IFA
IRAN FINANCE ASSOCIATION
Iranian Journal of Finance
Print ISSN 2676-6337
Online ISSN 2676-6345

Which Investment method is selected by companies in each stage of their Life Cycle? (Investing in operating assets or non-operational assets)

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Abstract

One of the main causes of firms' ineffectiveness is the absence or insufficiency of appropriate investment methods. This deficiency could also be attributed to an unfortunate selecting of an inappropriate investment methods which may ultimately endanger the firms' prospect of survival. According to the firm life cycle theory, various firms demonstrate diverse behavior when provided with an investment opportunity. These responses are largely in accordance with the stage of the life cycle in which the firm resides in at that moment. In this research, the selection of the investment method appropriate for a firm has been studied following the premises of the life cycle theory. The target populations of this study were companies admitted to Tehran Stock Exchange. Systematic removal method was adopted to recruit a sample of 118 firms. The study period was 8 years (2011-2018). Findings suggest that firms choose to invest in operational properties when they are at the stage of growth, maturity and decline. In other words, the capital under the companies' authority and

control were employed for the firms' mainstream activities. However, such a link was not found at the introduction stage of their life cycle. This relation has been illustrated in various industries.

Keywords: Firm Life Cycle theory, Capital Investment Choice, Industrial type.

DOI: 10.22034/ijf.2019.183450.1021

Introduction

Understanding and detecting the firm life cycle depends on the managers' ability to do so. Therefore, identifying the company's lifecycle and recognizing the transition in the life cycle from one stage to the next will enable managers to make informed decisions and avoid many future obstacles(Park and Chen ,2006)**.**

Companies need novel investment opportunities to guarantee their growth and development. These opportunities vary in different stages of the company's life cycle. Companies that have the greatest flexibility to take advantage of these opportunities and make the most of these opportunities can envision significantly brighter prospects(Dickinson 2011).

Dickinson (2011) defines the firm life cycle as distinct and identifiable stages, which arise from changes in internal and external factors. Internal factors include factors such as choosing a strategy in relation to financing methods, investment methods and management practices, and other strategies, and external factors include competitive environment and macroeconomic factors.

The firm lifecycle theory can be described through the generalization of the product life cycle theory, which is derived from the incorporation of marketing and microeconomics. From this perspective, companies, similar to products or services, make progress through four stages of introduction, growth, maturity, and decline(Hasan et al .2018,Hasan, Hossain et al. 2015,Dickinson 2011 and Chuang 2017).

States that companies that have growth in sales, high capital spending and low lifetimes are generally recognized as growing business units. On the other hand, commercial entities with high sales and low capital expenditures are identified as declining business units. Large business units lie between the two groups(Chuang 2017) .

Badurdeen et al (2018) defines stages of the life cycle as a substitute to the firm's economic characteristics. The firm's life cycle is a very essential and decisive factor in many corporate decisions. Based on the life cycle theory, companies have different behaviors based on their stage of life cycle.

One of the most central economic features of companies is that each company has a distinct life cycle compared to other companies. According to the theory of life cycle, companies at different stages of their life cycle show specific economic behaviors when they face various investment opportunities. These investment opportunities may be related to operational or non-operational activities of the company. In this research, the capital investment choice refers to whether the capital controlled by the company has been used in its main activity or not.

Literature Review

Firm life cycle theory

Based on the life cycle theory, all business units go through the different stages following their emergence. Therefore, business units, make appropriate investing decisions based on their current life cycle stage.

Park and Chen (2006) *and* Adizes (1989) assert that all living things, including plants, animals and humans, follow the life cycle. These creatures are born, grow, age and ultimately die. These living systems at each stage of their life cycle have specific behavioral patterns to overcome issues specific to that phase, as well as those related to the transition from one phase to another .

Xu Bixi (2007) , similar to Park and Chen (2006), maintain that one of the features of dynamic economic units is their life cycle. Based on the theory of life cycle, they assume that companies and enterprises, like all living beings who are born, grow and die, have a life cycle curve. Therefore, according to the life cycle theory, companies in different stages of their life cycle have their own unique financial and economic characteristics, that is to say that the financial and economic characteristics of a company are influenced by the stage of the lifecycle in which the company reside(Chuang 2017).

Kousenidis (2005) states that companies that have growth in sales, high capital expenditure growth and low lifetimes are commonly known as growing businesses. On the other hand, commercial entities with high sales and low capital expenditures are known as declining business units. Large business units are placed between the two groups.

Anthony (1992)argue that companies in the early stages of their life cycle

mostly experience a higher sales growth. Higher growth coupled with lower dividends in such companies may create more opportunities for projects with positive net present value.

Anthony (1992) and Park and Chen (2006) used four variables including dividend profit ratio, sales growth, capital expenditure ratio, and the company's age in order to identify the company's life cycle. Chuang (2017)has also used the four variables to identify the company's life cycle following Anthony and Ramesh.

Jaafar and Halim (2016) state that the life cycle theory is an important tool in understanding the life of organizations, but life cycle literature has been developed more conceptually rather than empirically. They also believed that the comparison between life cycle models shows that these models suffer from the lack of compatibility and predictability of a firm's growth and development. There is also a wide discrepancy in the number of stages in the company's life cycle and growth.

Hasan (2018), Hasan, Hossain et al. (2015) and Dickinson (2011) state that cash flows of operational activities (CFO), and Cash flow by investment (CFI) and cash flow by financing (CFF) were used to determine the life cycle stages, such as the introduction, Growth, maturity, Shake out and decline**.**

Capital investment choice

The term investment comprises a wide range of activities that are carried out in order to create future profits. This term may include investment in financial instruments, certificates of deposits, bonds, ordinary shares or mutual funds, or investments in tangible assets such as housing, property and machinery. Accordingly, corporate investments can be made in operational and non-operational assets.

Zhai and Wang (2016)and Francis, Huang et al. (2009)state that the index of resource efficiency was allocated as the growth rate of a particular company in comparison with the productivity index of allocating resources in the same industry, to determine whether national capital is actually assigned to the most efficient industry or not. They argued that if a company's capital is allocated to its core business, there should be a correlation between the growth rate of operating profit and the operating profit growth rate in the particular industry.

Investors are striving to maximize their capital. Growth opportunities are the driving force behind motivation. Promotion of professional knowledge in the arena of investment, coupled with the development of communication

technology, has led investors to invest their funds in companies that can provide profit from them. What brings success in the present situation is the optimal use of available investment opportunities. The timely and reasonable use of investment opportunities by commercial entities has a significant impact on their performance improvements (Zhai and Wang 2016 , Francis, Huang et al. 2009).

According to Phung and Mishra (2016), the main purpose of business units when deciding on investing in a capital project is to maximize the shareholder's wealth by acquiring assets and ultimately earning profit. In fact, business unit managers want to ensure their limited resources are allocated to projects that bring them closer to the strategic objectives set. Meanwhile, many factors, such as management prospects, opportunities created by technological change, competing firms' strategies, financial incentives, market forecasts, and noneconomic factors, are among the factors that are effective in choosing a capital investment method.

A combination of these factors creates motivations for the willingness of business units to invest in capital investments. These motivations clearly explain why decisions about investing are very important for a business. The most important motivations are as follows:

Expanding the company's operational activities

Capital investment choices are intended for expanding operational levels (Collins, Hribar et al. 2012). This is done through the acquisition of fixed assets by purchasing equipment for the factory and by capital repairs or major repairs by rebuilding, completing or modifying an existing asset or changing the product line. This procedure promotes business expansion, such as increasing production, creating new products, and thus increasing the value of the company. Increasing investment in corporate operations represents a growth outlook for the company (Phung and Mishra ,2016).

This vision will be achieved if the resources invested in the company are used efficiently and effectively, so that the returns generated are higher than the average cost of financing the invested capital(Zhai and Wang 2016 and Francis, Huang et al. 2009).

Transitions between stages of the life cycle

Once the growth of a company decreases and reaches maturity, machinery, vehicles, equipment and other assets may be over-used or technologically obsolete, and should consequently be replaced(Collins, Hribar et al. 2012).

In this case, business units should try to increase their productivity and reduce their costs by using new and advanced technology, machinery, and equipment. In other words, business units in this stage attempt to return to production and make the best use of their resources. In this regard, Anthony (1992)argued that growing companies are more likely to invest in fixed assets.

Life cycle theory and Capital investment choice

Based on the theory of the life cycle, companies show different behaviors in relation to investment opportunities based on their situations at the stage of the life cycle. Companies that are more flexible to take advantage of these opportunities can be imagined for a brighter future of the future (Badurdeen, F., R. Aydin, et al. 2018).

The value of each company relies on its financial decisions and investments. The market reacts differently to companies with more investment opportunities. In fact, the life of companies and their current status in their life cycle affect the set of investment opportunities which they face. (Collins, Hribar et al. 2012).

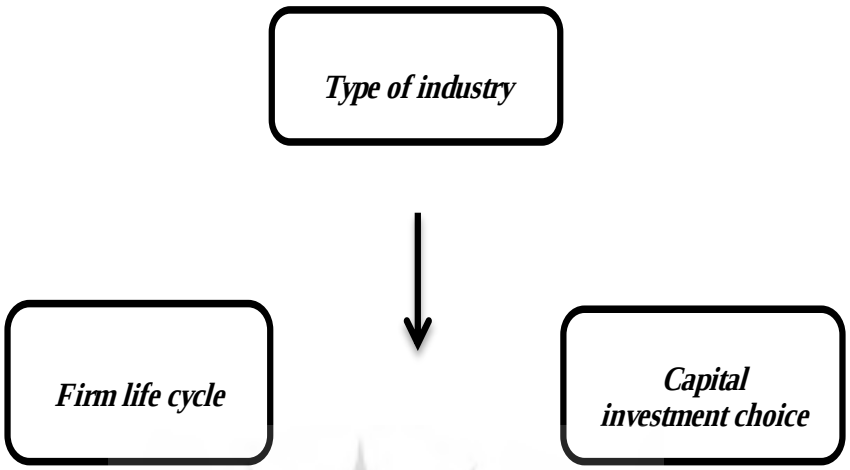
Investment opportunities are among the major variables influencing the corporate profits. Moreover, the huge majority of dissolved companies have been dissolved due to financial weakness and lack of profitability. The profit or loss statement, along with information in other financial statements, is an information transfer tool for assessing the company's performance and the results of its financial activities (Phung and Mishra , 2016).

Companies that are in the growth stage tend to expand themselves and spend their cash on purchasing capital assets and investing in circulating capital (Collins, Hribar et al. 2012).

The results of Phung and Mishra (2016) study shows that the main reason for the closing of most declining companies that were liquidated, has been financial weakness and lack of profitability.

Therefore, the most important factors in the growth of companies is the existence of investment opportunities, the existence of liquidity and the correct use of economic resources under control. On this basis, the conceptual model of the research can be presented as follows:

Figure1. The conceptual model of the research



Source: compiled by the authors

Based on the above mentioned theoretical and research background, the main questions of the research can be summarized as follows:

Is there a significant relationship between each stage of the firm's life cycle and the capital investment choice? And does this relationship depend on the type of the industry?

Based on the introduction and research background, the research hypotheses are presented as follows:

H_1: There is a significant relationship between the introduction stage and the capital investment choices.

H_2: There is a significant relationship between the growth stage and the capital investment choices.

H_3: There is a significant relationship between the maturity stage and the capital investment choices.

H_4: There is a significant relationship between the stage of decline and the capital investment choices.

H_5: The type of industry affects the relationship between each stage of firm's life cycle and the capital investment choice.

Methodology

This research attempts to study the relationship between the life cycle stages of companies and the choice of investment method by corporates accepted in Tehran Stock Exchange. This study is a type of applied research and a post-hoc method was applied for the purpose of this study. The Eviews software has been used to measure the variables of research and to analyses the research data.

The sample was selected among companies which were initially selected through the systematic removal method. The fiscal year of a company is on the end of March each year, except for insurance and pension companies, banks and credit institutions, funds and investment companies, and financial and monetary intermediation firms. Meanwhile, companies that have had a trading interruptions during the period under consideration or their financial information are incomplete have been removed from the statistical sample.

Then, according to the Morgan table, 118 companies were selected as the sample size. The study period is 8 years (2011-2018), and so the data comprises 944 company-year which were used in this research.

The above hypotheses are analyzed by the following model:

Capital Investment Choices $_{it}$ = β_0 + $\sum_{i=1}^{2} \beta_1 Life\ Cyc\_DUM$ + β_2Size $_{it}$ + $\beta_3 ROA_{it}$+$\beta_4 Lev_{it}$+ **ε** (1)

The research variables including dependent, independent, controlling and moderating variables are measured as follows:

Capital investment choice: In this study, the capital investment choice has been calculated using Zhai and Wang (2016) and Francis, Huang et al. (2009) method. A company's capital investment choice refers simply to whether the capital it controls flows to its core business or not. Zhai and Wang (2016) and Francis, Huang et al. (2009) measure resource allocation efficiency as the correlation between the growth rate of the manufacturing industry to which a focal company belongs and to the matched sample of companies in the same industry to determine whether capital flows to the most efficient industries at the national level.

For this purpose, the growth rate of the operating income of samples in each industry is calculated based on the Zhai and Wang (2016) and Francis, Huang et al. (2009) model which is as follows:

Operating income growth rate = (operating income of the current year - operating income of the previous year)/ operating income of the previous year.

We have calculated the correlation between the growth of the company's

operating income and operating income growth in the industry. If a company's capital flows to its main business or main industry, there should be a high degree of correlation and consistency between the firms' operating profits growth and that of the industry as a whole. The higher this correlation the more capital that flows into the company's core business (Zhai and Wang (2016) and Francis, Huang et al. (2009)).

Corporate Life Cycle: In this research, the model used by Hasan et al(2018), Hasan, Hossain et al. (2015)and Dickinson (2011)from cash flows of operational activities (CFO), and Cash flow by investment (CFI) and cash flow by financing (CFF) were used to determine the life cycle stages, such as the introduction, Growth, maturity, Shake out and decline. It was decided on according to the following conditions:

Introduction: if CFO <0, CFI<0and CFF> 0.

Growth: if CFO> 0, CFI <0 and CFF> 0.

Maturity: if CFO> 0, CFI <0 and CFF <0.

Decline: if CFO <0, CFI> 0 and 0 ≤CFF≤ 0.

Shake-out: the remaining firm years will be classified under the shake-out stage.

Size: It is equal to the natural logarithm of assets

ROA: This ratio will be calculated by dividing net profit into total assets.

LEV: The leverage ratio is calculated by dividing the total debt into total assets.

Industry type: To investigate this, all companies in the statistical sample are classified according to the function in five groups under the following headings:

Automobile industry and Automobile Parts

Cement industry, ceramic tile

Chemical and petrochemical industries

Food and Pharmaceutical Industries

Metal and Mineral Industries

Then data from each industry are analyzed separately using the research model.

Results

In order to study the general characteristics of the variables, as well as estimating the model and their exact analysis, familiarity with the descriptive statistics of the variables is required. Descriptive statistics are used to compute community parameters and include central indicators and community dispersion. In table 1, the descriptive statistics of the variables including median, mean, maximum, minimum, standard deviation, Skewness and Kurtosis for 118 companies were presented during 8 periods (2011 to 2018).

Table 1. Descriptive statistics- of research variables

Variables	Sample	Std. error	Min	Max	Mean	Aver	Skewness	Kurtosis
INVESTMENT CHOICES	944	0.4318	-0.9402	0.9915	0.2000	0.1495	-0.3570	-0.6040
INTRO	944	0.2557	0.0000	1.0000	0.0000	0.0702	-	-
GROW	944	0.4612	0.0000	1.0000	1.0000	0.6937	-	-
MATU	944	0.2959	0.0000	1.0000	0.0000	0.0969	-	-
DECL	944	0.3501	0.0000	1.0000	0.0000	0.1429	-	-
SIZE	944	1.6710	9.9497	19.1062	13.7177	13.9990	0.7390	0.5520
ROA	944	0.1329	-0.7896	0.5478	0.0863	0.1007	-0.0060	1.2010
LEV	944	0.2158	0.0658	1.5656	0.6380	0.6291	.01380	0.5150

Source: compiled by the authors

Table 1 explains the descriptive statistics and eight different variable which illustrate the investment choices and have a minimum value of -0.9402 and maximum value of 0.9915, the introduction stage has been measured by a dummy variable where 0 stands for null and 1 stands for the intro stage, growth has also been measured by dummy variables where 0 stands for null and 1 stands for the growth stage (GROW). Similarly, maturity (MATU) has been measured by dummy variable where 0 stands for null and 1 stands for the maturity stage, and decline (DECL) has also been measured by dummy variables where 0 stands for null and 1 stands for the decline stage. The results show that the companies' size illustrates values with a minimum level of

9.9497 and a maximum level of 19.1062, ROA with a minimum level of -0.7896 and a maximum level of 0.5478, LEV with a minimum level of 0.0658 and a maximum level of 1.5656.

Central Tendency is the most important measures the mean and represents the centrality of data. For example, the means of the main variables of the research, choice of investment method, introduction, growth, maturity and decline were 0.1495, 0.0702, 0.6937, 0.0969 and 0.1429 respectively which show that most data are centered on these points.

Another major measure of variability is standard deviation. The larger the standard deviations, data set are farther away from the mean. Among the research variables, the size of the company with the 1.6710 has the highest level of variability and the return of the assets with the value of 0.1329 has the lowest variability.

Skewness indicates the possible level of asymmetry of a frequency distribution. The amount of skewness varies between -3 and +3. If the skewness is zero, the population is symmetric. If the skewness coefficient is greater than zero, then it is skewed to the right, and if it is less than zero, then it is skewed to the left. For example, in Table 1, size with the value of 0.739 is skewed to the right and the capital investment choice with the value of -0.357 is skewed to the left.

The kurtosis is an index that shows the amount of concentration, dispersion, and kurtosis of the data of a frequency distribution. When the coefficient of kurtosis is zero, the curve is normal, when it is greater than zero, the curve is thin and tall, and when less than zero, the curve will be shorter and flatter than the normal curve. For example, in Table 1, ROA with the value of 1.201 has a positive kurtosis and the capital investment choice with the value of -0.604 has a negative kurtosis.

Table 2. The result of the Pearson correlation test of the research variables

		INVESTMENT CHOICES	INTRO	GROW	MATU	DECL	SIZE	ROA	LEV
INVESTMENT CHOICES	Pearson Correlation	1							
	Sig. (2-tailed)								
INTRO	Pearson Correlation	-.033	1						
	Sig. (2-tailed)	.343							

GROW	Pearson Correlation	.123**	-.414**	1					
	Sig. (2-tailed)	.000	.000						
MATU	Pearson Correlation	.158**	-.090**	-.393**	1				
	Sig. (2-tailed)	.000	.010	.000					
DECL	Pearson Correlation	.153**	-.112**	-.399**	-.122**	1			
	Sig. (2-tailed)	.000	.001	.000	.000				
SIZE	Pearson Correlation	.049	-.082*	.048	.065	-.058	1		
	Sig. (2-tailed)	.160	.018	.172	.063	.094			
ROA	Pearson Correlation	-.077*	-.095**	.214**	-.090**	-.125**	.059	1	
	Sig. (2-tailed)	.027	.007	.000	.009	.000	.092		
LEV	Pearson Correlation	.078*	.154**	-.174**	.096**	.030	.058	-.436**	1
	Sig. (2-tailed)	.025	.000	.000	.006	.387	.098	.000	

Source: compiled by the authors

Table 2 shows the Pearson correlation test for the variables compared to each other. Results show that the firm life cycle variable is significantly correlated with most of the variables with values (sig≤0.01) and (sig≤0.05). More importantly, the results of the Pearson coefficients show that growth, maturity and decline stages have a positive correlation with capital investment choice.

Table 3. The result of F-Limer, Hausman and OLS tests

Test	Statistic	d.f	p-value	Result
F-Limer Test	8.1846	117.0000	0.0000	H_0 rejected (Pooling method selected)
Hausman Test	16.0067	7.0000	0.0251	H0 rejected (The random effects method selected)
OLS Test (Breusch-Pagan / Cook-Weisberg test)	1.1700	*	0.2798	H0 Accepted (There is no heteroscedasticity)

Source: compiled by the authors

The F (Limer) test statistic has been used to decide on the choice of pooling or panel method. Based on the results of this test, illustrated in table 3, it is decided to reject or accept the equivalence hypothesis of certain fixed effects of the companies and finally to decide on the choice of the classical method or the panel data method. Meanwhile, the results of the Chow test (F statistics), demonstrate a value of 95% confidence and therefore, the null hypothesis is rejected; Hence the panel data method should be used.

Hausman test was used to select between fixed and random effects models. The results of the Hausman test, which are presented in table 3, show that the constant effects method should be used to investigate the research model.

Subsequently, the test was aslo used to investigate the Heteroscedasticity. The results of this test, presented in table 3, show that there is no problem of heterogeneity of variance in the research model (since the probability or calculated P-value is greater than 0.05). Therefore, the final estimation of the second model is made using the OLS test.

The results of the estimation of the research model after the standard reviews, the results of which are listed above, are presented in table 4 below:

Table 4. Summary of statistical results of the research model test

Investment choices $_{it} = \beta_0 + \sum_{i=1}^{2} \beta_1 LifeCyc\_DUM + \beta_2 Size_{it} + \beta_3 ROA_{it} + \beta 4 Levit + \varepsilon$

Variables	P-value	t-Statistic	Std. Error	Coefficient
β_0	0.0872	-1.7127	0.6265	-1.0731
INTRO	0.4225	0.8025	0.0628	0.0504
GROW	0.0440	2.0173	0.0461	0.0930
MATU	0.0159	2.4174	0.0702	0.1698
DECL	0.0000	8.2719	0.0159	0.1317
SIZE	0.0684	1.8255	0.0422	0.0771
ROA	0.7106	-0.3711	0.1745	-0.0648
LEV	0.6347	0.4753	0.1565	0.0744

Source: compiled by the authors

The test results of the first hypothesis indicate that there is no relation between the independent variable of Introduction (Intro) and the choice of investment method, since the calculated P-value for the coefficient of this variable is greater than 0.05. Therefore, there can be no significant relationship between the introduction stage and the choice of investment method at 95%

confidence level.

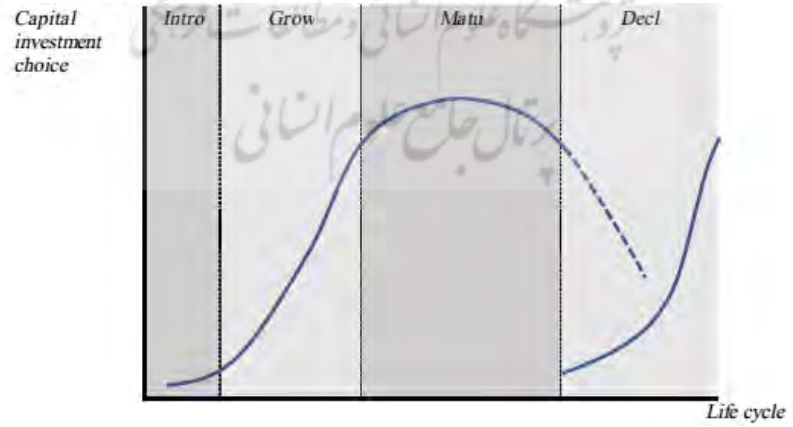
Furthermore, the results of the test of the second hypothesis show that there is a positive and significant relationship between GROW's independent variable because the calculated P-value for the coefficient of this variable is less than 0.05. Therefore, it can be said that there is a positive relationship between the growth stage and the choice of investment method at 95% confidence level.

The coefficient of estimation of the independent variable of maturity stage (MATU) in the above table indicates that there is a positive and significant relationship between the maturity stage the choice of investment method at the error level of 0.05 because the calculated P-value for the coefficient of this independent variable is less than 0.05, so there is a positive and significant relationship between the stage of maturity and the choice of investment method at the 95% confidence level.

On the other hand, the coefficient of estimation of independent variable DECL in the table above shows that there is a positive and significant relationship between the decline stage and the choice of investment method at the error level of 0.05 because the calculated P-value for the coefficient of this independent variable is less than 0.05.

Therefore, it can be said that there is a positive and significant relationship between the stage of decline and the choice of investment method at the 95% confidence level. Based on the results of Table 2, relations between variables can be represented in the figure 2 as follows:

Figure 2. Illustration of relationships between variables



Source: compiled by the authors

In order to test the fifth hypothesis, the data of each industry have been analyzed using the research model. The results of the fifth hypothesis, at each stage of the life cycle, are illustrated in Table 5-8 below:

Table 5. Results of the introduction stage and capital investment choice in the type of industries

Sample	P-value	t-Statistic	Std. Error	Coefficient
All companies	0.4225	0.8024	0.0627	0.0503
Automobile industry and Automobile Parts	0.0030	3.0045	0.1395	0.4194
Cement industry, ceramic tile	0.6968	-0.3906	0.1549	-0.0605
Chemical and petrochemical industries	0.0008	-3.4593	0.1549	-0.5360
Food and Pharmaceutical Industries	0.9174	0.1038	0.1285	0.0133
Metal and Mineral Industries	0.0010	3.3546	0.1602	0.5376

Source: compiled by the authors

For all the firms in the sample size, no relationship was found between the introduction stages (INTRO) and the choice of investment method. This relationship is positive and significant in the automotive industry, as well as in metal and mineral industries. Their significance level (based on t statistics) is 3.0045 and 3.3546; respectively. There is a stronger relationship between the introduction stage and the choice of investment method in the metal and mineral industry compared to the automotive industry and production. This relationship is negative and significant in the chemical and petrochemical industries, but in other industries in the statistical sample (tile and ceramic industry, food and pharmaceutical industries), this result is not confirmed by the companies as a whole. However, the results of the t-statistic for ceramic and tile industries have been negative and 0.1039 for the food and drug industry (0.1039), which represents a weaker level than others company.

Table 6. Results of the Growth stage and capital investment choice in the type of industries

Sample	P-value	t-Statistic	Std. Error	Coefficient
All companies	0.0440	2.0172	0.0461	0.0929
Automobile industry and Automobile Parts	0.0025	3.0630	0.1359	0.4164
Cement industry, ceramic tile	0.5404	-0.6142	0.1263	-0.0776
Chemical and petrochemical industries	0.0145	-2.4838	0.1759	-0.4369
Food and Pharmaceutical Industries	0.4736	0.7182	0.1202	0.0863
Metal and Mineral Industries	0.0001	4.0762	0.0723	0.2946

Source: compiled by the authors

A positive and significant relationship was found between the Growth stage (GROW) and the choice of investment method for all companies in the sample. The significance level of this relationship, based on the t statistic is 2.0173. Likewise, this relationship is positive and significant in the automotive industry, as well as in the metal and mining industries. However, their significant level (based on t statistic) for the automotive industry, metal industry and mineral industry is 3.0630 and 4.0762 respectively. It shows a stronger relationship between the stage of growth and the choice of investment method in these industries as compared to other companies. On the other hand, this relationship is negative and significant for the chemical and petrochemical industries. In other industries (cement industry, ceramic tile and food and pharmaceutical industries) this relationship has not been confirmed.

Table 7. Results of the Maturity stage and capital investment choice in the type of industries

Sample	P-value	t-Statistic	Std. Error	Coefficient
All companies	0.0159	2.4174	0.0702	0.1698
Automobile industry and Automobile Parts	0.0002	3.7412	0.1439	0.5384
Cement industry, ceramic tile	0.2244	-1.2219	0.1122	-0.1371
Chemical and petrochemical industries	0.0515	-1.9687	0.2783	-0.5479
Food and Pharmaceutical Industries	0.2577	1.1354	0.1265	0.1436
Metal and Mineral Industries	0.0064	2.7686	0.1572	0.4353

Source: compiled by the authors

The relationship between maturity stage (MATU) and the choice of investment method are positive and significant for all industries. The significance level of this relationship is 2.4174 based on t- statistic. This relationship has been confirmed in the automotive industry and metal and mineral industries.

But their significant level (based on t statistics) for these industries is 3.7412 and 2.7686, respectively, which indicates a stronger relationship between the maturity stage and the choice of investment method in these industries, as compared to other industries. For other industries (cement industry, tile and ceramics, and the chemical and petrochemical industries and food and pharmaceutical industries), this relationship has not been confirmed.

Table 8. Results of the Decline stage and capital investment choice in the type of industries

Sample	P-value	t-Statistic	Std. Error	Coefficient
All companies	0.0000	8.2719	0.0159	0.1317
Automobile industry and Automobile Parts	0.0017	3.1919	0.1745	0.5571
Cement industry, ceramic tile	0.3419	-0.9546	0.1034	-0.0988
Chemical and petrochemical industries	0.0013	-3.3058	0.1297	-0.4288
Food and Pharmaceutical Industries	0.0019	3.1471	0.0320	0.1008
Metal and Mineral Industries	0.0042	2.9121	0.1873	0.5455

Source: compiled by the authors

The decline stage (DECL) demonstrates a positive and significant relationship with the choice of investment method for all firms of the study. The significance level of this relationship, based on the t statistic is 8.2719. This relationship has been approved in the automotive industry, metal and mining industries. But their significant levels (based on t statistic) for the automotive industry and parts, food and pharmaceutical Industries and metal and mineral industries are 3.1919 and 3.1471 and 2.9121, respectively. These values indicate a weaker relationship between the maturity stage and the choice of the investment method in these industries, compared to other industries. This relationship is negative and significant in the chemical and petrochemical industries. But in the cement, ceramic and tile industries, this relationship has not been confirmed.

The coefficient of estimating the independent variable of SIZE in the table 4 shows a non-significant correlation between the size of the company and the choice of the investment-investment method at the error level of 0.05. because the calculated P-value for the coefficient of this independent variable is more than 0.05. Therefore, there can be no meaningful and significant relationship between the size of the company and the choice of investment method at the 95% confidence level.

The value of estimated coefficient of the independent variable of ROA in the table 4 indicates no significant relationship between the return on assets and the choice of investment method at the error level of 0.05 because the calculated P-value for the coefficient of this independent variable is more than 0.05. Therefore, there can be no significant relationship between the return on assets and the choice of investment method at the 95% confidence level.

According to the estimated coefficient of the independent variable of LEV in the table 4suggests no significant correlation between the financial leverage

and the choice of investment method at the error level of 0.05because the calculated P-value for the coefficient of this independent variable is more than 0.05. Therefore, there can be no significant relationship between financial leverage and the choice of investment method at the 95% confidence level.

Discussion and Conclusions

As specified by the test results section of the research model, there was no relationship between the introduction stage and the capital investment choice. This is in line with the life cycle theory. The reason is that emerging companies start operating on a predetermined basis in connection with a business activity when they are established. In fact, there are no other choices for such companies. Based on the theory of life cycle, companies face liquidity problems at the introduction stage. At this stage, usually, the investment return rate is very low compared to the rational cost of financing. Therefore, lack of financial resources and rare investment opportunities and the problems caused by external factors make such companies focus solely on their immediate need of survival and short-term profit.

As indicated by the theory of the life cycle, corporates which are in their growth stage have more flexibility in liquidity indexes and invest more in productive assets. Therefore, the rate of return on investment is often higher than the rational cost of financing. The results of this study are in line with the theory of life cycle. That is, companies in the growth stage, choose to invest in operational assets.

The results of the research clearly show that there is a positive and significant relationship between the stage of maturity and the choice of investment method.

According to the theory of life cycle, companies that are at the maturity stage have a higher rate of assets than companies that are in the growth stage. Also, Sales are stable and balanced. Consequently, companies at this stage have very high financial flexibility and their liquidity needs are mainly met by internal resources, and the rate of return on investment is, in most cases, equal to or more than the rational cost of financing. On this basis, companies that are in the stage of Maturity prefer the method of investing in operating assets.

Theory of the life cycle holds that companies that are in decline, have far fewer growth and investment opportunities. Moreover, their liquidity and profitability indexes are very low and companies are in a very competitive situation. Financial flexibility is very low, generally the cost of financing is high, and the rate of return on investment is lower than the rational cost of

financing. The findings of the research showed that there is a positive and significant relationship between the stage of decline and the choice of investment method. This relationship can point out that companies that are in a phase of decline strive to exit from this stage and continue to survive and start a new life cycle through applying new management methods, improving and optimizing the use of old assets and new investments in line with previous operational activities and even new operational activities that are in line with the goals of the organization.

Based on the results of this study, there is not a significant relationship between control variables of firm size, asset return rate and financial leverage with the choice of investment method. Small and large companies are in the same position in terms of choosing the method of investing in operational and non-operational assets. In other words, the firm size does not have an impact on the choice of investment method. On the other hand, the lack of relationship between financial leverage and the choice of investment method means that debt financing does not necessarily lead to investment in operational assets.

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Bibliographic information of this paper for citing:

Khamaki, Ali; Saeidi, Parviz; Naderian, Arash & Khozain, Ali (2019). Which Investment method is selected by companies in each stage of their Life Cycle? (Investing in operating assets or non-operational assets). *Iranian Journal of Finance*, 3(1), 110-129.