

The Role of Credit Ratings in Capital Structure and its Adjustment Speed in Companies Accepted in Tehran Stock Exchange

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Abstract

In the present study, the role of credit ratings in capital structure and its adjustment speed was investigated in companies accepted in Tehran Stock Exchange. To this end, 138 companies were examined during the period 2011-2016. In this research, the data was extracted, classified and calculated using Excel software and ultimately, the hypotheses were tested at a 95% confidence level through Eviews and Stata software. The results obtained from hypothesis testing demonstrated that there is a significant negative relationship between credit ratings and adjustment speed to reach the optimal level of capital structure. Further, no reliable evidence was found regarding the existence of a significant relationship between credit ratings and capital structure at a 95% confidence level.

Keywords: Credit rating; Optimal capital structure; Adjustment speed.



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1. Introduction

Deciding on the need to finance is one of the issues that has accounted for a major part of the concerns of corporate financial executives. The composition of various financial resources of each company forms its capital structure. Considering that the company's capital structure can directly affect corporate value and credibility, it is especially important in financial matters. By the same token, various theories and suggestions have been presented for predicting management behavior in determining an optimal capital structure; a structure that provides the required resources of the company with the lowest cost and increases the corporate value (Valizadeh and Athna, 2017). Thus, Debt financing costs are among the factors that can affect capital structures and their adjustment speed. Capital structure adjustment speed varies among companies depending on the amount of transaction costs associated with the changes needed to achieve the new capital structure (Casrto *et al.*, 2016). These costs are influenced by corporate characteristics such as growth opportunities, profitability and bankruptcy risk; the greater uncertainty the financial providers have to achieve resources and expected returns, the less their willingness will be for lending (Valizadeh and Athna, 2017).

To determine the optimal amount of debts (and in fact, to determine the optimal capital structure), managers try to establish a balance between the advantages and disadvantages of debt financing and adjust the amount of debts or stockholder's equity at any possible opportunity. In more explicit terms, companies are always trying to change their actual capital structure towards an optimal capital structure since in the mentioned structure, capital cost and bankruptcy risk have a minimum amount (Supra *et al.*, 2016). Nevertheless, it should be noted that the change in the capital structure in order to achieve an optimal capital structure has costs and benefits and companies adjust their capital structure when the benefits of this work exceed its costs (Dang *et al.*, 2012b).

Various factors affect the adjustment costs and thus the adjustment speed toward the goal. Based on the balance theory and hierarchical theory which are two competing theories in the field of capital structure, deviation from the target leverage and financial imbalance are among the most important factors affecting leverage adjustment speed (Ramsheh *et al.*, 2016).

On the other hand, financial market players are often interested in measuring the risks of companies or countries in order to make decisions about their own potential investments. Among the risks considered is the credit risk that is related to the subject of meeting financial obligations to the lender. Credit risk can be regarded as the probability of a publisher's refusal to pay the interest or principal debt. Evidence shows that since the 1980s, the demand for information on credit risk analysis has increased dramatically in international financial markets (Murcia *et al.*, 2014). The ratings published by credit rating agencies reflect their opinion about a publisher's ability and willingness to fully and timely fulfill his obligations (Jorion *et al.*, 2005). Thereby, the credit rating can be considered as a relative criterion for credit risk measurement, which is obtained based on analyzing quantitative and qualitative variables (Murcia *et al.*, 2014).

It is essential to note that the importance of credit rating can be analyzed from the viewpoint of publishers, investors, supervisory bodies or even from the perspective of the overall market. From the publisher's point of view,

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a credit rating is of great practical importance because it affects the debt cost, financial structures and even the corporate ability in the continuity of activities. From the standpoint of investors, credit ratings are the main source of information on the quality and availability of various debt securities in the market since rating agencies have access to confidential information that is not disclosed on the market (Jorion *et al.*, 2005). Supervisory bodies, like investors, use credit ratings for saving resources that should otherwise be assigned to credit assessments (Papaikonomou, 2010). Finally, with increased expertise of credit rating agencies in acquiring and processing credit risk information, the costs of data collection by lenders are reduced and stock exchange market operations are facilitated (Creighton *et al.*, 2007). On the other hand, among the vast volume of studies in the field of capital structure, a reality is revealed and that is consensus of opinion which has been achieved by a relatively large part of researchers in the financial field. According to this consensus of opinion, companies constantly modify and improve their capital structure with respect to changes in the internal and external environment so that the corporate financial health is maintained and its value is maximized. Therefore, it is important to study the leverage adjustment speed toward the goal (Ramsheh *et al.*, 2016). In practice, companies tend to operate in an optimal domain of capital structure and if they are forced to leave this optimal domain because of business conditions, they will return to that domain as soon as possible. Hence, if we believe in this target capital structure, then the issue of the speed of companies' movement towards this structure and average leverage ratio adjustment time becomes an important topic in the field of capital structure theory (Gorji and Ra'ei, 2015).

Murcia *et al.* (2014) believe that there is a significant relationship between financial leverage, international activity, financial market performance, profitability and growth with credit ratings. Gray *et al.* (2006) reported that interest and leverage coverage ratios have the greatest impact on credit ratings. Kemper and Rao (2013) revealed that from the viewpoint of financial managers, credit rating is the second effective factor in corporate debt policy. According to Kisgen (2006), credit rating is an important issue considered by managers in making decisions about corporate capital structure. Wojewodzki *et al.* (2018) conducted a study and concluded that in countries with greater market orientation in the financial system, the effect of credit ratings on corporate capital structure is more prominent and firms with weaker credit ratings have higher adjustment speed. Additionally, results of the study by Wojewodzki *et al.* (2018) indicated that there is considerable difference in capital structure adjustment speed between companies rated at a speculative level (poor credit rating) and those rated at an investment level (high credit rating) and indeed, the adjustment speed is much higher at the speculative level. These differences are statistically significant only for firms with a more market-oriented economy. Based on the foregoing, this study has been conducted with the aim of answering the main question as to whether credit ratings have a role in capital structure and its adjustment speed.

2. Research Theoretical Foundations

2.1. Capital Structure

In evaluating the capital structure of companies, attempt is made to explain the composition of their various financial resources in financing the required activities and investments (Brounen *et al.*, 2006). The capital structure is a special combination of debt and assets that is used by companies to finance their operations. The existing theories about corporate capital structure are generally applied for small and medium sized companies. Three theories related to capital structure are based on the life cycle approach, information asymmetry costs and agency costs.

Considering the goal of financial management which is to increase the value of shareholder wealth, the purpose of determining the capital structure is to specify the composition of financial resources in order to maximize the shareholder wealth. Hence, in order to determine the optimal capital structure, attention is paid to risk and return factors:

Return: In terms of returns, a capital structure that increases the profit of each share is preferable.

Risk: In terms of risk, a capital structure that reduces the corporate risk is preferable.

As a result, because the increased return raises the corporate value and increased risk leads to reduced corporate value, a structure should be determined that, along with increased risk-adjusted returns, results in increased corporate value (Asadi, 2016).

One of the earliest studies that strengthened the hypothesis of corporate capital structure adjustment is the research by Marcus in 1968. In this study, he seeks to explain the changes in the capital structure of American commercial banks. Marcus states that the banks under study have had a target debt ratio and show high convergence towards it. Using an integrated (panel) model, he estimates the capital structure adjustment speed of these banks to be between 25% and 28% per year (Gorji and Ra'ei, 2015).

2.2. Business Credits

When a company sells its goods through increased credit given to customers, corporate accounts receivable (which are part of current assets in the balance sheet) increase. Debt is created when the company buys a commodity using business credits and records it in the accounts payable (in the company's balance sheet). In credit conditions, the following points are considered:

1) The start time of the credit period: Often, the start time of the credit period is called the invoice date. When a company purchases several times in a month, it may determine the date of all sales to be the end of the month. That is, the company considers the last day of the month in which several purchases have been made as the start date of the credit period.

2) Net bill payment time: This period, expressed in days, is the time given to the buyer to pay the net amount or the total amount of the bill.

3) Cash discounts: Sometimes the seller company deducts as a discount a certain percentage of the bill of the buyers who immediately pay the funds of the purchased goods (Jahan and Parsian, 2007).

As previously mentioned, business credit is one of the sources that provides both funding and time and represents one of the important forms of commercial credit. Business credit is granted to the buyer company when the seller company has opened a line of credit for the buyer. Such credits are given to buyers unofficially and are usually secured and without receiving collateral.

The use of business credits is one of the ways through which companies finance for short-term periods (Saber, 2011).

3. Research Literature Review

Results of the study by She'ri Anaqiz *et al.* (2015) demonstrated that for companies above the optimal leverage, financial flexibility is not a decisive factor for their leverage adjustment speed. But for the companies below the optimal leverage, a significant positive relationship has been obtained with the leverage adjustment speed. Findings achieved by Bani Asadi and Abedini (2016) in connection with the confirmation of the first research hypothesis indicated that there is a significant inverse relationship between credit ratings and credit risk of companies. Besides, based on the analyses made in relation to the confirmation of the second research hypothesis, it was found that there is a significant and direct relationship between capital changes and corporate credit risk. In the following, the research results concerning the confirmation of the third research hypothesis revealed that a significant and direct relationship exists between stock price volatility and corporate credit risk. Ultimately, with respect to the analyses conducted on the confirmation of the fourth research hypothesis, it was determined that there is a significant and direct relationship between asset price growth and corporate credit risk. Results of the study performed by Aflatouni and Nikbakht (2017) suggested that with an increase in disclosure quality, capital structure adjustment speed also increases significantly. However, the results indicate that increased accruals quality does not make a significant impact on capital structure adjustment speed. Results of the study by She'ri *et al.* (2017) disclosed that no significant relationship exists between abnormal operating cash flows and credit ratings. But abnormal production costs and abnormal discretionary expenses have a significant negative relationship with the credit rating of accepted companies in Tehran Stock Exchange at a 95% confidence level.

Results of the research by Valizadeh and Athna (2017) displayed that companies being in a maturity stage adjust their debt structure more quickly than the companies in the stages of emergence and growth. Moreover, a change in the life cycle reduced the corporate capital structure adjustment speed while with increased profitability, the share of debt in the corporate capital structure decreased; but the severity of this decline was not influenced by the company's life cycle although a change in the corporate life cycle could affect this relationship and companies that changed their life cycle benefited from lower levels of debt in their capital structure with increased profitability.

Results of the research by Lee *et al.* (2004) revealed that with raised credit ratings, companies' willingness for earning management through the manipulation of long-term accruals increases. Furthermore, the results illustrated that there is a significant negative relationship between credit ratings and earning management through the manipulation of current accruals. Ashbaugh-Skaife *et al.* (2006) concluded the following in their study: 1) there is a negative relationship between credit ratings with the number of major shareholders (who hold at least 5% of the corporate shares) and the amount of protecting shareholders' rights (defense mechanisms against transfer of ownership); 2) there is a positive relationship between credit ratings with independence, ownership percentage and expertise of the board members; 3) there is a negative relationship between credit ratings and the amount of CEO influence on the board;) there is a positive relationship between credit ratings and the degree of financial transparency. The results of the study by Dang *et al.* (2013) revealed that the global financial crisis has a negative impact on financial leverage adjustment speed. Additionally, the results suggested that in the pre-crisis period, companies with financial constraints are more likely to adjust their capital structure towards the optimal leverage. In the research conducted by Cao *et al.* (2015), strong evidence has been found stating that companies with a higher reputation in terms of Fortune's credit ratings use the advantage of a lower capital cost even after the factors determining the normal capital cost. Besides, it has been proved in this study that companies with better reputation will reduce information asymmetry for users and this has led to greater liquidity absorption for companies and reduced ordinary stock cost. According to their findings, firms with higher business credits have easier access to financial resources. Casrto *et al.* (2016), found that profitability and the ability for collateral are among the factors influencing the capital structure adjustment speed. Moreover, companies that change their life cycle have lower capital structure adjustment speed and when the company goes from the growth to the maturity stage, its capital structure adjustment speed is further influenced by profitability. Results of the study carried out by Wojewodzki *et al.* (2018) exhibited that in countries with greater market orientation in the financial system, the impact of credit ratings on corporate capital structure is more prominent and firms with weaker credit ratings have higher adjustment speed. Further, the results uncovered that there is considerable difference in capital structure adjustment speed between companies rated at a speculative level (poor credit rating) and those rated at an investment level (high credit rating) and in fact, the adjustment speed is much higher in firms rated at the speculative level. These differences are statistically significant only for companies with a more market-oriented economy.

3.1. Research Methodology

This research is an applied study in terms of purpose and a descriptive-correlational study in terms of nature and method since it deals with the study of the relationship between several variables. All of the companies listed in Tehran Stock Exchange constitute the statistical population of the current study, which must have the following characteristics: 1) Companies must be present in the stock exchange from 2011 to 2016; 2) the intended companies should not be banks, financial intermediaries, leasing companies or other investment companies; 3) data of the companies should not be incomplete. The temporal scope of the research is from the beginning of 1390 (2011) to the end of 1395 (2016). With respect to the above-mentioned limitations, 138 companies were selected as the sample.

After collecting the required research data, Excel software was applied to calculate and prepare the variables and for hypothesis testing, combined data was used. To determine the type of combined data, F Limer and Hausman tests were employed. Besides, to test the overall significance of the fitted regression model, F statistic was used at a 95% confidence level and to test the significance of each independent variable, Student's t-test was used. Also, Durbin-Watson test and Breusch-Pagan-Godfrey test were applied respectively for testing the existence of autocorrelation between model errors and heterogeneity of variance. Eviews and Stata were also used for the analysis of the above tests, correlation between variables and multivariate linear regression and other tests.

3.2. Research Hypotheses and Models

First hypothesis: There is a significant relationship between credit ratings and capital structure.

Second hypothesis: There is a significant relationship between credit ratings and adjustment speed to reach the optimal level of capital structure.

Regression model:

$$CS_{it} = \alpha_0 + \alpha_1 CS_{it-1} + \alpha_2 Rating_{it-1} + \alpha_3 Rating_{it-1} \times CS_{it-1} + \sum_{k=1}^7 \varphi_k X_{i,t} + \varepsilon_{it}$$

In this equation, $X_{i,t}$ is a vector consisting of six explanatory variables. Following the studies conducted by Wojewodzki *et al.* (2018) and Frank and Goyal (2009), there are six determinants for market leverage as follows:

CS_{it} : Capital structure of the company i during the period t ; $Rating_{it-1}$: Credit rating of the company i during the period $t-1$; $Rating_{it-1} \times CS_{it-1}$: The interactive effect of credit ratings and adjustment speed in reaching the optimal level of capital structure of the company i during the period $t-1$; $EBIT_{i,t}$: Profitability (profit before taxes to total assets ratio) of the company i during the period t ; $MTB_{i,t}$: Growth opportunity of the company i during the period t (the ratio of the market value of equity to the book value of equity); $Tang_{i,t}$: Tangible assets to total assets ratio of the company i during the period t ; $Size_{i,t}$: Size of the company i during the period t (logarithm of total assets); $MEDLEV_{i,t}$: Industry capital structure for the company i during the period t ; $Infl_{i,t}$: Inflation rate of the company i during the period t (percentage of changes in consumer price index) (Aflatouni and Nikbakht, 2017).

To confirm the first hypothesis, α_2 should be significant. If with a high credit rating (at the investment level), the leverage ratio decreases, α_2 is negative; otherwise, it is positive. To approve the second hypothesis, α_3 should be significant. If firms rated at the speculative level (poor credit rating) have greater adjustment speed compared to companies rated at the investment level (high credit rating), α_3 is positive; otherwise, it is negative.

3.3. Independent Variable

3.3.1. Credit Rating

In this study, to evaluate the credit rating, the emerging market score should first be measured by the following model (She'ri *et al.*, 2017),

$$EMS = 3.20 + 6.06X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

In this equation:

X_1 : Working capital to total assets ratio; X_2 : Accumulated profits to total assets ratio; X_3 : Profit before interest and taxes to total assets ratio; X_4 : Total book value of equity to the book value of debt ratio.

After calculating the emerging market score, its equivalent credit rating is obtained using the following table:

Table-1. Credit Rating Measurement

Rated Levels Of Companies	Emerging Market Score	Equivalent Credit Rating
Good investment level (financial health area)	≥ 8.15	AAA
	7.60-8.15	AA+
	7.30-7.60	AA
	7.00-7.30	AA-
	6.85-7.00	A+
	6.60-6.85	A
	6.40-6.60	A-
	6.25-6.40	BBB+
	5.85-6.25	BBB
Low investment level (uncertainty area)	5.65-5.85	BBB-
	5.25-5.65	BB+
	4.95-5.25	BB
	4.75-4.95	BB-
	4.50-4.75	B+
	4.15-4.50	B
Speculative level (financial distress area)	3.75-4.15	B-
	3.20-3.75	CCC+
	2.50-3.20	CCC
	1.75-2.50	CCC-
	≤ 1.75	D

Credit rating index, following the study by She'ri *et al.* (2017), is a dummy and hidden variable which shows the score assigned to the credit rating. The value of this variable is 7 for companies rated AAA, 6 for companies with AA+, AA or AA- ratings, 5 for companies with A+, A or A- ratings, 4 for companies with BBB+, BBB or BBB- ratings, 3 for companies with BB+, BB or BB- ratings, 2 for companies rated B+, B or B- and 1 for companies within the financial distress area (speculative level) (CCC+, CCC or CCC- or D ratings).

It should be noted that companies with score 1 are the companies rated at the speculative level (financial distress area). Companies with scores 2 and 3 are the companies rated at a low investment level (uncertainty area). Companies scored 4, 5, 6 and 7 are the companies rated at the level of good investment (financial health area).

3.4. Dependent Variables

3.4.1. Capital Structure

Following the study by Wojewodzki *et al.* (2018), this variable can be measured through long-term debt to market value of total assets ratio (market leverage).

3.5. Adjustment Speed to Reach the Optimal Level of Capital Structure

To measure the adjustment speed to reach the optimal level of capital structure, following the research by Aflatouni and Nikbakht (2017), partial adjustment model is used. In this approach, it is assumed that corporate capital structure adjustment follows the dynamic process below:

$$\text{Equation (1)} \quad CS_{i,t} - CS_{i,t-1} = \lambda(CS_{i,t}^* - CS_{i,t-1}) + \delta_{i,t}$$

In this equation:

$CS_{i,t-1}$: Actual capital structure ratio of the company i during the period t (long-term debt to market value of total assets ratio); $CS_{i,t}^*$: Optimal capital structure ratio of the company i during the period t; λ : A number that represents capital structure adjustment speed.

If the optimal capital structure is itself a function of other variables (such as X) (i.e. $CS_{i,t}^* = \beta X_{i,t}$), by replacing the last relationship in equation (1), equation (2) is obtained:

$$\text{Equation (2)} \quad CS_{i,t} = (1 - \lambda)(CS_{i,t-1}) + (\lambda\beta)X_{i,t} + \delta_{i,t}$$

With the calculation of equation (2), it is possible to estimate the capital structure adjustment speed (i.e. λ).

The symbol $X_{i,t}$ comprises six variables, which has been explained in the previous section.

4. Results

4.1. Descriptive Statistics

As shown in Table (2), descriptive statistics include mean, median, minimum, maximum, standard deviation, skewness and kurtosis, which are the most famous and at the same time most widely used indicators of descriptive statistics. Mean represents the average data. Skewness and kurtosis indicate data symmetry and show their status relative to the normal distribution. In the descriptive statistics table of this research, the mean, minimum, maximum and standard deviation have been calculated as follows:

Table-2. Descriptive Statistics of the Model Variables

Variables	Mean	Maximum	Minimum	SD
Credit rating	4.2524	7	1	2.26381
Actual capital structure ratio	0.0528	0.59	0	0.07141
Industry capital structure (MEDLEV)	0.6297	2	0.18	0.15975
Corporate size	6.1746	8.32	4.5	0.68254
Growth opportunity (MTB)	2.4909	18.9	-14.73	2.12269
Profitability (EBIT)	0.1379	0.67	-0.4	0.15161
Tangible assets to total assets ratio	0.257	0.85	0	0.18078
Inflation rate	0.2133	0.52	0.03	0.16387
Capital structure (EMS)	6.6065	23.64	-9.81	3.54848

The main central index is mean, which represents the balance point and distribution gravity center and is a good indicator to show data centrality. For example, the average value for corporate size is equal to 6.1746, which suggests that most data are centered around this point. Dispersion parameters are criteria for determining the degree of dispersion from each other or their dispersion relative to the mean. Among the most important dispersion parameters is standard deviation. Among the variables, actual capital structure ratio has the lowest standard deviation and the variable of capital structure has the highest dispersion.

Table-3. Credit Rating Frequency

Level and Score	Number	Percentage	Correct Percentage	Total Percentage
Financial distress 1	138	16.7	16.7	16.7
Financial uncertainty 2	96	11.6	11.6	28.3
Financial uncertainty 3	129	15.6	15.6	43.8
Financial health 4	81	9.8	9.8	53.6
Financial health 5	60	7.2	7.2	60.9
Financial health 6	88	10.6	10.6	71.5
Financial health 7	236	28.5	28.5	100.0
Total	828	100.0	100.0	

As can be observed in Table (3), the highest frequency is related to score 7 of the credit rating, embracing 236 samples. This number accounts for 28.5% of the statistical population.

Given that the data used in this research is of a combined type (year-company) and the combined data is in the form of panel and integrated data, F Limer test was employed to choose between panel and integrated data methods in model estimation. Further, to choose between fixed and random effects models, Hausman test has been applied. A summary of F Limer test and Hausman test results is provided in Table (4).

Table-4. F Limer test and Hausman test Results

Model	F Limer test			Hausman test		
	Statistic value	Probability	Result	Statistic value χ^2	Probability	Result
1	2.326	0.000	Panel	237.493	0.000	Fixed effects method

As can be seen in Table (4), the statistic probability related to F Limer test of the first research model is lower than 0.05. Thus, the panel data method is accepted. In addition, results of Table (4) indicate that in the first research model, fixed effects method should be employed. A summary of autocorrelation test and heterogeneity of variance test results is presented in Table (5).

Table-5. Results of Autocorrelation and Heterogeneity of Variance Tests

Model	Breusch-Pagan-Godfrey test to examine the heterogeneity of variance			Durbin-Watson test to examine autocorrelation	
	Statistic value	Probability	Result	Statistic value	Result
1	26.2386	0.0000	Heterogeneity of variance	2.2352	Lack of autocorrelation

Considering Table (5), the statistic probability obtained for the non-heterogeneity of variance test for the first research model is equal to 0.000, which is less than the error level of 0.05. This suggests the existence of heterogeneity of variance. To eliminate the heterogeneity of variance, the generalized least squares (GLS) method has been used. Moreover, Durbin-Watson test results indicate lack of autocorrelation.

According to Table (6), to test the overall significance of the model, F statistic has been used and to test the significance of the regression coefficients, t statistic has been applied. With regard to the regression model related to the first and second hypotheses, if t statistic probability for the variable $Rating_{i,t}$, $Rating * CS_{i,t}$ is lower than the error level of 0.05, first and second hypotheses are confirmed.

Table-6. Results of Data Analysis to Test the Research Hypotheses

Variables	Coefficients	Standard Error	T Statistic	Significance
Y Intercept	0.272108	0.022969	11.84680	0.0000
Actual capital structure ratio of the previous period	0.378162	0.047007	8.044851	0.0000
Credit rating of the previous period	-0.000280	0.000395	-0.708473	0.4790
Ratio of actual capital structure of the previous period to the credit rating of the previous period	-0.023255	0.009634	-2.413852	0.0161
Profitability (EBIT)	-0.013942	0.004391	-3.175280	0.0016
Growth opportunity (MTB)	-0.000549	0.000230	-2.387175	0.0173
Tangible assets to total assets ratio	0.012541	0.006505	1.927911	0.0544
Corporate size	-0.038364	0.003466	-11.06822	0.0000
Industry capital structure (MEDLEV)	0.009431	0.009473	0.995606	0.3199
Inflation rate	-0.016245	0.002375	-6.838768	0.0000
The coefficient of determination	0.8922	Adjusted coefficient of determination		0.8632
F statistic	30.7834	F statistic significance		0.0000

Considering the probability value obtained for F statistic which is lower than 0.05, it is demonstrated that this model is significant at a 95% confidence level. The coefficient of determination of the model is 0.8922, which displays that 89.22% of the changes in the dependent variable (capital structure) have been explained by the independent and control variables.

Based on Table (6), the credit rating coefficient is equal to -0.0002, which is negative and t statistic probability for the variable of credit rating has been reported to be 0.4790. This probability value is greater than the error level of 0.05. Therefore, there is no significant relationship between the credit rating of the previous period and capital structure. As a result, the first research hypothesis is rejected at a 95% confidence level. As to the second hypothesis, according to Table (6), $RATING*CS(-1)$ coefficient is equal to -0.0232, which is negative and t statistic probability for the variable of $RATING*CS(-1)$ has been estimated to be 0.0161. This probability value is lower than the error level of 0.05. Hence, there is a significant relationship between credit rating and adjustment speed to reach the optimal level of capital structure. Consequently, the second research hypothesis is accepted at a 95% confidence level.

5. Discussion

Until a decade ago, the effect of credit ratings on firms' capital structure was generally neglected in empirical research. Since then, studies on the relationship between credit ratings and firms' leverage policies in the US market have mushroomed. Although the importance of credit ratings on firms' capital structure has been amply documented, the rapidly growing literature on differences in corporate capital structure across countries continues to neglect credit ratings from the list of determinants. To the best of our knowledge, only one study (Huang and Shen, 2015) investigates the effect of changes in credit ratings on firms' capital structure and the speed with which they adjust to an optimal level of leverage in an international context. We try to fill this gap by examining the role of credit ratings, especially the rating level, on both firms' capital structure and the speed of adjustment.

Until recently, the impact of credit ratings on capital structure across countries has been relatively neglected. Our paper extends prior research by investigating the role of credit ratings on firms' capital structures and their speed of adjustment in companies accepted in Tehran Stock Exchange.

6. Conclusion and Suggestions

The research findings about the first hypothesis show that no significant relationship exists between the credit rating of the previous period and capital structure. Further, the research results on the second hypothesis indicate that there is a significant negative relationship between credit ratings and adjustment speed to reach the optimal level of capital structure. The research findings concerning the first hypothesis are inconsistent with the results obtained by Wojewodzki *et al.* (2018). But the findings regarding the second hypothesis are consistent with results of the study by Wojewodzki *et al.* (2018). They proved that in countries with greater market orientation in the financial system, the effect of credit ratings on corporate capital structure is more prominent and companies with weaker credit ratings have higher adjustment speed to reach the optimal level of capital structure.

In this research, the following practical suggestions can be provided to guide future studies of researchers in the field of accounting:

- 1- Performing a research similar to the present study at the level of banks, investment companies and insurance and leasing companies and comparing the results with the findings of this research.
- 2- Conducting a study similar to the above research at the level of large industries in the stock exchange market and comparing the results with the findings of the present study.

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