage.

Haghighat and Ghorbani (2007) examined the relationship between earnings and cash flows and company's value in the framework of life cycle model. In this research to answer the question that which of the two measures of performance, earnings or cash flows provides better information content about a company's value, the relationship between earnings and cash flows and company's value is investigated in the framework of life cycle. The results of this study showed that, in the growth and decline stages the correlation of cash flows and company's value is significantly stronger than the correlation of earnings and company's value. The results of this study also confirm that in the maturity stage the information content of earnings is significantly greater than the information content of cash flows.

## **Research methodology**

### *Information and sample*

The statistical community of the study includes listed companies in Tehran Stock Exchange selected according to the following characteristics:

- A. The required data to evaluate companies are available.
- B. In order to compare the information, companies' fiscal period is ended 20 March.
- C. Companies' shares are traded during the financial year.
- D. Companies should not be investment companies or financial intermediaries companies.

Given these limitations, 187 companies had the conditions of participation in the statistical community. All companies with conditions of participation in the statistical community were considered.

## **Research hypotheses**

The overall aim of this study is that different stages of a company's product life cycle will lead to using different ways for the deficit. To achieve these objectives, the following hypotheses were developed and tested:

Main hypothesis: Companies in the growth stage follow more accurately hierarchy theory than companies in the maturity stage.

The first sub-hypothesis: The effect of the deficit on net debt issue is higher in companies in the growth stage than companies in the maturity stage.

The second sub-hypothesis: The effect of the deficit on net equity is higher in companies in the growth stage than companies in the maturity stage.

The third sub-hypothesis: The effect of the deficit on retained earnings is higher in companies in the growth stage than companies in the maturity stage.

### **Study's methodology and model**

The following model was used to evaluate the study's hypotheses. This model was estimated twice, first for companies in the growth stage and second for companies in the maturity stage and to assess the study's hypotheses the results of these estimates were used.

$$\text{Model (1)} \quad \text{Net Debt Issue} = a + b1 * \text{Deficit} + e$$

$$\text{Model (2)} \quad \text{Net Equity Issue} = a + b1 * \text{Deficit} + e$$

$$\text{Model (3)} \quad \text{Net Retained Earning} = a + b1 * \text{Deficit} + e$$

$$\text{(Model (4))} \quad \text{Net Debt Issue} = a + b1 * \text{Deficit} + b2 * \text{Deficit}^2 + e$$

#### *Definition of model variables*

##### Deficit

Wu et al (2008) calculate deficit by subtracting required cash expenditures from operating cash:

Deficit = paid dividends + capital expenditures + net working capital + long-term paid financial facilities - operational cash

##### Net debt issue

It is equal to the changes in received financial facilities calculated by subtracting received financial facilities in the last year from received facilities in the current year.

##### Net equity issue

It is calculated by subtracting the sum of equity in the last year from the sum of equity in the current year.

##### Net retained earning

It is calculated by subtracting the sum of retained earnings in the last year from the sum of retained earnings in the current year.

It is worthy to note that to modify the above variables the sum of total assets was used. So, all the above variables are divided by total assets of the company. This is done for unification and homogenization of variables.

### Study analysis

First hypothesis: The effect of the deficit on net debt issue is higher in companies in the growth stage than companies in the maturity stage.

Table 1 First hypothesis analysis

Companies in the growth stage			Companies in the maturity stage			Explanation
Prob.	t-Statistic	Coefficient	Prob.	t-Statistic	Coefficient	
0.2	1.2	0.006	0	3.21	0.006	C
0.08	1.76	0.024	0	3.07	0.012	DEF
0.13			0.1			Adjusted R-squared
0.19			0.11			R-squared
3.1			9.44			F-statistic
0.08			0			Prob. (F-statistic)
2.02			2.01			D.W

According to the results of the analysis in Table 1 companies in the growth stage (by factor of 4.2%) are more inclined to use debt for financing their activities compared to companies in the maturity stage. However, at a 95% error level, the calculated factor is not significant for the companies in the growth stage. Although, with a few overlook, at a 90% error level this factor can be confirmed. These results are consistent with the results of Utami and Inanga (2012) and Bulan and Yan (2009) studies. In general, young companies, especially in Iran, according to the rates of return and their high risk are more inclined to take loans, as they can easily get earnings higher than earnings paid to bank, while companies in the maturity stage have more troubles in this regard as companies in the growth stage have higher profitability.

Second hypothesis: The effect of the deficit on net equity is higher in companies in the growth stage than companies in the maturity stage.

Table 2 Second hypothesis analysis

Companies in the growth stage			Companies in the maturity stage			Explanation
Prob.	t-Statistic	Coefficient	Prob.	t-Statistic	Coefficient	
0.00	6.58	0.063	0.00	15.02	0.067	C
0.00	5.44	0.141	0.00	13.6	0.119	DEF
0.15			0.18			Adjusted R-squared
0.16			0.18			R-squared



29.59	187	F-statistic
0.00	0.00	Prob. (F-statistic)
1.70	1.71	D.W

According to the results of the analysis in Table (2) the effect of the deficit with the figure of 0.141 in companies in the growth stage is higher than companies in the maturity stage with the figure of 0.119. On the other hand, our coefficients have also become significant. Thus, at 99% confidence level, the second hypothesis of the study is accepted. In fact, companies in the growth stage are more inclined to use equity for financing compared to companies in the maturity stage because as noted before a high rate of return in these companies make the shareholders agree with the request of the company for increased capital. In addition to the high profitability of companies in the growth stage, these companies have more investment opportunities and also have fewer competitors. This will lead investors to invest in these companies with greater confidence.

Third hypothesis: The effect of the deficit on retained earnings is higher in companies in the growth stage than companies in the maturity stage.

Table 3 Third hypothesis analysis

Companies in the growth stage			Companies in the maturity stage			Explanation
Prob.	t-Statistic	Coefficient	Prob.	t-Statistic	Coefficient	
0.00	6.58	0.063	0.00	8.57	0.031	C
0.00	5.44	0.141	0.00	9.54	0.067	DEF
0.15			0.10			Adjusted R-squared
0.16			0.10			R-squared
29.59			91.14			F-statistic
0.00			0.00			Prob. (F-statistic)
1.70			1.8			D.W

According to the results of the analysis in Table (3) variable factor of deficit in companies in the growth stage is significantly higher than companies in the maturity stage. In companies in the growth stage the amount is 0.1 and in companies in the maturity stage it is 0.067 and because both coefficients are significant, the third hypothesis of the study is also accepted at 99% confidence level. The results of the test of the third model are unlike the results of the study of Utami and Inanga.

Fourth hypothesis: Companies in the growth stage follow more accurately hierarchy theory than companies in the maturity stage.

Table 4 Fourth hypothesis analysis

Companies in the growth stage			Companies in the maturity stage			Explanation
Prob.	t-Statistic	Coefficient	Prob.	t-Statistic	Coefficient	
0.12	1.5 $\Delta$	0.012	0.00	2.66	0.006	C
0.11	1.5 $\nabla$	0.02 $\nabla$	0.00	2.93	0.014	DEF

0.32	0.98	-0.028	0.50	0.65	0.003	DEF <sup>2</sup>
	0.19			0.09		Adjusted R-squared
	0.18			0.12		R-squared
	2.028			4.93		F-statistic
	0.03			0.00		Prob. (F-statistic)
	1.78			2.01		D.W

According to the results of the analysis in Table (4) the fourth model of the study controls the observing hierarchical theory among companies. If companies for their financing use assets as much possible and in the next stage use the issue of stock, then the factor of deficit will be negative power of 2, otherwise the factor of deficit will be positive power of 2 (Utami and Inanga, 2012). As you can see, the factor of deficit is positive in companies in the maturity stage, while this factor is negative in companies in the growth stage. Therefore, the fourth hypothesis of the study is accepted, which suggests that companies in the growth stage follow more accurately the hierarchical theory. The results of the test of the above hypothesis are consistent with the results of Utami and Inanga (2012).

### Conclusion

One of the most important issues in the field of financial studies is that what strategies companies use to finance their activities in company's life cycle. Due to information asymmetry, companies will have different characteristics during their life cycle to meet and achieve the mission and the goal of creating the company. According to the prediction of financing theories (hierarchical theory) companies with greater information asymmetry problems should take their financing decisions based on hierarchy theory carefully. In other words, according to hierarchical theory, when companies in the growth stage need financing at first consider the resources that using them is less expensive. According to the results of the mentioned tests, companies in the growth stage are more inclined to observe the hierarchical theory. Also based on the tests of the study, in companies in the growth stage (young) the relationship between deficit and the use of resources is stronger due to the need of such companies for more financial resources to finance new projects that they are developing and expanding.

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