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# *Research on the Influence of Industry Heterogeneity on Momentum Strategy Performance*

**Yuxiao Zhang**

*School of Mathematics and Physics, Xi'an Jiaotong-Liverpool University, Suzhou, China*
*yuxiao.zhang22@student.xjtlu.edu.cn*

***Abstract.*** With the development of the financial industry and the accumulation of financial risks, the application scenario of momentum strategy has expanded from the traditional stock market to the multi-asset field, which is helpful to predict and deal with future risks. However, the effectiveness of momentum strategy varies significantly among different industries. Therefore, this paper systematically summarizes the influence mechanism and research progress of industry characteristic heterogeneity on momentum strategy performance by means of literature analysis. The research shows that high volatility and innovation-driven industries tend to show stronger momentum effect, while defensive industries are prone to reversal. At present, there are still gaps in the research, such as insufficient quantification of industry heterogeneity and limited cross-market adaptability verification. In the future, it is necessary to build an "industry-momentum" interaction model to improve the strategy robustness. This paper provides a theoretical framework and practical enlightenment for the fine application of momentum strategy in the industry.

***Keywords:*** Momentum strategy, Financial risks, Industry heterogeneity

## 1. Introduction

In the financial market, momentum strategy, as an investment method based on historical income continuity, has been widely concerned for a long time. Since Jegadeesh and Titman first systematically put forward the momentum return phenomenon, a large number of empirical studies have confirmed the effectiveness of this strategy in different markets, asset classes and time periods [1]. However, with the passage of time and the evolution of market structure, the stability and applicability of momentum strategy began to be questioned, especially in different economic environment and industry background, its performance was very different, which triggered a new round of discussion on its applicability and effectiveness. There are significant structural differences in the industry itself, such as life cycle stage, profit model, market fluctuation, information transparency and significant heterogeneity of investor behavior. Heterogeneity at the industry level is the core factor that leads to significant differences in momentum strategies among different industries and departments. In other words, momentum strategy is not universally applicable to all industries, and its performance is deeply influenced by the inherent structural characteristics of industries. Highly volatile and innovation-driven industries are more likely to form a strong trend, thus enhancing the momentum effect; Stable and defensive industries are more prone to price

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reversal or mean reversal, which leads to the weakening of momentum strategy. Systematic differences between industries make "industry heterogeneity" a key dimension to understand and optimize the performance of momentum strategy.

However, most momentum strategies at present ignore the influence of industry in the process of evaluating and building strategies, and fail to take them into account systematically and in detail when building models. Mainstream quantitative research often adopts industry neutrality or introduces industry dummy variables to control industry effect when constructing factors such as value, quality and volatility, but the research and application of momentum strategy is relatively backward in this respect. This momentum construction method lacks industry consideration and may introduce structural bias in cross-industry strategic comparison. Some momentum growth does not come from the continuation of individual stock trends, but from the excellent short-term performance of the whole industry. When the industry rotation is fierce or the performance difference between industries is significant, the strategy may be overexposed to a few industries, leading to risk concentration and return fluctuation. In the long run, this implicit deviation will affect the robustness of momentum factors and the generalization ability of strategies, and also limit their applicability in complex market environment. Although some literatures have tried to study from the perspectives of industry rotation and industry momentum, the research on how it affects the performance of momentum strategy from the perspective of "industry heterogeneity" is still limited. Therefore, this paper aims to focus on the influence mechanism of industry heterogeneity on the effectiveness of momentum strategy, sort out the existing related literature, identify the achievements and shortcomings of existing research, and try to put forward new research ideas and strategic inspiration. Specifically, this paper will review the theoretical basis and classical empirical results of momentum strategy, analyze the specific manifestations of industry heterogeneity and its possible action paths, sort out the main findings of the empirical results of momentum strategy at the industry level, and then discuss the applicability, stability and optimization direction of momentum strategy in different industries. Through literature review and theoretical integration, this paper hopes to provide a more detailed industry perspective for understanding the effectiveness of momentum strategy, and also provide some reference for future strategy construction and research.

## 2. Theoretical basis

Momentum strategy is based on an empirical fact: assets that performed well in the past will often still get excess returns in the future. Jegadeesh and Titman systematically verified this phenomenon and caused widespread concern [1]. Since then, a large number of studies have repeated similar findings in different markets and asset classes, and theoretical exploration has been carried out around the source of momentum gains.

From the perspective of behavioral finance, Barberis et al. think that the slow response of investors may lead to the delay of price reflecting information [2]; Daniel et al. pointed out that overconfidence and attribution bias can lead to excessive price fluctuations [3]. The two kinds of behavioral deviations work together, which provides the psychological mechanism basis for momentum effect. Hong and Stein put forward the information diffusion model, emphasizing that market participants have different reactions to information, which makes the new information unable to be fully reflected in the price immediately, thus forming a continuation of the trend [4, 5]. Subsequent research found that assets with less analyst coverage and opaque information tend to have stronger momentum effect, suggesting that market information structure has an important impact on momentum performance. There are also studies to explain momentum gains from the perspective of risk premium. Barroso and Santa-Clara found that momentum strategy has high tail

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risk, and its excess return may be compensation for certain risk factors [6]. Fama and French did not include momentum as a core factor, but acknowledged its important role in asset pricing [7]. In addition, market structure and investor behavior path dependence may also affect momentum performance. Chan et al. pointed out that momentum effect is more obvious in the market with low transaction cost and transparent information [8]. At the same time, strategic behaviors such as trend-following trading will aggravate the persistence of prices and strengthen momentum signals.

To sum up, the generation mechanism of momentum effect covers behavioral deviation, information asymmetry, risk exposure and market structure. This also means that the effectiveness of momentum strategy may vary greatly under different market conditions and industry characteristics. In order to further understand this difference, the next chapter will further study the momentum and rotation at the industry level and discuss how the industry characteristics shape the performance of momentum strategy.

## 3. Momentum strategy and industry rotation

As an extension of traditional stock momentum research, the momentum strategy research on different industries reveals the great influence of industry-level synergy trend on momentum return, and constantly promotes the logical evolution of investment strategy from "stock selection" to "timing industry". As shown in Table 1, this paper screens and summarizes the representative literatures covering the research of industry momentum and rotation strategy.

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Table 1. Summary of research literature on momentum strategy and industry rotation

| Author | Sample range | Main research issues | Research method | Core conclusion |
|---|---|---|---|---|
| Moskowitz & Grinblatt | US stocks(1963–1995) | Does the momentum of the industry layer exist? | Cross-sectional regression analysis | The industry momentum is remarkable, the return is universal, and it can explain the momentum of some stocks. |
| Lewellen | US stocks(1965–1995) | Industry momentum vs stock momentum | Multivariate regression analysis | Industry momentum effect exists, but it cannot completely replace the momentum signal of individual stocks. |
| Stivers & Sun | US stocks(1970–2006) | The Influence of Market State on Industry Momentum | Conditional regression model | The momentum effect of the industry is stronger in high volatility/bear market, so it is necessary to design strategies in combination with market conditions. |
| Chan, Jegadeesh & Lakonishok | US stocks | Technology trading and trend continuation mechanism | Research on Market Microstructure and Price Inertia | When the transaction friction is small and the information is transparent, the trend continuation is more obvious, which supports the momentum signal enhancement. |
| Vanstone, Hahn & Earea | Multinational ETF industry classification | Can ETF Industry Momentum Realize Tradeability? | Back-testing of industry ETF income | ETF industry portfolio can directly realize industry momentum strategy, and its income is obviously higher than that without industry preference. |
| Asness, Moskowitz & Pedersen | Multi-asset classes such as stocks/bonds/commodities | Is the industry momentum stable across assets? | Cross-portfolio backtesting | Industry momentum has utility in many kinds of assets, and industry neutral treatment can reduce noise. |
| Barroso & Santa-Clara | Multi-market momentum strategy | The tail risk source of momentum strategy | Volatility weighted combination construction | Uncontrolled industry exposure is one of the important risk sources of tail collapse, and it needs to be controlled. |

Early research representatives were Moskowitz and Grinblatt [9]. Based on the data of the US stock market from 1963 to 1995, they first found that there was a significant momentum effect between industries, and its explanatory power exceeded the momentum factor at the individual stock level. This discovery points out that a large proportion of stock momentum can be attributed to the overall performance of the industry, thus laying the foundation for the research direction of "industry momentum". Then, Lewellen further compared the independence of industry momentum and individual stock momentum through multi-factor model [10]. He found that although both of them have significant excess returns, the industry momentum is not enough to fully explain the stock momentum, and they are partially independent, suggesting that researchers should treat them differently in strategy construction. In addition, the study also emphasizes the non-redundancy of industry information, which provides theoretical support for the subsequent integration of industry characteristics into factor modeling. Stivers and Sun used the state-dependent regression model to analyze the performance of industry momentum in different periods [11]. They found that the momentum effect of industries is more significant in high volatility or bear market environment, indicating that the amplification of market sentiment and uncertainty will strengthen the inter-

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industry trend. This conclusion provides an empirical basis for the subsequent "dynamic industry rotation strategy", suggesting that the macro-state adjustment mechanism should be considered when the strategy is implemented. In the China market, Han et al. based on the data of A-shares from 2000 to 2014, found that the industry rotation has certain predictability, and the momentum and reversal effects show the switching characteristics in different industriesm [12]. This study not only introduces the concept of industry momentum into emerging markets, but also points out that there is stronger asymmetry and structural fluctuation in the behavior of China market at the industry level, which provides important enlightenment for the localization momentum strategy. Blitz et al. found in the empirical analysis of European stock markets that the performance of industry rotation strategy is generally better than that of traditional industry neutral momentum strategy [13]. They believe that this advantage stems from the joint action of industry-level risk premium and trend drivers, emphasizing the value of "timing rotation" in asset allocation. This study has significantly promoted the transformation of industry momentum strategy from "risk control tool" to "active income source". Recent empirical contributions come from Boubaker, Du, and Liu, who developed an industry momentum model that combines correlation integration using data from the Chinese market [14]. They studied how heterogeneous industry characteristics, including inter industry correlation structures, affect momentum returns. Their research findings indicate that the systematic differences in momentum performance between industries are driven by changes in industry correlation patterns, profit dynamics, and information dissemination. Therefore, it is recommended to integrate industry related features into momentum factor construction to improve the accuracy and robustness of the strategy.

## 4. The impact mechanism of industry heterogeneity on momentum strategy

The effectiveness of momentum strategy is unevenly distributed among industries, and the fundamental reason lies in the significant structural heterogeneity between industries. Specifically, the lifecycle stages of different industries determine the elasticity of profit expectations, which in turn affects the sustainability of price trends; The differences in profit models, such as cycle sensitive and defensive industries, result in varying intensities of price responses when facing fundamental changes, leading to inconsistent performance of momentum signals; Meanwhile, differences in information transparency and investor structure can affect the market's ability to digest new information, thereby regulating the duration of momentum effects. These factors work together to form a key impact mechanism of industry heterogeneity on momentum strategy performance.

### 4.1. Impact of industry lifecycle stages

The heterogeneity of industry characteristics is one of the key mechanisms that affect the difference in momentum strategy returns, and the changes in industry lifecycle stages are particularly important. According to Vernon's product lifecycle theory, industries typically go through stages of introduction, growth, maturity, and decline, with systematic differences in market structure, degree of information asymmetry, profit expectations, and risk exposure at each stage [15]. These characteristics directly affect the market's response speed and direction to information, thereby altering the strength of momentum effects. The theoretical basis of momentum strategy comes from Jegadeesh and Titman, who found that the continuity of asset prices is partly due to investors' inadequate response to new information [1]. Hong and Stein further proposed the "asymptotic information diffusion model", emphasizing that momentum effects are more significant in

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environments with slow information propagation, especially for growth industries with high levels of information asymmetry [4].

This theoretical framework has also been widely validated in empirical research. A large amount of literature indicates that the lifecycle stage of an industry has a significant impact on the performance of momentum strategies. For example, Moskowitz and Grinblatt found that industry momentum explains the main part of individual stock momentum, especially in high growth industries where it is most prominent [9]. Cooper, Gutierrez, and Hameed also found that momentum strategies performed significantly better in expected high growth industries such as biotechnology and information technology than in low growth industries such as utilities [16]. In contrast, Chordia and Shivakumar pointed out that momentum strategies often fail and may even experience yield reversals during macroeconomic or industry downturns [17]. In addition, Daniel and Moskowitz pointed out that during periods of high market volatility (usually occurring simultaneously with industry downturns), momentum strategies are more likely to encounter a "collapse" phenomenon, which means severe losses in the short term [18]. For mature industries, Baker and Wurgler found that due to the dominant position of institutional investors and the improvement of market information efficiency, momentum returns quickly arbitrage and are difficult to maintain [19].

Therefore, the lifecycle stages of the industry significantly shape the return distribution of momentum strategies by influencing the speed of information diffusion, investor behavior, and risk structure. In strategic practice, investors should prioritize industries in the growth stage and dynamically adjust them in conjunction with reversal signals during maturity or decline stages.

### 4.2. Differences in profit models

The differences in profit models among different industries are the core factors that affect the effectiveness of momentum strategies. High volatility industries such as technology and commodities are highly sensitive to market shocks due to their profitability, and investor sentiment fluctuates dramatically, typically exhibiting strong momentum effects. Moskowitz and Grinblatt found that the momentum return rate of these industries is significantly higher than that of low volatility industries, with an annual gap of about 4.2% [9]. In contrast, defensive industries such as public utilities and basic consumer goods have weaker momentum effects due to rigid demand, high proportion of institutional investors, efficient market information transmission, and rapid price adjustments, and may even experience reversals. Stivers and Sun pointed out that during bear markets, the average annualized reversal return for defensive industries is about 2.1% [11]. The performance of cycle sensitive industries such as finance and real estate largely depends on macroeconomic cycles. Chordia and Shivakumar found that momentum returns are closely related to economic cycle fluctuations, indicating that time strategies are particularly important in these industries [20]. Based on the above evidence, investors should dynamically adjust their strategies according to industry profitability characteristics: long-term momentum strategies are suitable for high volatility industries, short-term reversal strategies are suitable for defensive industries, and cyclical sensitive industries should be combined with macroeconomic indicators to improve the performance and stability of momentum strategies.

### 4.3. Asymmetric information and differences in investor behavior

Asymmetric information and differences in investor behavior are key factors affecting the effectiveness of momentum strategies. Hong, Lim, and Stein pointed out that in industries with low

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information transparency, such as emerging industries and complex financial products, there is a lag in price adjustments due to low analyst coverage and long information transmission chains, which enhances momentum effects [5]. Additionally, industries with a higher proportion of retail investors tend to pursue gains and avoid losses, further strengthening momentum [21]. Chordia and Shivakumar pointed out that the unevenness and delay in information dissemination are important sources of the momentum effect [22]. This information asymmetry makes it difficult for prices to quickly reflect all information, forming persistent price trends. Conversely, in industries with high information transparency and dominated by institutional investors (such as banks and insurance), effective information transmission and institutional arbitrage behavior can quickly eliminate price anomalies, leading to a weakening or even reversal of the momentum effect. Therefore, when constructing momentum strategies, investors should combine industry information transparency with investor structure. In industries with severe information asymmetry, the holding period should be extended; in industries with high information efficiency, the holding period should be shortened or other strategies adopted.

## 5. Conclusion

### 5.1. Main findings

By systematically sorting out the existing literature, this study deeply discusses the influence mechanism and research progress of industry characteristic heterogeneity on momentum strategy performance. The core conclusions are as follows:

(1) The heterogeneity of the implementation effect of momentum strategy stems from the characteristics of risk and return, the degree of information asymmetry, the investor structure, the competition pattern and the sensitivity to external shocks, etc. These differences jointly shape the tendency of price persistence or mean regression.

(2) Industry heterogeneity has a significant impact on momentum effect. The effectiveness of momentum strategy is not universal, but highly dependent on industry characteristics. Different industries have different sensitivities and manifestations to momentum effect due to their inherent differences.

Generally speaking, the research on industry momentum and industry rotation has gone through a systematic development process from discovering industry momentum effect, discriminating its independence, to exploring its dynamic performance and feature-driven mechanism. The research in this field not only expands the applicable boundary of momentum strategy, but also provides theoretical and empirical support for the industry dimension in asset allocation.

### 5.2. Future study

With the further development of industry heterogeneity theory, there are still many directions worth exploring in this field.

The robustness of momentum strategy in cross-market and cross-cycle still needs further study. Most of the existing research conclusions are based on the financial markets of developed countries and the financial crisis with global influence. In the future, the researchers can add the background of emerging industries and the latest international relations in the study of verifying the influence of industry heterogeneity on momentum effect.

Future research can further build a more adaptive "industry-momentum interaction" model. In order to improve the actual combat value and robustness of the strategy, it is urgent to build a

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theoretical model and forecasting framework that can dynamically capture the interactive relationship between the change of industry characteristics and the intensity and persistence of momentum effect. This requires the integration of time series analysis, panel data model, and even the introduction of machine learning methods to quantify the contribution of different features to the formation, persistence and depletion stages of momentum, and to realize the strategy refinement and intelligent optimization at the industry level.

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