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# The test of the effect of speculative price bubble and financial leverage on the real rate of return of manufacturing companies admitted to the Tehran Stock Exchange

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### Original Research

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### Abstract:

The main objective of this research is to examine the impact of speculative price bubbles and financial leverage on the real return rate of manufacturing companies listed on the Tehran Stock Exchange during the period of 2023-2019, employing a panel data econometric approach. To this end, the theoretical foundations and literature review are presented first, followed by the specification and estimation of the research model, which is conducted using relevant diagnostic tests and the fixed effects method. The estimation results indicate a significant positive relationship between the independent variables (the actual cash dividend in the previous period, which represents a rational speculative price bubble in the research model, and the financial leverage variable) and the real return rate of the selected sample. Specifically, the first hypothesis of the study, which posits that rational speculative price bubbles significantly influence the real return rate of manufacturing companies listed on the Tehran Stock Exchange, was confirmed. Additionally, the second hypothesis, stating that financial leverage significantly impacts the real return rate of the selected sample, was also validated. Finally, recommendations based on the research findings are presented to mitigate the effects of speculative price bubbles and to enhance the impact of financial leverage on the real return rate of the selected sample.

**Keywords:** Speculative Price Bubbles, Financial Leverage, Real Return Rate, Manufacturing Companies.

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## Introduction

The topic of price bubbles and speculation in financial markets is one of the prominent subjects in financial economics, significantly affecting asset pricing and corporate returns. A price bubble occurs when the price of an asset rises above its intrinsic value, leading to unusual price fluctuations in the market. In this context, speculation refers to activities aimed at profiting from price volatility, potentially impacting market stability and efficiency. Various studies have demonstrated that the presence of price bubbles may be associated with unexpected returns and increased risks for investors (Behera et al., 2024). Furthermore, financial leverage is a key factor influencing

corporate returns. Financial leverage refers to the use of debt to finance a company's operations, which can enhance investment returns but simultaneously introduces greater risk. According to (Paramita et al., 2021), companies with high levels of financial leverage are more vulnerable to market fluctuations, particularly under external factors such as price bubbles. Ultimately, the relationship between price bubbles, speculation, and financial leverage with companies' real returns highlights the complexities in financial analysis. This relationship is especially pronounced in volatile markets like the Tehran Stock Exchange. Recent studies have indicated that in manufacturing firms, the use of financial leverage under conditions of price bubbles can have diverse effects on real returns (Kuo & Chen, 2023).

## Theoretical foundations

### Stock Returns

Stock returns are a significant criterion in financial decision-making and refer to the profit and price changes of a stock. In calculating stock returns, price changes resulting from capital increases or stock dividends are excluded from the formula. Stock returns are expressed as a percentage. (Ziabari et al., 2021).

### Speculative Bubbles

Refer to situations where stock prices deviate from their fundamental values without labeling investors' behavior as non-speculative. In speculative bubbles, investors remain in the market despite being fully aware that market prices exceed fundamental values, as they believe the bubble will likely continue to grow. Moreover, Taylor and colleagues suggested that rational bubbles imply that stock prices and dividends should not be cointegrated. The economic concept of cointegration implies that two or more time-series variables are theoretically linked to form a long-term equilibrium relationship. While these time series might individually follow a random trend (non-stationary), they closely track each other over time, such that their differences remain stationary.

### Financial Leverage (Leverage)

Refers to the ratio of total liabilities to total assets of a company. It plays a crucial role in financing, as it enables companies to use borrowed funds to invest in operations and expansion opportunities without immediately diluting equity. By leveraging debt, firms can potentially enhance returns on equity, provided the returns on investments exceed the cost of borrowing. However, excessive leverage increases financial risk, making companies more vulnerable to market fluctuations and economic downturns. (Aliyari et al., 2022)

### Retained Earnings:

In accounting refers to the portion of a corporation's profits that is not distributed to shareholders as dividends but is instead retained by the company for reinvestment in its core operations or to pay down debt. Retained earnings are recorded on the left side of the balance sheet under the equity section. It is calculated by adding net income or subtracting net losses to the retained earnings at the beginning of the period, minus dividends paid to shareholders. This independent variable is incorporated into the model based on the second criterion of the theory of constraints (investment). Companies can utilize retained earnings as a source of financing for developmental projects and investments, enabling them to grow without relying solely on external funding (Boot et al., 2020).

### Company Size (Size)

This is measured as the natural logarithm of the company's total assets or the company's capital before any capital increase. Company size is an important factor in financial analysis as it often correlates with a company's stability, market power, and ability to raise funds. Larger companies

tend to have better access to capital markets and lower borrowing costs compared to smaller companies, making size an essential variable in assessing financial performance and risk.

### Cost of Capital

The cost of capital represents the required return that a company must earn on its investments to satisfy its debt holders, equity investors, and other capital providers. It is a crucial factor in financial decision-making, as it is used to evaluate investment projects and to ensure that the company is generating sufficient returns to justify its funding costs. The cost of capital is often calculated as the weighted average cost of capital (WACC), which includes the cost of both debt and equity.

□

Relation to Stock Returns: The cost of capital is influenced by accounting profits, particularly dividends, because dividends are a key component in calculating the return to equity holders. There is a direct relationship between profits (and dividends) and stock returns, suggesting that higher profits and dividends are likely to result in higher stock returns. Thus, the cost of capital influences stock return expectations, and changes in the cost of capital can affect the attractiveness of a company's stock to investors.

□ Dividend Discount Model (DDM): One of the methods for calculating the cost of equity capital is the Dividend Discount Model (DDM). The DDM values a company's stock by taking the present value of all future dividends, assuming the company will pay dividends indefinitely. The cost of capital (or required rate of return) can be derived from the DDM by rearranging the formula for the present value of dividends.

## Research background

(Ramezani et al., 2024), in their study, examined investor behavior and the impact of speculation on stock prices in the Tehran Stock Exchange. Using panel data, the research identified investors' irrational behaviors and their effects on stock prices. The results showed that speculation can lead to the formation of price bubbles and unexpected market fluctuations. The study also explored the psychological impacts on investors and their role in the creation of price bubbles, based on stock trading data and price changes between 2016 and 2019.

(Feizi et al., 2024), in their research, analyzed price bubbles in the Iranian capital market. The study examined price cycles and the identification of bubbles in the Tehran Stock Exchange using quarterly data from 2011 to 2019. By utilizing econometric models, the researchers investigated the factors influencing the formation of price bubbles and their impact on investor returns. The findings indicated that price bubbles increase investment risks and reduce market stability. The study also offered methods for controlling price bubbles and provided recommendations for investors regarding risk identification and management in the (Ziabari et al., 2021), in their research, investigated the impact of financial leverage on stock price volatility in the Tehran Stock Exchange. The study analyzed financial

data from listed companies between 2016 and 2021, examining how leverage affects stock price fluctuations and associated risks. The results showed that financial leverage can increase stock price volatility, leading to the formation of price bubbles and a decrease in market efficiency. The study recommended that investors pay special attention to leverage and its related volatility when making investment decisions. Karimi and (Khan et al., 2021), in their study, examined the impact of price bubbles on investor behavior in the Tehran Stock Exchange. The research used survey data and interviews with investors to analyze their reactions to price bubbles. The results showed a significant impact of price bubbles on investors' decision-making and their perception of market risks. The study concluded that, in the presence of price bubbles, investors might engage in irrational buying and selling, which can increase market volatility and reduce efficiency. The research also provided risk management strategies for investors during price bubble conditions. (Rubin et al., 2025), in their study, investigated the impact of speculation on stock prices and the formation of price bubbles in the Tehran Stock Exchange. Using historical data and econometric methods, the researchers identified pricing patterns and the impact of speculation on stock prices. The results indicated a significant relationship between speculative activities and the creation of price bubbles. Furthermore, the study found that speculation can lead to unexpected price fluctuations and decreased financial stability in the market. The research explored the economic effects of speculation on investor behavior and how to manage the associated risks, offering suggestions for improving market conditions. (Khan et al., 2021), in their research, analyzed price bubbles and their impact on investment decisions. The results indicate that price bubbles typically lead to market instability and influence investors' decisions. The study also provides strategies for identifying and managing price bubbles, emphasizing the importance of educating investors on recognizing signs of price bubbles. Specifically, the researchers used historical experiences and market data analysis to offer patterns for identifying price bubbles, advising investors to carefully identify the strengths and weaknesses of the market. (Pernagallo, 2024), in their study, explored the role of asymmetric information in the formation of price bubbles. The results show that information asymmetry can lead to the formation of price bubbles and prompt investors to make incorrect decisions. This is especially evident in emerging markets, where greater opacity exists. The research offers solutions to reduce the negative effects of asymmetric information on financial markets. Additionally, the researchers analyzed international experiences and historical data to identify patterns of asymmetric information and its impact on investor behavior. (Kisefáková et al., 2020), in their study, examined the impact of monetary policies on price bubbles in financial markets. The results indicate that changes in monetary policies, particularly interest rates, can significantly affect the emergence of price bubbles. Specifically, when interest rates decrease, there is a greater tendency to invest in risky assets, which can lead to price

bubbles. The research also looks at the history of monetary policies and their effects on market fluctuations over time, stressing the importance of monitoring monetary policies as a tool to predict and manage price bubbles. Therefore, this study can assist economic policymakers in making appropriate decisions to prevent price bubbles and extreme market fluctuations. (Ahmad Bhat et al., 2020), in their research, analyzed price bubbles in advanced and emerging financial markets. The study emphasizes that in advanced markets, price bubbles are typically caused by institutional investors who use technical analysis and economic news to buy and sell assets, while in emerging markets, social and political factors play a more significant role in the formation of bubbles. Using empirical models and historical data, the research examined price bubble patterns across different countries. The findings suggest that a better understanding of the factors influencing the formation of price bubbles can help investors and policymakers design better strategies for managing the risks associated with bubbles. Therefore, this research is important not only for investors but also for economic authorities, as it can help mitigate the negative effects of price bubbles on the economy.

## Method and Material

This research is retrospective and correlational in terms of execution. In terms of its objective, it is applied, aiming to develop practical knowledge in a specific area. Correlational research is conducted to determine the degree of relationship between variables. For this purpose, appropriate indicators are selected based on the measurement scales of the variables. In retrospective research, the researcher (Rachlinski et al., 2011) which in this research is the actual rate of return. This means that both independent and dependent variables have occurred in the past, and their quantitative values are examined over the years 2019 to 2023.

## Result

In general, this research is based on the model by Miaowang and M.C. Sani Wang (2015), which is route:

$$r_{t+1} = \alpha_1 RD_t + \alpha_2 DD_t + \theta' X_t + u_{t+1}$$

On the other hand, in Wang's (2015) model,  $X_t$  is a vector of the main independent variables, which includes: the lagged dependent variable and the actual annual dividend variable. The price bubble indicator  $D/p_{t-1}$  represents the annual dividend, which is obtained by summing the twelve-month dividend amount (its numerical value).  $\varepsilon_{it}\varepsilon_{it}$  is the residual deviation of the actual return from the expected return based on fundamental risk and autocorrelation, and thus indicates abnormal returns. Therefore, considering the factors affecting the real return rate of selected manufacturing companies (based on conventional theories), as well as the specific variables and factors considered in this research that affect the total real stock return, the following model will be used as the main model for testing the hypotheses. The model related to this research is formulated as follows:

$$NRP_{it} = \beta_0 + \beta_1 CoC_{it} + \beta_2 D/p_{it-1} + \beta_3 OCF_{it} + \beta_4 L_{it} + \beta_5 RE_{it} + \beta_6 S_{it} + \varepsilon_{it}$$

So that:

$$NRP_{it} = \frac{RP_{it}}{A_{it}}$$

$RE_{it}$ : Retained Earnings,  $S_{it}$ : Size

$RP_{it}$ : The net profit of company i at the end of time period t

$A_{it}$ : The total assets of company i at the beginning of time period t

Financial Leverage (Cost of Capital): Based on the system's performance criterion, it enters the system according to the Theory of Constraints. According to the following relationship, which reflects the inclusion of accounting profit distribution in the calculation of financial leverage, and the direct relationship between profit and stock returns, it is expected that the effect of this variable on the actual return rate of the selected manufacturing companies will be positive. One of the approaches to calculate the cost of common equity capital is the dividend discount model. In this method, the cost of existing common equity will be calculated using the following formula:

$$K_e = \frac{D_0(1+g)}{P_0} + g$$

$K_e$ : The expected dividend growth rate.

$D_0(1+g)$ : The expected dividend to be paid at the end of the first year.

$P_0$ : The current market price of the company's common stock.

$g$ : The expected dividend growth rate.

$Dps_{it-1}$ : The actual cash dividend in a previous period: This ratio represents the market's expectations regarding the future profitability outlook of the company. It is known that the cash dividend is a percentage of the predicted earnings per share, which is reflected in the P/E ratio. On the other hand, to calculate the P/E ratio, the current market price of the company's stock is divided by the forecasted net income. It is a continuous variable, and for designing the model, the P/E ratio of each share compared to the previous year before the bubble occurrence has been used. (The variable measuring the price bubble based on the studies reviewed in the literature and the foundational article; Wang model, 2015).

### Qualitative data analysis

For all the variables in the study, tests for stationarity, normality, and multicollinearity were conducted, and the results of these pre-tests confirmed the validity of the assumptions. Specifically, the stationarity tests indicated

that there were no unit roots in the data, the normality test showed that the data followed a normal distribution, and the multicollinearity test did not identify any severe multicollinearity issues between the variables. This demonstrates the reliability and robustness of the model and the data used in the study. For testing the hypotheses, the estimation method related to each hypothesis is estimated under different conditions, and in each case, by conducting the relevant tests, the optimal estimation method is selected. All analyses and tests are then performed based on the chosen method.

The F-Limer test (pooled or fixed effects method) for the research model:

As shown in Table (1), the p-value is less than 0.05, and the calculated F-Limer statistic is significant. Therefore, the null hypothesis stating that the data are pooled is rejected, and the alternative hypothesis, which indicates the suitability of the Fixed Effects (FE) method for estimating the model, is accepted.

### Hausman Test (Fixed Effects or Random Effects) for the Research Model:

The results of this test are presented in the table below. As shown in Table (2),  $prob < 0.05$ . Therefore, the null hypothesis ( $H_0$ ) is rejected, and the fixed effects approach is considered the preferred method for estimating the research model.

### Estimation of the research model (Fixed Effects method for testing the research hypotheses):

Table (3) presents the results of the model estimation for the years 2019-2023. Based on the results of the model estimation, it is evident that, considering the positive sign for all the coefficients of the model's variables and a p-value less than 0.05, it can be concluded that the variables OCF (Operating Cash Flow), L (Leverage), RE (Retained Earnings), S (Size of the company), and the variable DPt-1, representing the speculative bubble or the actual cash dividend in a previous period (denoted as DP in the working file), have a positive and significant impact on the dependent variable, the real return rate (NRP) of the selected manufacturing companies.

A more comprehensive interpretation of the impact and significance test of the variables in the research model (for testing the first hypothesis) can be provided by analyzing and interpreting each variable as follows:

### First Hypothesis Test

The variable (D/p)it-1, or the real dividend per share in the previous period, represented as DP in the research model, reflects the market's expectations of the future profitability growth of the company and serves as the measure of the price bubble (according to the model of Yang and MC Yang, 2015). Furthermore, based on previous studies, it is known that the balanced form of speculative trading helps adjust supply and demand and provides liquidity, whereas its undesirable form leads to dissatisfaction among traders and investors, as well as the creation of price bubbles and severe price fluctuations, resulting in abnormal returns. For the DP variable (the ratio of dividends to price in

**Table 1.** Summary of the F-Limer Test Method

Prob	D.f	F
0.000	(6)	22.521

Source: Research findings

**Table 2.** Hausman Test (Fixed Effects or Random Effects)

Prob	D.f	F
0.003	(6)	4.032

Source: Research findings

**Table 3.** Results of the model estimation for testing the first hypothesis of the research.

Prob	T Statistic	Coefficient	Variable
0.0000	3.32514	0.031254	C
0.0000	3.95214	0.084514	OCF
0.0000	5.02145	0.063251	L
0.0000	2.36254	1.362514	RE
0.0000	4.25471	1.635412	S
0.0001	3.21457	1.084512	DP
Prob= 0.000	1.83=DW	Adjusted R <sup>2</sup> = 0.95	

"Source: Research findings

\*Significance level 5 percent."

the previous period or the price bubble indicator), it is observed that its coefficient is positive and statistically significant (with a probability of 0.0000). Specifically, a one-unit increase in DP leads to an increase of 1.084 in the real return rate of the selected manufacturing companies. Therefore, based on the positive and statistically significant effect of the price bubble indicator in the research model, the result of testing this hypothesis confirms the first hypothesis.

### Second Hypothesis Test

The financial leverage variable (L), based on the first criterion of the theory of constraints (system performance), is incorporated into the model. The result, which is also confirmed in this research model, shows that for the variable L (financial leverage), the sign of its coefficient is positive and statistically significant (prob < 0.05). For this variable, a one-unit increase in L leads to approximately a 0.063-unit increase in the real return rate of selected manufacturing companies. Furthermore, the result of the significance test of this variable's impact on the model fit of this research is consistent with the findings of Wang and MC Wang (2015).

### Analysis of Control Variables:

#### - Operational Cash Flow (OCF) Variable Impact:

According to Wilson (1986), the combination of accrual figures and cash flows from operations provides more informative content compared to earnings. A positive relationship exists between accruals and operational cash flow (OCF) with stock returns of companies. The

significance test of the impact of this variable in the model fitting of this research is consistent with the findings of Wang and MC Wang (2015). For the OCF variable, the estimation of the research model shows a positive coefficient of 0.084, indicating a positive impact on the real stock return rate of selected manufacturing companies, which is statistically significant (prob < 0.05).

#### - Retained Earnings (RE) Variable Impact:

Based on the computational relationship for the real stock return rate of selected manufacturing companies, it is observed that retained earnings, through the increase of capital from retained earnings (before and after the general assembly), appear with a positive sign. This increase can lead to an increase in the real return rate of selected manufacturing companies. Therefore, it is expected that in the estimation model of the research, the coefficient for this variable would be positive and statistically significant. The estimation results show that the coefficient for RE (retained earnings) is positive and statistically significant (Prob < 0.05). Moreover, the significance test of this variable's impact on the model fitting aligns with the findings of Wang and MC Wang (2015).

#### - Company Size (Size) Variable Impact:

The company size variable is another factor that has attracted attention from specialists. Since larger companies have access to cheaper financial resources, they are generally more efficient and profitable, resulting in higher stock returns. The estimation results of this research model are in line with this theoretical discussion and confirm it.

For the S (size) variable, the coefficient is positive and statistically significant (prob = 0.000). That is, a one-unit increase in size results in a 1.63 increase in the real stock return rate of selected manufacturing companies. The significance test of this variable's impact on model fitting is also consistent with the findings of Wang and MC Wang (2015). Therefore, in a broader view, the estimated coefficients of the research model are perfectly aligned with theoretical expectations, based on the foundational article and the research background. The coefficients have a positive and significant impact on the real stock return rate of selected manufacturing companies (dependent variable). Hence, Hypothesis 1, which posits that rational speculation significantly impacts the real stock return rate of selected manufacturing companies, can be accepted.

It is also worth noting that given the high F-statistic and the zero probability for the overall regression significance, it can be concluded that the model is statistically significant. The estimation results of the research model, along with the adjusted R-squared value of 95% and the Durbin-Watson (DW) statistic of 1.89, indicate a high goodness of fit for the model and no severe autocorrelation.

## Discussion and Conclusion

The results can be presented as follows:

1. For the variable DP (the ratio of cash dividends to price in the previous period or the price bubble measurement index), it is observed that the sign of its coefficient is positive and statistically significant (prob = 0.0000). Specifically, a one-unit increase in DP leads to an increase of 1.084 in the real return on equity for the selected manufacturing companies. Therefore, based on the positive and significant impact of the bubble measurement variable in this model, the result of this hypothesis test confirms the acceptance of the first hypothesis.
2. The result of the second hypothesis test for the selected manufacturing companies showed that the financial leverage (L) variable, based on the first criterion of the constraint theory (system performance), is included in the model. This result was also confirmed in the model of this research. Specifically, for the L variable (financial leverage), the sign of its coefficient is positive and statistically significant (prob < 0.05). A one-unit increase in L results in approximately a 0.063 increase in the real return on equity for the selected manufacturing companies. The significance test results of this variable in the model also align with the findings of the study by Wang and MC Wang (2015).

## Recommendations based on results

Based on the results of the study, the following recommendations are presented:

1. Considering the positive and significant impact of the DP variable on real returns, manufacturing companies should pay more attention to their dividend distribution policies. Management can attract investor confidence by setting and announcing attractive and reasonable cash

dividends, which will positively influence the companies' real returns. Therefore, establishing a cohesive strategy for regular and timely dividend distribution can help improve financial conditions and attract new investors. - Manufacturing companies should continuously monitor and analyze economic and market variables to make better decisions regarding the use of financial leverage and dividend distribution. For example, during economic recessions or periods of severe market fluctuations, it may be necessary to revise dividend distribution policies or the use of financial leverage. Additionally, market analysis and forecasting future trends can help management make better decisions to improve the company's performance.

2. The results indicate that financial leverage (L) also has a positive impact on real returns. Therefore, companies can use financial leverage wisely to obtain more resources for investment in profitable projects. However, it is crucial for management to consider the risks associated with financial leverage. Specifically, it must ensure that the debt-to-equity ratio is at a suitable level to prevent financial problems and bankruptcy. Finally, it is recommended that further research be conducted on the long-term effects of these variables on real returns. These studies could focus on different economic periods and examine factors such as changes in financial policies, market performance, and investor behavior to analyze the results more deeply. Such research can contribute to the development of more effective financial strategies and help companies perform better in more complex economic environments.

## Recommendations for future studies

Here is the translation of your suggested future research directions:

1. A study could explore the impact of psychological and behavioral factors of investors on the formation of price bubbles in financial markets. This research could use both quantitative and qualitative methods to identify behavioral patterns and decision-making processes of investors, examining the role of expectations, emotions, and collective behavior in the creation of price bubbles.
2. A research project could compare price bubbles across different financial markets (such as advanced and emerging markets). This study could investigate the factors influencing the formation of bubbles in various countries and identify common patterns and differences in this regard. By using historical data and economic models, this research could provide valuable insights for investors and policymakers.
3. Another study could examine the impact of economic policies, particularly monetary and fiscal policies, on the formation and collapse of price bubbles. This research could analyze how changes in interest rates, fiscal policies, and other economic factors influence market volatility and price bubbles. Additionally, investigating how markets react to political and economic changes could improve the understanding of financial environments and offer more effective risk management strategies.

**Authors' Contributions**

The first author (Soheil Varmazyar) contributed to the development of the theoretical framework and literature review. The second author (Akbar Bagheri) was responsible for statistical analyses. The third author (Asghar Karami) contributed to data collection, as well as the formulation of findings and recommendations. All authors reviewed and approved the final version of the manuscript.

**Availability of Data and Materials**

The datasets generated or analyzed during the current study can be obtained from the corresponding author on a reasonable request.

**Conflict of Interest**

The author affirms that there are no conflicts of interest related to this study.

## References

- Ahmad Bhat, S., Kamaiah, B., & Acharya, D. (2020). Examining the differential impact of monetary policy in India: a policy simulation approach. *Journal of Economics, Finance and Administrative Science*, 25(50), 339–362.
- Aliyari, M., Bagheri, A., & Lotfi, A. A. (2022). Evaluating the performance of Bank Melli in supporting the production of domestic goods by providing banking facilities for the purchase of goods based on the Kaplan and Norton Balanced Scorecards model. *Agricultural Marketing and Commercialization*, 6(1), 156–166.
- Behera, R. K., Bala, P. K., & Rana, N. P. (2024). Assessing the intention to adopt computational intelligence in interactive marketing. *Journal of Retailing and Consumer Services*, 78, 103765.
- Boot, A. W., Hoffmann, P., Laeven, L., & Ratnovski, L. (2020). *Financial intermediation and technology: What's old, what's new?* ECB Working Paper.
- Feizi, K., Mehrani, H., Vazifehdust, H., & Sadeh, E. (2024). Conceptualization and Design of a Digital Content Marketing Model Using Structural Equation Approach. *Agricultural Marketing and Commercialization*, 8(1), 51–69.
- Khan, K., Su, C.-W., Umar, M., & Yue, X.-G. (2021). Do crude oil price bubbles occur? *Resources Policy*, 71, 101936.
- Kisefřáková, D., Filip, P., Onuferová, E., & Valentiny, T. (2020). The impact of monetary policies on the sustainable economic and financial development in the euro area countries. *Sustainability*, 12(22), 9367.
- Kuo, Y.-F., & Chen, F.-L. (2023). The effect of interactivity of brands' marketing activities on Facebook fan pages on continuous participation intentions: An S-OR framework study. *Journal of Retailing and Consumer Services*, 74, 103446.
- Paramita, W., Nhu, H. B. C., Ngo, L. V., Tran, Q. H. M., & Gregory, G. (2021). Brand experience and consumers' social interactive engagement with brand page: An integrated-marketing perspective. *Journal of Retailing and Consumer Services*, 62, 102611.
- Pernagallo, G. (2024). Overcoming asymmetric information: A data-driven approach. In *The Elgar Companion to Information Economics* (pp. 135–153). Edward Elgar Publishing.
- Rachlinski, J. J., Guthrie, C., & Wistrich, A. J. (2011). Probable cause, probability, and hindsight. *Journal of Empirical Legal Studies*, 8, 72–98.
- Ramezani, F., Shokravi, S., & Bagheri, A. (2024). Investigating the Impact of Natural Resource Rent and Political Stability on the Environmental Degradation Index in Selected Developing Countries Using a Combined Data Approach. *Agricultural Marketing and Commercialization*, 8(1), 93–108.
- Rubin, E., Iriberry, A., & Ayaburi, E. (2025). Speculation in investment in technology firms: a trust-based perspective. *International Journal of Bank Marketing*, 43(1), 1–25.
- Ziabari, S. S., Bagheri, A., & Shokravi, S. (2021). Investigating the effect of fluctuations of economic variables affecting the profitability of IranKhodro Manufacturing Company. *Agricultural Marketing and Commercialization*, 5(2), 131–141.