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Investigating the time-varying effects of gold, crude oil, and foreign exchange markets on herd behavior in selected industries

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Abstract

The present study aims to investigate the time-varying effects of gold, crude oil, and currency markets on herding behavior of investors in selected industries of the Tehran Stock Exchange. This study is classified as applicable and causal-ex post-event research, and the required data were collected through library and documentary methods from the Tehran Stock Exchange and international sources. The time scope of the study includes the period from 2020 to 2025 to enable the analysis of investor behavior in different economic conditions and price fluctuations in global markets. The statistical population of the study includes companies listed on the Tehran Stock Exchange and the automotive, cement, and chemical products industries. The dependent variable, herding behavior of investors, is calculated using the cross-sectional absolute deviation index of returns. In order to analyze the effect of global markets; oil market returns, gold market returns, and exchange rates have been added to the model to assess the role of these variables in intensifying or weakening the collective behavior of investors in different industries. The findings show that the effect of global markets on the collective behavior of investors varies across industries and that investor behavior is not solely domestic in origin. Also, the intensity of collective behavior is different in bullish and bearish markets and cannot be generalized to the entire market. The results of the present study can help investors, industry managers, and policymakers better understand the effect of global markets on investment decisions and risk management.

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Extended Abstract

Introduction

Financial and commodity markets have always been known as the main arteries of the global economy, and their developments have widespread effects on other economic and industrial sectors. Among these markets, the gold, crude oil, and foreign exchange markets have a special place; because price changes in these three markets not only affect macroeconomic policies and government decisions, but also directly and indirectly affect the behavior of investors and economic activists (Heidari et al., 2021).

The gold market, as a support for maintaining the value of assets, has always been considered in times of economic uncertainty. Crude oil, as the most important source of energy and one of the key factors in economic and industrial growth, is considered one of the most sensitive strategic commodities in the world. On the other hand, the foreign exchange market plays a pivotal role in economic stability or instability, given its role in international exchanges and determining investment rates. Fluctuations in these markets can drastically change economic expectations and decisions and change the direction of various industries (Alamsyah, et al., 2023).

An important phenomena that has attracted the attention of financial and economic researchers in recent years is herd behavior. This behavior refers to a situation in which investors and economic activists make their decisions not based on individual and rational analysis, but under the influence of the crowd and following others. Such a tendency becomes more intense in special conditions such as severe fluctuations in global markets or financial crises and can cause the formation of price bubbles, increase systematic risk and market instability (Adnan et al., 2023).

Since the fluctuations of gold, crude oil and foreign exchange markets are dynamic and time-dependent in nature; their effects on the behavior of investors in selected industries are not constant and uniform. Rather, these effects can be intense and weak in different time periods and even strengthen or weaken herd behavior at some points. Therefore, examining the time-varying effect of these markets is of great importance; because it can provide a more accurate understanding of the interactions between global markets and domestic industries and help policymakers, investors, and industry managers to manage risk and adopt intelligent strategies. Accordingly, the present study attempts to answer this fundamental question by focusing on the temporal and dynamic nature of global markets: Can the temporal variable of gold, crude oil, and foreign exchange markets affect the herd behavior of investors in selected industries?

Theoretical foundations

Herd behavior

One of the important topics in the field of behavioral finance is the phenomenon of herd behavior. Herd behavior refers to the tendency of investors to imitate and follow the decisions of other market actors, without considering rational and individual analyses. Shiller (2000) believes that in conditions of increasing market uncertainty, investors increasingly seek to emulate the behavior of others. This can lead to the formation of price bubbles and abnormal fluctuations in financial markets. As a result, herd behavior is recognized as one of the factors affecting financial instability and systematic risk (Wang et al., 2022).

Herd behavior can be observed in fashion and following fleeting behaviors, even such simple decisions require careful research on how to make them. There is a prevailing belief among financial economists and market professionals that investors are influenced by the decisions of other investors, and this influence is called the first-mover effect. In the financial field,

herd behavior can be potentially universal and general (Patwarani et al., 2023). There are several ways to define herd behavior. In general, herd behavior can be defined as the existence of correlations among investor behavior (Filip et al., 2023). Of course, the fact that a group of investors trade similar stocks in the same direction and over the same period of time does not necessarily mean that they are influenced by others (Xing et al., 2024). Even when investors are independently influenced by information or a common factor, it can lead to unrealistic and uninformed herd trading. Therefore, a more limited definition of herding behavior may only consider transactions with correlation resulting from imitation. In other words, a more limited definition of group behavior focuses only on the correlation in transactions resulting from interaction between investors (Asim et al., 2024).

Herding behavior is the behavior of investors in the market that leads to ignoring their own predictions and beliefs about stock prices and making investment decisions based solely on the behavior of the entire market. Herding behavior has been defined as the explicit investors (Asadi et al., 2021).

Aghaei (2025) in a study titled "Empirical Analysis of Investor Herding Behavior in the Stock Market: Evidence from Different Economic and Social Conditions in Iran" examined data from 2015 to 2022 using the ordinary least squares method and quartile regression. The results showed that herd behavior is evident in most quartiles and in different market conditions; this behavior was stronger before currency fluctuations and before the outbreak of COVID-19, but has decreased or turned into the opposite behavior since then.

Chen et al. (2024) in a study titled "The Impact of Investor Sentiment on Herding and Counter-Herding Behavior in the Cryptocurrency Market" classified cryptocurrencies into clean and dirty based on energy consumption and analyzed the data based on economic news. The results indicate that positive economic news strengthens herd behavior in clean currencies and intensifies anti-herding behavior in dirty currencies.

Research Findings

The present study showed that the herd behavior of investors in the Tehran Stock Exchange is influenced by domestic factors and global markets such as foreign exchange, gold, and crude oil, and its intensity varies depending on the type of industry and market conditions. The chemical and petroleum industries were most affected by foreign markets, while the cement, basic metals, and automotive industries were less affected. Herding behavior varied during periods of market ups and downs and cannot be generalized to the entire market. The results also emphasize that digital transformation and the level of information disclosure can reduce the severity of herding behavior. Therefore, a detailed analysis of investor behavior requires a simultaneous examination of internal and external factors and the specific conditions of each industry.

Discussion and Conclusion

Achieving sustainable economic growth requires the optimal use of investment resources, and this is not possible without an efficient capital market. Understanding the decision-making process of investors and their herding behavior is of particular importance in this regard, because it shows how investors analyze information and choose their investments. The findings of the present study showed that herding behavior of investors in selected industries of the Tehran Stock Exchange is not only caused by internal factors, but also affected by global markets such as foreign exchange, gold, and crude oil. These results are consistent with previous studies; for example, Chen et al. (2024) showed that different digital currency

markets influence investor behavior in a herd-like or anti-herd manner, and the intensity of this behavior varies depending on the type of asset and market conditions.

Also, the role of global markets in the formation of investor herd behavior is consistent with the results of Ebrahimi et al. (2024) and Rostmai et al. (2022). These studies showed that oil market returns and liquidity can increase the intensity of herd behavior, and this effect varies during periods of market boom and recession. Similarly, the present study also showed that the foreign exchange market has the greatest impact on the chemical and petroleum products industries, while it has no effect on the cement, gypsum, lime, basic metals, and automotive industries.

These differences could be due to the specific market structure of each industry and the type of investors active in it; as Li et al. (2024b) showed that digital transformation and the level of information disclosure can reduce corporate herding behavior, and the severity of this behavior varies depending on internal and external conditions. Therefore, herding behavior cannot be generalized to the entire market and there is a need for analysis at the level of different industries.

Furthermore, the results of the present study confirm that herd behavior also differs in bullish and bearish markets. This finding is consistent with the evidence of Li et al. (2024a) at the global level and Chen et al. (2024) in digital currency markets; that is, external sources and market conditions can strengthen or weaken investor behavior differently during bullish and bearish periods. Overall, the present study suggests that the analysis of herd behavior should consider both internal and external factors and be conducted at the industry level to make investor and policymaker decision-making more accurate and targeted.