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Research Paper

Investigating the Effect of Price Acceleration in Tehran Stock Exchange based on Risk and Under Reaction[1]

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INTRODUCTION

The purpose of this research is to investigate the impact of price acceleration on the Tehran Stock Exchange. The study utilizes data from 60 companies listed on the stock exchange over a 10-year period (2012-2021) and employs the time series data method to test the regression model. The hypotheses of the research are examined in both boom and recession periods. To assess the risk factor, the five-factor model proposed by Fama and French is employed to elucidate the effect of price acceleration. The findings indicate that this model fails to explain the impact of price acceleration, a result that remains consistent in both boom and recession periods, despite exhibiting higher explanatory power during the boom. In the investigation of the second hypothesis, the five-factor model is extended by introducing the profit acceleration factor to assess its ability to explain the effect of price acceleration. The results of the hypothesis test reveal that the 6-factor model lacks sufficient capability to explain the

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impact of price acceleration. This outcome persists even in the examination of events such as a downward trend in profit acceleration, where the reaction to profit news is less evident. These results remain valid in both boom and recession periods. However, it is noteworthy that the second hypothesis is confirmed in the j6k12 strategy during both periods. In this strategy, profit acceleration emerges as a viable behavioral factor to explain the effect of price acceleration, as evidenced by a model with an explanatory power of up to 59% upon the addition of this factor.

MATERIALS AND METHODS

In terms of its purpose, this research is practical, and regarding the method of data collection, it is descriptive. The study utilizes correlation and regression analysis to observe and investigate the impact of independent variables on the dependent variable. Additionally, it is post-event in nature, where the researcher explores potential causes that may influence the dependent variable. Regression analysis is employed to either confirm or reject the research hypotheses. The time series data from the Tehran Stock Exchange is examined using Eviews version 10 software, encompassing the complete dataset of 60 companies listed on the stock exchange.

To gather information, the research employs library research methods, consulting articles and theses available on various platforms such as the Giga Digital Library, Iran Information Science and Technology Research Institute (Irandoc), Science Direct, etc. Financial information related to securities is collected by referring to websites like the Financial Information Processing Center site (Fipiran), Tehran Stock Exchange site, Kodal, and others.

RESULTS AND DISCUSSION

In the examination of the first hypothesis, upon analyzing the initial results, it was observed that in the three strategies (J6K12, J12K6, and J12K12), the independent variable of market surplus return is significant at the 95% confidence level. Only in the J12K12 strategy, the independent variable of profitability factor return is significant at the 95% confidence level. Additionally, in all strategies, the width from the origin is significant at the 95% confidence level. However, in strategies where one or two independent variables are significant, they contribute to a higher coefficient of determination for the model. Based on the results mentioned above, it is concluded that in the first hypothesis, the null hypothesis (H_0) is confirmed, and the alternative hypothesis (H_1), which posits the ability of Fama and French's five-factor risk model to explain the effect of price acceleration, is rejected.

In the analysis of the results obtained for the boom period, it was observed that the market excess return factor exhibits the ability to explain the effect of price acceleration. However, in the recession period, only in the J6K6 strategy, the t-statistic of the width from the origin is not significant at the 95% confidence level, while the

independent variable of market excess return is significant at this level. Consequently, the first hypothesis can only be confirmed in this specific strategy, although the model's explanatory power remains low. Based on the results outlined for the first hypothesis, it can be inferred that there may be unknown risk factors that, if added to the model, could enhance its explanatory and meaningful levels.

In the second hypothesis, aimed at testing under-reaction in the model, the profit acceleration factor (PMN) was introduced as the under-reaction factor. It was observed that in all strategies, the probability value of the t-statistic for the profit acceleration factor is significant at the 95% confidence level. However, for the return variable, the profit acceleration factor is not significant only in the J6K6 strategy. Therefore, it can be concluded that while the significant condition of the profit acceleration factor coefficient is confirmed, and the width coefficient is significant away from the origin, the null hypothesis is confirmed, and the alternative hypothesis is rejected. This suggests that PMN, as a factor of profit acceleration and a behavioral factor, is not suitable for explaining the effect of price acceleration.

Finally, to assess under-reaction during both boom and recession periods, the profit acceleration factor (PMN) was incorporated into the model as the under-reaction factor. In both periods, it was observed that in the J6K12 strategy, the probability value of the t-statistic at the 95% confidence level is not significant for the width from the origin. However, it is significant for the return variable of the profit acceleration factor. Consequently, only in this strategy, the profit acceleration factor (PMN) is deemed suitable for explaining the effect of price acceleration during both boom and recession periods. A noteworthy result from the second hypothesis over the research period's boom and recession is that out of the four strategies, only one exhibits a positive and significant relationship between the systematic component of profit acceleration and price acceleration. In the remaining strategies, there is no significant relationship between profit acceleration and price acceleration.

CONCLUSION

Although Fama and French's five-factor risk model and the PMN factor did not exhibit sufficient ability to explain the price acceleration effect, it cannot be decisively rejected that the price acceleration effect is either risk-oriented or behavior-oriented. Examining the hypotheses in two periods of boom and recession reveals that the first hypothesis will still be rejected, but it yields better coefficients of determination.

Furthermore, in the examination of the second hypothesis during both boom and recession periods, it was observed that the second hypothesis becomes significant in the J6K12 strategy. On the other hand, the theory that the price acceleration effect may result from higher risks is plausible. The non-attribution of the additional return of the price acceleration to the risk factors is attributed to the risk adjustment method, and there may be other risk factors with better ability to explain the effect of price

acceleration, which are not currently included in the model. Consequently, it can be asserted that the presence of additional factors and the integration of various risk and behavior models can yield different results and enhance the explanatory power of the model.

Keywords: Effect of Price Acceleration, Profit Acceleration, Efficient Market Hypothesis, Risk, Under Reaction.

JEL Classification: G10, G11, G14.