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Research Paper

Leader-Follower Relationship in Determining the Capital Structure[1]

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INTRODUCTION

In recent years, significant attention has been devoted to the field of behavioral finance, particularly in the area of herd behavior. Capital structure is also a contentious topic in corporate finance. In the financial literature, diverse perspectives shape capital structure theories, yet research related to each of these perspectives provides us with conflicting results. Bilgehan (2014) argues that the common ground among these various approaches concerning capital structure is the hypothesis that financial market participants, such as investors and managers, make rational decisions. However, in recent years, the human factor has been studied in the field of capital structure to better understand the source of financial decisions. For instance, Baker et al. (2004) conducted research on the role of human factors, such as manager behaviors like optimism, overconfidence, and herding, in explaining financing decisions, which indicates that the classic behavioral hypothesis of rationality in capital structure theories should be re-evaluated with behavioral finance hypotheses (Brendea & Pop, 2019). Furthermore, Camara (2017) highlights the importance of identifying the optimal financial mix in various capital structure studies. Hence, it is essential to comprehend the impact of the industry on the financing decision-making process, particularly in light of herd behavior. Additionally, it has been shown that changes in capital structure during

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periods of macroeconomic development may result from herd behavior, leading to significant variations in the cost of issuing debt and shares. This study aims to examine companies' conformity with industry leaders in determining the capital structure composition of companies listed on the Tehran Stock Exchange using the Cross-Sectional Absolute Dispersion (CSAD) method. Consequently, the leader-follower relationship in the capital structure of twelve different industries, as well as the form of market growth and decline, will be investigated. This research is distinct from previous studies in that it investigates the cross-sectional absolute dispersion method, herd behavior, and the leader-follower relationship in financing decisions among various industries and under different economic market conditions.

MATERIALS AND METHODS

The investigated companies in each industry are divided into three independent groups based on their profitability growth, profitability rate, and market share, ranging from the highest to the lowest. To identify the industry leader in each year, the companies in the upper third of the category with the highest amount of the mentioned criteria are called leader companies, and the companies in the lower two-thirds of each category are called follower companies (Leary & Roberts, 2014). The Cross-Sectional Absolute Dispersion (CSAD) is used to measure the leader-follower behavior, which refers to follower herd behavior towards the industry leader. To calculate the Cross-Sectional Absolute Dispersion, the capital structure criterion (CS) of all investigated companies (both leader and follower) is calculated using equation (1):

$$CS_{it} = D_{it}/\sum(D_{it}, E_{it}) \qquad \text{Equation (1)}$$

In this equation, CS is the company's annual capital structure, D is debt and E is the market value of equity. According to CS obtained from equation (1), CSAD is calculated using equation (2):

$$CSAD_t = \frac{1}{N}\sum_{i=1}^{N}\left|CS_{i,t} - CS_{IndLead,t}\right| \qquad \text{Equation (2)}$$

In the above equation, N is the number of companies in the investigated industry, CSi, t is the capital structure of company i at time t, and CSIndLead,t is the capital structure of the industry leader at time t. After calculating CSADt for each year, to examine the leader-follower relationship in the industry, regression equation (3) is estimated in each industry:

$$CSAD_t = \lambda_0 + \lambda_1 CS_{IndLead,t} + \lambda_2 CS^2_{IndLead,t} + \varepsilon_t \qquad \text{Equation (3)}$$

In equation (3), CSADt is the measure of capital structure dispersion, and CSIndLead, t on the right side of the equation shows the asymmetric behavior of the company in different financing conditions. The leader-follower relationship in this research is demonstrated by the non-linear relationship between the capital structure of companies and the capital structure of the industry leader. The non-linear relationship between the dispersion of the capital structure and the capital structure of the industry leader indicates the superior position of the industry leader in obtaining more favorable

financing opportunities. This implies that CSAD is expected to decrease or increase at a decreasing rate compared to the industry leader's capital structure. As the financing environment of the company is influenced by the general conditions of the economy, it is expected that the leader-follower relationship is asymmetric in economic conditions of growth and decline (Camara, 2017). Therefore, to determine the leader-follower relationship in different economic conditions of the market, equation (4) is estimated in the investigated industry:

$$CSAD_t = \lambda_0 + \lambda_1(1 - E)CS_{IndLead,t} + \lambda_2 E\, CS_{IndLead,t} + \lambda_3 (1 - E)CS^2_{IndLead,t} + \lambda_4 E\, CS^2_{IndLead,t} + \varepsilon_t \quad \text{Equation (4)}$$

E in equation (4) is equal to one when the market declines and is equal to zero when the market is growing. A negative and significant λ3 indicates the leader-follower relationship in a growing market and a negative and significant λ4 indicates a leader-follower relationship in a declining market.

RESULTS AND DISCUSSION

Table (1) presents the industries that exhibit a leader-follower relationship based on the criteria for determining the industry leader. The significance of the leader-follower relationship in the studied industries indicates a decrease in dispersion, or at the very least, an increase at a decreasing rate or to a lesser extent than the capital structure of the industry leader. This suggests that during the period under study, a leader-follower relationship existed in the industry, and the capital structure of the companies in the industry approached that of the industry leader. Consequently, it can be said that the management behavior of the companies in the industry followed the behavior of the manager of the leading company in the industry.

Table 1. follower relationship in the industires-leader.

Criteria for determining the industry leader	Industry
Profitability Growth	And Machinery Equipment
	Cement Lime Gypsum
Profitabiltiy Rate	Non-Metallic Mineral
	Cement Lime Gypsum
Market Share	Automobiles and Parts

Source: Research Findings

Table (2) displays the industries with a leader-follower relationship during periods of economic growth and decline. The profitability rate is the criterion that has the most industries with a leader-follower relationship. One important observation is the chemical industry's presence in all three criteria for determining the industry leader, during both economic growth and decline.

Tabe 2. of the market follower relationship in the industries, defferent economic conditions-leader.

Criteria for determining the industry leader	Industry	Economic Growth	Economic Decline
Profitability Growth	Pharmaceutical	✗	✔
	Basic Metals	✔	✔
	Chemical	✔	✔
	Cement Lime Gypsum	✔	✗
Profitability Rate	Automobiles and Parts	✔	✗
	Food other than Sugar	✔	✔
	Chemical	✔	✔
	Non-Metallic Mineral	✔	✔
	Electrical Appliances	✔	✗
	Cement Lime Gypsum	✔	✔
Market Share	Basic Metals	✔	✔
	Chemical	✔	✔
	Rubber and Plastic	✔	✗
	Electrical Appliances	✔	✗

Source: Research Findings

CONCLUSION

The results of the study indicate that herd behavior among companies in following the industry leader is one of the factors determining the capital structure. In other words, industry managers tend to disregard their preferences and instead follow the behavior of the industry leader. This behavior can be seen as a result of the industry leader company having more experience, governance, and power compared to other companies in the industry. However, following the capital structure of the industry leader may lead companies away from their optimal capital structure, thereby hindering their ability to maximize their value. Additionally, following the capital structure of the industry leader may also be related to the risk-taking behavior of managers in following companies due to the cost of regret associated with participating in in-group behavior (Camara, 2017).

Because different criteria are used to classify companies in sectors and industries on different stock exchanges, it is not possible to compare the results of this research with similar studies conducted in other countries. However, Camara (2017) observed the leader-follower relationship only in the production industry and in booming markets (bulls) in his study of four wholesale industries, production, service, and construction. Furthermore, the research findings are consistent with the results of Brendea and Pop (2019) regarding the importance of following a specific criterion in determining the capital structure.

The company's executive management, financial management, and investors should consider the composition of the industry leader's capital structure as a critical factor in determining the company's capital structure. Combining the capital structure as an essential part of calculating the weighted average cost of capital of the company is crucial in evaluating investment projects and calculating the value of companies. Furthermore, economic market conditions should be considered in analyzing different evaluation and investment scenarios. Finally, the management of the company should act in the company's best interests and avoid repeating the path taken by other companies as the leader companies or other companies may have different conditions compared to the mentioned company. To achieve optimal performance, the composition of the company's capital structure should be based on the conditions of the company, industry, and economy.

For future research, it is recommended to use other appropriate statistical and functional criteria to determine the industry leader and examine the leader-follower relationship in determining the composition of the capital structure in different

industries. Additionally, examining the leader-follower relationship in the context of business cycles can be a subject of further research.

Keywords: Behavioral Finance; Capital Structure; Leader-Follower Relationship.
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