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Research Article

The Effect of Specific Risk in Various Stages of the Life Cycle of Companies Listed on the Tehran Stock Exchange

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This research aims to examine the specific risk of companies and their effectiveness in various stages of the company life cycle on state and nonstate ownership. For this purpose, the specific risk was estimated using Fama and French three-factor models, and the research objective was examined by considering the data panel model during the period 2015 to 2020 in a statistical sample consisting of 136 companies active in the Tehran Stock Exchange. For this purpose, the main contribution of research is evaluation of the effect of specific risk in different stages of the life cycle of companies admitted to the Tehran Stock Exchange. Therefore, the main valuable advantage to helping stock managers is assessing the impact of government ownership and nongovernment ownership on the specific risk of companies at different stages of the life cycle. Also, presenting a model to show the effects of dependent and independent variables in order to evaluate the impact of government and nongovernment ownership. The research results confirmed that the specific risk of the company in the stages of introduction, growth, and decline is higher compared to the stages of maturity and stagnation of the life cycle of companies listed on the Tehran Stock Exchange. Because the coefficients of virtual variables related to the life cycle stages of the company are estimated to be significant. Also, the finding confirmed that government ownership significantly affects the relationship between firm risk and life cycle stages in companies listed on the Tehran Stock Exchange. Because, the coefficient of variable state ownership is negative and significant, indicating a lower specific risk in state-owned companies than in nonstate-owned companies.

1. Introduction

According to the life cycle theory, a company goes through its developmental stages from birth to decline in a sequential, linear, and predictable manner. These stages shape the strategies, capital structure, resources, capabilities, and activities of the company. Since there is no consensus to differentiate the stages of a company's life cycle [1], researchers have proposed a wide range of life cycle models. These models use various criteria such as organizational decision responsibility, leadership style, age, cash flow, and capital accumulation to define each stage of the company life cycle. In this literature, various three-to ten-stage models of the life cycle are proposed.

Miller, Frison [2], and Dickinson [3] proposed a five-stage model.

Life cycle theory is founded in organizational science and especially in resource-based theory (RBT). Helfat [4] provided a new dimension for RBT. They argued that firms' resources and opportunities are not static, but rather continue to emerge and progress with the passage of time. This gave birth to the dynamic view of resource-based theory, which is the backbone of the FLC concept. The FLC comprises stages that are outcomes of alterations in external and internal factors (e.g., competitive environment, financial resources, managerial ability, etc.); most of these are a result of strategies undertaken by the firm [5, 6]. Different financial activities determine firm life cycle stages and have vast

implications regarding the understanding of firms' performance and organizational competitiveness [7, 8]. Miller and Friesen [2] proposed a four-stage FLC model, which consists of birth and revival stages along with growth and maturity. However, Gort and Klepper [9] divide the firm life cycle into five unique stages. This was further verified and supported by Dickenson [5].

Recent empirical studies have shown that the organizational life cycle is a combination of visible and invisible, internal and external, corporate, managerial, and macroeconomic factors and there are fundamental and effective differences in the management and structure of companies in various stages of the company life cycle [10]. However, the existing literature does not fully describe the relationship between risk and life cycle stages. Hasan and Habib [8] and Fink et al. [11] analyzed company-specific risk in different stages of the company's life cycle and found that young companies experienced higher specific risk than their older counterparts. In contrast, Luo and Bhattacharya [12] provided evidence of a positive relationship between specific risk and age, suggesting that older firms have higher specific risk. However, in another article, Al-Hadi et al. [13] found that there is no relationship between risk and age in the company life cycle. Furthermore, Brown and Kapadia [14] concluded that in US state-owned companies, there is a positive relationship between maturity and specific risk fluctuations.

In most of the mentioned studies, age has also been used as a company life cycle proxy. This diverse evidence could be due to the use of age as a life cycle proxy. This criterion does not take into account the nonlinear effect of life cycle stages on risk due to uniform motion, therefore, it is of special importance to use an accurate proxy that depicts the dynamics of the company life cycle [15–17]. and Dickinson [4] emphasize the importance of using the right proxy in stages of company life cycle. In particular, they believe that the time it takes for a company to evolve through life cycle varies from industry to industry, and accordingly, age, as a criterion of life cycle, cannot track the transfer of an enterprise in different stages of the life cycle. Because such a proxy relies on the assumption that they are uniform throughout their life cycle. Given the above, the diversity of findings in this area, as well as the importance of risk in the financial markets, the required motivation to conduct this study is created. In this study, changes and company-specific risk (variable risk) in different stages of the company life cycle in the Tehran Stock Exchange are examined. In this regard, the proxy of various stages of life cycle is defined and used based on operating cash flow (OCF), investment cash flow (ICF), and cash flow from financing activities (CFF). Also, in this study, in order to examine the issue more accurately, the effect of state ownership and nonstate ownership on the company-specific risk in various stages of life cycle will be evaluated. Therefore, according to the literature and the importance of this research based on the specific objectives of the research, the two main hypotheses were developed as follows:

(i) H_1: First hypothesis of the research: the company-specific risk is higher in the stages of introduction, growth and declination compared to the stages of maturity and stagnation of life cycle in companies listed on the Tehran Stock Exchange.

(ii) H_2: Second hypothesis of the research: state ownership has a significant effect on the relationship between company-specific risk and life cycle stages in companies listed on the Tehran Stock Exchange.

According to the above-mentioned hypotheses, the most important contribution of research is given as follows:

(i) Evaluation of the effect of specific risk in different stages of the life cycle of companies admitted to the Tehran Stock Exchange.

(ii) For this contribution the most important advantages of research are given as follows:

Assessing the impact of government ownership and nongovernment ownership on the specific risk of companies at different stages of the life cycle. Presenting a model to show the effects of dependent and independent variables in order to evaluate the impact of government and nongovernment ownership.

Rest of the paper is organized follow as: Section 2 prepared a literature review to show research gap. Section 3 described research methodology. Section 4 presented the main research findings. Section 5 provided valuable managerial implications and finally, Section 6 presented the overall conclusion and future research suggestions.

2. Literature Review

2.1. Review. Harymawan et al. [18] examined the relationship between investment efficiency (INVEFF) and environmental, social, and governance (ESG) reporting. For this posited corporate integration management (CIM), which is reflected by the level of INVEFF, is a crucial driver for the better quality of ESG reporting. But there is a second possibility that ESG reporting is viewed as a different firm's burden, and therefore, it is a form of inefficiency. Nazir et al. [19] investigated the impact of ESG performance of top global technology leading firms on their cost of capital. Panel data fixed effects and random effects and generalized method of moment (GMM) regression estimation techniques have been applied to ascertain this relationship during a period of eight years (2010–2017). Akbar et al. [20] examined the influence of financial distress on corporate restructuring decisions and whether this restructuring varies across the firm life cycle (FLC) stages of Pakistani nonfinancial listed firms for the 12 years from 2005 to 2016 inclusive. Ryu and Won [21] investigated the effect of innovation on firm value at each stage of the firm life cycle (FLC): growth, mature, and decline stages. Innovation involves improving the yield of input resources and creating new revenue sources. Thus, we

define operational innovation as overall efficiency in business operations and divide the operational innovation into technical innovation and scale innovation. Khoung et al. [22] examined the relationship between firm life cycle (FLC) and earnings management (EM) in the Vietnamese context with the moderating role of state ownership (SOE). We used the sample of 622 Vietnamese listed companies over the period 2010–2019. To eliminate autocorrelation and heteroscedasticity violations, we utilized FE Robust on all models. Yulianto [23] proposed the most appropriate firm size proxy between total sales and total assets in explaining asymmetric information at each stage of the firm life cycle. Ahmed et al. [24] using a sample of 351 companies, confirmed that the criterion of corporate investment efficiency is low in the stages of introduction and decline and it is high in the stages of growth and maturity, and in general, the process of corporate investment efficiency in stages of the company's life cycle is inverted U-shaped. Akbar et al. [25] investigated the impact of working capital management (WCM) on the profitability and market performance of firms that constitute an Islamic market index (Karachi Meezan Index [KMI-30]) in Pakistan during 2002–2013. The data have been divided into three parts, that is, preglobal (2002–2007), during (2007–2008), and postglobal financial crisis period (2008–2013), to examine the proposed relationship in different macroeconomic settings. Yulianto et al. [26] examined the difference between the absence and presence life cycle stages in technology information digitalization (TID) as a form of open innovation in reducing information asymmetry. Furthermore, companies with asymmetric information prefer debt over equity. The study collects 3.343 pooled data observation units of companies listed in the Indonesian capital market period 2008 to 2019. Also, OLS regression analysis was used to determine the difference between the absence and presence lifecycle stage in determining capital structure relations and exploiting growth opportunities. Shahzad et al. [27] in China from 2007 to 2016 confirmed that all three risks increase significantly in the emergence, growth, and decline stages because their competitive advantages, access to resources, and capabilities are limited and risk is less in the maturity stage. On the other hand, cash flow fluctuations have had a different effect on various types of risk. Ahsan et al. [28] showed that companies experience higher bankruptcy risk in the stages of introduction, growth, and decline compared to the stages of maturity and stagnation. Hasan and Habib [8] and Fink et al. [11] found that young companies experience higher specific risks than their older counterparts. In contrast, Luo and Bhattacharya [12] provided evidence of a positive relationship between specific risk and age, suggesting that older firms have higher specific risk. However, Al-Hadi et al. [13] in another article found that there is no relationship between risk and age in the company life cycle. Parker [29] tested the way companies finance in the life cycle stages. He showed that companies have more risk and return in the early stages; compared to mature companies, these companies provide more capital from the capital market. Brown and Kapadia [14] concluded in their study that in US state-owned companies, there is a positive relationship between maturity

Table 1: Categorized literature.

Author	Variables
Harymawan et al. [18]	(i) Investment efficiency (ii) Environmental (iii) Social (iv) Governance
Nazir et al. [19]	(i) Governance (ii) Global technology
Akbar et al. [20]	(i) Financial distress (ii) Corporate restructuring
Ryu and won [21]	(i) Innovation (ii) Value frim
Khoung et al. [22]	(i) Life cycle (ii) Earning management
Yulianto [23]	(i) Frim size proxy (ii) Total sales
Ahmad et al. [24]	(i) Life cycle (ii) Investment efficiency
Akbar et al. [25]	(i) Capital management (ii) Profitability (iii) Market performance
Yulianto et al. [26]	(i) Life cycle (ii) Technology information digitalization (TID)
Shahzad et al. [27]	(i) Risk (ii) Emergence (iii) Growth (iv) Decline
Ahsan et al. [8]	(i) Risk (ii) Maturity (iii) Stagnation

and specific risk fluctuations. Habib and Hasan [31] confirmed that the risk acceptance of a company in the stages of emergence and decline is higher compared to the stages of growth and maturity. However, risk acceptance in the stages of decline and emergence has a negative relationship with company performance. Raka et al. [30] also stated that the capital- or bank-oriented financing policies of countries affect the financing policies of companies; in countries, where monetary markets are more powerful, companies in the early stages of their lives prefer to finance their resources through debt. As the company matures, the capital structure gradually improves and internal resources play a larger role in capital financing.

In Iran, Amin, and Salehnejad [32] investigated the effect of corporate sustainability performance on economic value added during the company life cycle in 91 companies and confirmed that the level of sustainability performance during the company life cycle stages is different and the corporate sustainability performance in the maturity stage of life cycle reaches its peak. On the other hand, corporate sustainability performance in the stages of growth and maturity has a positive and significant effect on economic value added. Therefore, as companies get closer to the stage of growth and maturity, in order to create a competitive advantage, gain social legitimacy and use resources optimally, they take sustainable measures and this creates economic added value for companies. Davallou and Azizi [33] confirmed that compared to the stagnation stage,

nonsystematic risk is higher in the introduction and decline stages and lower in the growth and maturity stages. Also, cash flow fluctuations and information uncertainty differ only in the maturity stage from the stagnation stage, and in this regard, there is no difference between other stages of the life cycle and the stagnation stage. For this reason, it is only possible to explain the lower unsystematic risk of the maturity stage than the stagnation stage by changing these two factors. Aghaei et al. [34] also confirmed that risk acceptance in the emergence and growth stages of the life cycle is more than in the maturity and decline stages, in which risk acceptance in the life cycle stages increases with increased feelings of shareholders. Asnaashari and Larijani [35] confirmed that companies in the emergence and decline stages accept more risk compared to the maturity stage and the risky behavior of companies that are in the emergence and decline stages is accompanied by poorer financial performance compared to companies active in the stages of growth and maturity in the next financial period. Moradi et al. [36] also showed that life cycle has an effect on the relationship between growth and profitability so this effect is more in the period of decline and less in the period of maturity. Rostami et al. [37] showed that the performance of companies in the growth stage is significantly different from their performance in the decline and maturity stages. Mehrani et al. [38] also confirmed that the capital structure in growing companies has a greater effect on the value of the company compared to mature companies.

2.2. Research Gap.

Table 1 categorizes the previous study according to the considered variables.

Based on the existing studies mentioned above, according to the variables that have been considered, the most important gaps in the present research have been identified as follows:

(i) Investigating the specific risk of companies active in the stock exchange in order to determine their effectiveness in different stages of the company's life cycle on government and nongovernment ownership.

(ii) Determining the specific risk of companies using the Fama and French three-factor models.

3. Methodology

3.1. Problem Statement.

Since previous information has been used to test the hypotheses of this research, this research is postevent research. On the other hand, this research is analytical-correlational research that investigates the degree of correlation between research variables and measures the effect of explanatory variables on the dependent variable.

The thematic scope of the present research is the investigation of special risk status in the company life cycle stages and the effect of state and nonstate ownership on this relationship. The spatial scope of the research is the Tehran Stock Exchange and its temporal scope is from 2015 to 2020.

Sampling method is systematic elimination and companies, whose shares have been actively traded on the stock exchange in the period 2013 to 2018, whose blackout period is not more than three months, and whose financial information in this period is fully available, were selected as the research sample.

3.2. Assumption.

Main assumption of the research is related to state-owned and nonstate-owned company conditions. These conditions are described as follows:

(i) A state-owned company is a company in which more than 50% of its shares are owned by the government or other state-owned units and companies.

(ii) The percentage of government shares to total shares is used for this variable.

3.3. Formulation.

In this research, in order to test the research hypotheses, the data panel model is used as follows:

$$
\begin{aligned}
\text{IdioVol}_{i,t} = {} & \beta_0 + \sum_{k=1}^{5} \beta_k \text{FLCS}_{i,t} + \beta_6 \text{SO}_{i,t} + \beta_7 \text{Size}_{i,t} \\
& + \beta_8 \text{ROA}_{i,t} + \beta_9 \text{Leverage}_{i,t} \\
& + \beta_{10} \text{MTB}_{i,t} + \beta_{11} \text{Age}_{i,t} + \varepsilon_{i,t}.
\end{aligned}
\tag{1}
$$

The following is the operational definition of research variables:

3.3.1. Dependent Variables (Specific Risk (IdioVol)).

The Fama and French three-factor models are used to measure specific risks as follows:

$$
\begin{aligned}
\text{SRet}_{it} - \text{DRet}_{ft} = {} & \alpha_i + \beta_i \left(D\text{Ret}_{m,t} + D\text{Ret}_{ft} \right) \\
& + \rho_i \text{SMB}_t + \vartheta_i \text{HML}_t + \varepsilon_{i,t}.
\end{aligned}
\tag{2}
$$

In model (2), the additional stock return $\text{SRet}_{it} - D\text{Ret}_{it}$ is used as the dependent variable. $\text{Ret}_{f,t}$ is the risk-free rate of return that the bank deposit interest rate is used as a proxy and can be extracted from the central bank's website. $\text{Ret}_{m,t}$ is the market rate of return that can be extracted from databases of the stock exchange organization. SRet_{it} is also the rate of return of sample companies.

Size factor (SMB): the difference between the average return on the stock of small companies and the stock of large companies, which is indicated by SMB.

$$
\text{SMB} = \left(\frac{s/L + s/M + s/H}{3} \right) - \left(\frac{B/L + B/M + B/H}{3} \right),
\tag{3}
$$

where s/L represents companies that are small in size and have a low book value to market value ratio. s/M indicates companies that are small in size and have a medium book value to market value ratio. s/H represents companies that are small in size and have a high book value to market value ratio. B/L indicates companies that are large in size and have a low book value to market value ratio. B/M indicates companies that are large in size and have a medium book value to market value ratio. B/H represents companies that

TABLE 2: Control variables.

Notation	Description
$Size_{i,t}$	The company size variable is used by the natural logarithm of the total assets of company i at the end of fiscal year t.
$ROA_{i,t}$	Return on assets of company i in period t, which is obtained by dividing the net profit by the total assets of the company.
$Leverage_{i,t}$	The financial leverage variable is calculated from the ratio of total debt to total assets of company i at the end of period t.
$MTB_{i,t}$	The ratio of market value to the book value of company i in period t.
$Age_{i,t}$	The company age is obtained from the difference between the year t and the year of establishment of company i.

are large in size and have a high book value to market value ratio.

Value factor (HML): the difference between the average returns on the stock of companies with a high book value to market value ratio and the stock of companies with a low book value to market value ratio which is indicated by HML.

$$\text{HML} = \left(\frac{s/H + B/H}{2}\right) - \left(\frac{s/L + B/L}{2}\right), \qquad (4)$$

where its variables are also defined as before. It should be noted that the company-specific risk is estimated based on model (2) and using the variables provided and in the second model, it is used as a dependent variable.

3.3.2. Independent Variables (Various Stages of the Company Life Cycle).
In this research, similar to the research of Shahzad et al. [27], the cash flow model is used to classify companies into various stages of the company life cycle. Cash flow models to determine life cycle stages are obtained by combining the positive (input) and negative (output) signs of cash flows. Shahzad et al. [27] divide the company life cycle stages using models obtained from the three classes of cash flow statements operating cash flow (OCF), investment cash flow (ICF), and cash flow from financial activities (CFF) as follows:

(1) Introduction stage: if CFO <0, CFI <0 and CFF> 0

(2) Growth stage: CFO> 0, CFI <0 and CFF> 0

(3) Maturity stage: CFO> 0, CFI <0 and CFF <0

(4) Decline stage: CFO> 0, CFI <0 and CFF <0

(5) Recession stage: the remaining companies that are not in any of the abovementioned stages are classified in this stage.

These stages are defined as virtual variables, each of which is investigated in the company year, and finally, if the abovementioned conditions were met in each stage in the investigations, that variable gets a number 1, and otherwise, it gets a number zero. It should be noted that in Iran, the five-class cash flow statement includes cash flows from operating activities, cash flows from return on investments, and interest payments on financing, cash flows from income tax, cash flows from investment activities, and cash flows from financing activities, which gets consistent with the three-class cash flow statement by making the necessary adjustments to the companies' cash flow statement data.

3.3.3. Control Variables.
In Table 2, the control variables are shown.

4. Research Findings

4.1. Descriptive Statistics of Data.
Descriptive statistics are concerned with the disposition and classification of data, the graphical representation, and the calculation of values such as mean, standard deviation, and median, which indicate the characteristics of each member of the sample in question. The descriptive statistics provide information about the main parameter (mean) and dispersion parameters (standard deviation, maximum and minimum) of research variables. In descriptive statistics, data from a group describes the same group, and the information obtained is not generalized to similar categories. Table 3 presents descriptive statistics related to research variables. This study used the data of 136 financial companies listed on the Tehran Stock Exchange in 2015–2020.

4.2. Inferential Statistics (Answer to Research Hypotheses).
Hypothesis testing in statistics is a way to examine claims or hypotheses about distribution parameters in statistical communities. In this method, the null hypothesis or the initial hypothesis is discussed, which is selected as an alternative hypothesis or the opposite hypothesis following the subject of the study so that the correctness of each is tested concerning each other. To estimate the final model presented in relation (1), diagnostic tests and the result of the classical hypothesis test are shown. Then, the final results of the model estimation will be presented.

5. Diagnostic Tests

Lemmer and Hausman's tests have been used to determine the optimal model in this research.

5.1. Limer Test (Chao).
The null and void hypotheses in the F-Limer (Chao) test are as follows:

(i) H0 : no group effects.

H1 : there are group effects.

If the calculated value of F is less than F in the table, the null hypothesis is accepted, and only one width of the origin is required. However, suppose the calculated value of F is greater than F in the table. In that case, the null hypothesis is rejected, the group effects are accepted, and the width of different sources must be estimated and used. The Limer (Chao) test for the regression model of the present study is shown in Table 4.

Due to the significance level of the Chow test results, the hypothesis (integrated model) is not confirmed. In other

TABLE 3: Descriptive statistics of research variables.

Variable	Symbol	Mean	Median	Maximum	Minimum	SD	Skewness	Kurtosis
Introduction stage	INTRODUCTION	0.046062	0	1	0	0.209776	4.331047	19.75796
Growth stage	GROWTH	0.375929	0	1	0	0.484722	0.512309	1.26246
Maturity stage	MATURE	0.291233	0	1	0	0.454669	0.919008	1.844575
Decline stage	DECLINE	0.054412	0	1	0	0.226995	3.928857	16.43592
Recession stage	SHAKE_OUT	0.231798	0	1	0	0.422294	1.271158	2.615843
Financial leverage	LEVERAGE	0.653551	0.62	2.77	0.01	0.336128	2.247896	11.88641
Return on assets	ROA	10.179	8.88	210.08	-79.73	16.81493	2.263094	33.58215
Market value to the office	M_B	3273231	2325486	1.49 E+08	-5.1 E+07	9220092	11.67427	188.2714
Size	SIZE	14.20214	13.86516	20.30019	10.16654	1.794247	0.949257	3.922603
Governmental possession	SO	76.30782	80.01	100	8.54	16.5932	-1.1648	4.430596
Company age	AGE	35.89599	39	63	8	14.02393	-0.23164	1.792896

TABLE 4: Chow test.

Statistics F	Probability	Test result	
2.086783	0.000	Reject the null hypothesis	Panel model

words, there are individual or group effects, and the panel data method should be used to estimate the research regression model, which is then used to determine the type of panel model (with random effects or fixed effects) Hausman test.

5.2. Hausman Test. The null and opposite hypotheses in this test are as follows:

(i) H0 : the effects are random.

H1 : the effects are constant.

The Hausman test tests the null hypothesis based on the consistency of random effect estimates against the opposite hypothesis based on the inconsistency of random effect estimates. Hypothesis zero is rejected if the computed chi-square statistic is larger than the table statistic [39]. We conclude that there is a correlation between the origin-width perturbation and the independent variables.

Table 5 shows the Hausman test for the research model. The results show that for the research model, the effects are constant. Table 6 shows the research regression equation's fitting. The value of F (3.45) indicates the general significance of the regression model. The coefficient of determination and the adjusted coefficient of determination is equal to 0.56 and 0.49, respectively, indicating the model's optimal relative explanatory power. Watson camera statistics and White statistics have been examined to examine the classical assumptions of the model, respectively, which indicate the lack of serial correlation and the establishment of variance inequality in the estimated model. Finally, these results demonstrate the reliability of the estimation results, and the coefficients of the variables can be used to test the research hypotheses.

Table 6 shows that the coefficients of the variables of the life cycle stages of the company are statistically significant, which shows the significant relationships between these variables and the model's dependent variable (company-specific risk). In addition, the coefficient of introduction stage variables, positive growth and decline, and the coefficient of maturity and stagnation stage variables are estimated negatively. As a result, these coefficients show that the company's specific risk in the introduction, growth, and decline stages is higher than in the stages of maturity and recession. In the stages of maturity and recession, the company's specific risk decreases. In addition, the variable of government ownership is statistically significant and negative, indicating the inverse relationship of this variable with the company's specific risk. Therefore, according to the [40], when the value of the t-statistic is greater than ± 1.96 in the 95% confidence interval, the term will be acceptable and significant. Because, in this case, the p – value will be less than 0.05. Therefore, the final model equation is as follows equation (5):

$$
\begin{aligned}
\text{Specific Risk} = {}& -5.85084 + 3.12353 \times \text{Introduction} \\
& + 3.53568 \times \text{Growth} - 3.00071 \times \\
& \text{Mature} + 2.22369 \times \text{Decline} - 3.27971 \qquad (5) \\
& \times \text{Shake}_{\text{out}} + 10.49706 \times \text{ROA} \\
& + 5.845639 \times \text{AGE}.
\end{aligned}
$$

6. Discussion

The first hypothesis of the research: the specific risk of participating in the stages of introduction, growth, and decline is higher than the stages of maturity and stagnation of the life cycle in companies listed on the Tehran Stock Exchange.

According to Table 6, the coefficients of virtual variables related to the life cycle stages of the company are estimated to be significant. On the other hand, the coefficients of the introduction, growth, and decline stages are positive, and the coefficients of maturity and recession stages are negative. Therefore, the stages of introduction, growth, and decline associated with higher specific risk are recognized, and thus the first hypothesis of the research is confirmed.

The second hypothesis of the study is that government ownership significantly affects the relationship between firm risk and life cycle stages in companies listed on the Tehran Stock Exchange.

TABLE 5: Hausman test.

Statices	Probability	Test result	
10.399764	0.01	Null hypothesis rejection	Panel with constant effects

TABLE 6: Results of estimating the final research model.

Variable	Symbol	Coefficient	SD	Statistics t	Probability	Relationship type	Status
	C	−9.58726	1.638614	−5.85084	0.000	-	Significant
Introduction stage	INTRODUCTION	0.933	0.2987	3.12353	0.0019	Direct	Significant
Growth stage	GROWTH	0.94588	0.267523	3.53568	0.0005	Direct	Significant
Maturity stage	MATURE	−0.82954	0.276446	−3.00071	0.0029	Reverse	Significant
Decline stage	DECLINE	0.6501	0.292352	2.22369	0.0267	Direct	Significant
Recession stage	SHAKE_OUT	−0.91291	0.27835	−3.27971	0.0011	Reverse	Significant
Return on assets	ROA	0.067719	0.006451	10.49706	0.000	Direct	Significant
Company age	AGE	0.220576	0.037733	5.845639	0.000	Direct	Significant
Governmental possession	SO	0.013087-	0.004179	−3.131405	0.0019	Reverse	Significant
Size	Size	0.067876	0.156568	0.433525	0.6649	-	Insignificant
Financial leverage	LEVERAGE	−0.28733	0.174321	−1.64825	0.1001	-	Insignificant
Market value to book	M/B	0.03644	0.04686	0.77769	0.4372	-	Insignificant
Determination coefficient		0.56	Amara F			3.45	
Adjusted coefficient of determination		0.49	Significance (*p*-value)			0.000	
			Watson camera			2.19	

Table 6 shows that the coefficient of variable state ownership is negative and significant, indicating a lower specific risk in state-owned companies than nonstate-owned companies. Therefore, the second hypothesis of the research is also confirmed.

7. Managerial Insights

In the Tehran stock market, there is a strong relationship between risk and return. In fact, the higher the risk, the higher the return. But what matters is how to manage this risk. In this research, the correlation between the research variables and the impact of the explanatory variables on the dependent variable, that is, considered a special risk has been investigated. For this purpose, investigating the specific risk of companies active in the stock exchange in order to determine their effectiveness in different stages of the company's life cycle on government and nongovernment ownership, as well as determining the specific risk of companies using the three-factor Fama and Franch models. The valuable knowledge that the research results provide to managers is given as follows:

(i) There is a significant relationship between the co-efficients of virtual variables related to the life cycle stages of companies. Therefore, the specific risk of the company in the stages of introduction, growth, and decline is higher than the stages of maturity and stagnation of the life cycle of companies admitted to the Tehran Stock Exchange.

(ii) There is a strong significant relationship between government ownership and company risk with life cycle stages in companies listed on the Tehran Stock Exchange. Because the variable coefficient of

government ownership is negative and significant, which indicates a lower specific risk in government companies than in nongovernment companies.

8. Conclusion

Investment is one of the essentials in the economic growth and development of the country. With the separation of the business unit's identity from its owners' identity and the increase in the scale of activity, the need to raise capital for production has increased. One of the influential factors in choosing an investment is the investor's attention to risk and return on investment. Investors try to invest their financial resources in the place with the highest returns and the least risk. Therefore, in addition to focusing on profit, companies should also manage risk as a limiting factor for maximizing returns [41]. Studies in organizational knowledge and strategic management show that the company, like any other living thing, has a life cycle that plays a vital role in its operational model. Awareness of the life cycle concept helps managers use the resources at their disposal optimally and surpass their competitors [42]. On the other hand, determining the relationship between different types of risks and life cycle stages can provide investment growth and efficiency in diversification strategies, portfolio management, arbitrage process, etc. However, the existing literature does not fully describe the relationship between risk types and life cycle stages. In this study, the issue of whether the stages of the company's life cycle affect the specific risk in companies listed on the Tehran Stock Exchange? In addition, this study investigated the impact of governmental and nongovernmental ownership on specific risks at different stages of the company's life cycle. Estimating the final research model showed that the specific risk of participating in the stages of

introduction, growth, and decline compared to the stages of maturity and stagnation of the life cycle in companies listed on the Tehran Stock Exchange is higher. Government ownership also significantly affects the relationship between firm risk and company life cycle stages in the Tehran Stock Exchange companies. Main results of the research are given as follows:

(i) Specific risk of the company in the stages of introduction, growth, and decline is higher compared to the stages of maturity and stagnation of the life cycle of companies listed on the Tehran Stock Exchange. Because the coefficients of virtual variables related to the life cycle stages of the company are estimated to be significant.

(ii) Government ownership significantly affects the relationship between firm risk and life cycle stages in companies listed on the Tehran Stock Exchange. Because the coefficient of variable state ownership is negative and significant, indicating a lower specific risk in state-owned companies than nonstate-owned companies.

(iii) Size, financial leverage, and market value are insignificant to the specific risk of the company.

Considering that the trend of the stock market is not predictable, it is therefore suggested for further research to provide the necessary planning to consider uncertain parameters using robust planning [5, 43–48].

Data Availability

Data will be available upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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