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The Impact of Information Barriers on Financial Asset Price Discovery: A Theoretical Analysis Based on Information Asymmetry and Behavioural Finance

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Abstract

With the development of digital finance and high-frequency trading in recent years, the information asymmetry between institutions and individual investors has gradually grown, and the problems caused by this phenomenon have become more serious. Based on information asymmetry theory, the efficient market hypothesis and behavioural finance theory, this paper studies how information barriers affect the discovery of financial asset prices and build a theoretical system for this purpose. A concept and analysis were employed in the study to investigate the path of "information barriers - information diffusion - investor behaviour - price formation". The results indicate that information barriers reduce both the speed and quality of information diffusion, thus leading to a delay in the integration of information into asset prices. Investors are not all the same and are also boundedly rational; therefore, the market will fluctuate more readily. Generally speaking, institutional investors have better information and are more likely to trade early, while retail investors are more prone to herd behaviour and overreaction. As a result, the combined effect has reduced the efficiency of price discovery, increased short-term fluctuations in prices, and deviated from the value of assets. This study is mainly in a theoretical form, has not been empirically verified, and has failed to consider other factors that affect the results, such as liquidity conditions and different regulations. In the future, based on the limitations of the above, empirical studies can be conducted using high-frequency or cross-market data and more market microstructure variables added to expand the analytical system.

Keywords

information barriers, information asymmetry, price discovery, behavioural finance, efficient market hypothesis

1. Introduction

Financial markets rely heavily on information flow and market expectations. Prices of assets are determined in the market by incorporating and responding to all-encompassing data obtained through trading. In the past, there has been a wide range of information asymmetry in finance. With the development of digital finance, high-frequency trading and financial technology in recent years, the uneven distribution of information collection abilities has also been exacerbated. With the help of data resources, algorithmic models and

professional research teams, institutional investors have gained access to market information at a high speed and can process it to a large extent; they are significantly disadvantaged compared with retail investors in terms of the speed of information acquisition and analytical resources [1]. Gradually, the above differences will lead to information asymmetry in the financial market and further increase the asymmetry of information among different groups of investors. Information asymmetry will be amplified, and price volatility in the financial market will occur. If market information is not available in time and to everyone, the asset price will not reflect the real value of that asset at that time, and therefore will deviate from that actual value [2]. At the same time, if the distribution of information is uneven, changes in market sentiment and an increase in irrational trading behaviour will also occur, thus adding to the general instability of the market. Some information asymmetry will reduce the price-discovery function of the financial market and thus diminish the efficiency of resource allocation in the economy. With the development of financial digitalisation in recent years, many scholars have studied the impact of information asymmetry on price discovery for financial assets both theoretically and experimentally.

Against this backdrop, this paper will explore the intrinsic reasons why information barriers affect price discovery, based on theories of information asymmetry, efficient market hypothesis, and behaviouralism. It will also analyse the relationships between factors such as information transmission efficiency, investor behavioural heterogeneity, and market sentiment, thereby constructing a theoretical framework for understanding how information barriers influence the price discovery mechanism of financial assets.

2. Theoretical Foundations

The three theoretical foundations of this paper are information asymmetry theory, the efficient market hypothesis and behavioural finance theory. The three above frameworks offer different views of how information spreads, market efficiency, investor behaviour, etc., and can help us study the impact of information asymmetry on the price-discovery mechanism in financial markets.

Asymmetry of information theory is the state in the market where the information held by different parties is unequal. According to the "lemon market" model proposed by Akerlof, if the buyers and sellers do not have the same information, one of them will be at a disadvantage [3]. This is a structural deficiency of the financial market: there is a gap between information-rich participants, such as institutional investors and agencies with strong analytical capabilities, and retail investors. Some investors have obtained information that can motivate an early-and-informed investment decision and have thus achieved a higher return. Information asymmetry can cause an abnormal judgement of the transaction and result in a price that deviates from the normal. Imperfect information may also result in adverse selection and moral hazard, and thus it is difficult to allocate resources efficiently in a market economy and reduces the reliability of price signals.

Fama proposed the efficient-market hypothesis (EMH) and believed that, in most cases, the price of an asset reflects all available information about it promptly [4]. According to EMH, market prices should fully reflect all available information, and markets are divided into weak-form, semi-strong-form and strong-form efficiency based on the extent of information incorporation. Assume that information is transmitted quickly and efficiently to the price system. However, information spread in the real world is also relatively slow and cumbersome. When there are information barriers, the price has not been updated promptly in response to new information, thus deviating from the market-efficient state, experiencing a delay in price adjustment, and losing price discovery efficiency.

Behavioural finance theory adds the idea of limited rationality for investors to the above views [5]. Therefore, it is argued that investors are not perfectly rational and are subject to cognitive limitations, emotional biases, and a restricted information-processing capacity. Given the problem of information asymmetry, an uneven distribution of information leads to varying levels of awareness among different groups of investors and increases the likelihood of herd behaviour or an overreaction in the market. When some investors buy and sell based on incomplete or outdated information, a large number of such trades may occur rapidly, causing a sharp rise and fall in price far removed from the asset's actual economic value. Therefore, behaviour finance attempts to explain fluctuations and irrational price changes in the information-poor market.

3. Theoretical Mechanism of Information Barriers Affecting Price Discovery

3.1 Formation Mechanism of Information Barriers

Investors are not in the same boat, so they do not know about the company in the same way. According to the theory of information asymmetry, institutional investors can generally obtain high-quality data and advanced analytical tools, as well as professional research teams, and thus make timely decisions based on market information more efficiently. Retail investors are generally slower to obtain and process information; therefore, they have a structural disadvantage. Therefore, there is an ongoing problem of information asymmetry in the market [6].

Fail to provide all the information; this is also one of the causes. The company will have selected some information for release in order to reduce the scope of required disclosure to the public. If all the information is not released evenly and promptly, the assumptions of the efficient market hypothesis will be weakened, and prices will be delayed in reflecting all available information.

Technological and Platform Differences are also reasons for the formation of information barriers. The development of high-frequency trading and algorithmic trading has created a new kind of technical advantage, and at present, both speed and computation power are required for high-efficiency information processing. Behavioural finance suggests that the above technological disparities are likely to increase information asymmetry and further spread different types of investors apart behaviourally, thus creating new divisions in the market.

3.2 Pathways for Information Dissemination

The Spread of Information in Financial Markets Alters the Speed and Accuracy of Price Formation. According to the efficient market hypothesis, a price change occurs after a rapid and wide spread of information. However, due to information asymmetry, dissemination is not uniform and is delayed. The first is that a faster dissemination speed of the information will have a greater effect on the price adjustment. When information spreads slowly, the market price has not yet fully reflected the new fundamentals, so there is a delay in price discovery and temporary mispricing. It can be seen that it is not semi-strong form efficient. Secondly, there is a large disparity in the extent of dispersion of the information and thus in public opinion. When the information is only known by a few investors, these investors may have differing views on what the asset is worth, and there will be no general agreement among them. Therefore, there will be variations in the pricing of different sections of society for the same goods. Thirdly, there will be less information dissemination. Noise, rumours and other non-official sources of information can spread via social media. In terms of behavioural finance, the aforementioned deceptive information will likely lead to emotional trading and noise trading, thus deviating from fundamental values.

3.3 Market Response Mechanisms

Different kinds of investors show different behavioural responses under information asymmetry and, as a result, affect the market [8]. In light of information asymmetry theory, institutional investors have more favourable information and thus can process this information promptly due to their superior analysis skills. Therefore, they are more likely to change their asset allocation earlier and may even perform anticipatory trading based on partial signals, thus expanding information asymmetry. Retail investors are therefore more prone to behavioural biases, as shown by the theory of behavioural finance. Without complete data, they are often led by the general mood of the market or changes in other countries. Therefore, they are more likely to follow the crowd and be overly reactive to unclear or late information.

The combined effect of many different responses at the aggregate level is shown in the following ways. Given the reasons for EMH deviations, information asymmetry can lead to a slower response of prices and higher fluctuations in the market [4]. Prices are no longer immediately reflective of new information, and changes occur gradually and discontinuously as that information spreads among various groups of investors.

3.4 Impact on the Price Discovery Mechanism

As a result, due to information asymmetry and inefficient disclosure, price discovery has been compromised in the market. First, the efficiency of price discovery is reduced because the market price has not fully and promptly incorporated the available information, thus failing to reach the intrinsic value as required by the efficient market hypothesis. Second, a reduction in short-term volatility. When information is missing or scarce, and the distribution is uneven, more people tend to be driven by emotions and expectations rather than by economic reasons; this can be explained by behavioural finance. Increase the response speed to new information and thus market instability. Thirdly, the price of the assets is further away from their intrinsic value. Information asymmetry can cause either over- or under-reporting by one party, thus forming a bubble or another abnormal price fluctuation. These distortions indicate that the function of information aggregation by prices has failed.

Market segmentation is now quite obvious. In light of the theory of information asymmetry, those with more information can obtain abnormal profits consistently; thus, the risk and opportunity for less-informed investors are higher, and market results are unequal.

4. Theoretical Model Construction and Logical Framework

According to the theory of information asymmetry, the efficient market hypothesis and behavioural finance theory were developed; this paper builds on them to study the impact of information barriers on the discovery of financial asset prices. The primary route of transmission is sequential; first, information barriers slow down the speed at which information spreads, change the behaviour of investors and the market, and thus alter price-setting behaviour.

The overall logical chain can be summarised as:

Information Barriers → Restricted Information Dissemination → Heterogeneous Investor Responses → Market Pricing Distortions → Decline in Price Discovery Efficiency

According to information asymmetry theory, there will be structural differences in the level of information access for different parties to the market due to the presence of information barriers. Therefore, under the efficient market hypothesis, such frictions would slow down the price adjustment of information. At the same time, behavioural finance theory explains why limited rationality and emotional bias lead to various responses under conditions of incomplete information. Together, the above reasons will lead to a loss of market price efficiency.

The contents of this framework are as follows, and only the first few are shown here. The degree of information asymmetry, the extent to which information is unequal in terms of availability and utilisation for different groups in a market, is the independent variable. The speed at which this information spreads among the market and public is affected by intermediaries and how it is disclosed to different groups of investors. Speed of diffusion refers to the speed at which the information spreads and is absorbed by the market; market sentiment is the emotions and expectations of traders, and heterogeneity among investors is their various interpretations and responses to this information. The dependent variables are price discovery efficiency and asset price volatility; price discovery efficiency reflects how quickly market prices incorporate new information about assets, and volatility is an index of the magnitude of these adjustments under conditions of incomplete information.

Based on the above framework, the following hypotheses are proposed:

H1: A higher degree of information barriers is associated with lower financial asset price discovery efficiency.

H2: Information dissemination speed plays a mediating role in the relationship between information barriers and price discovery efficiency.

H3: Investor sentiment strengthens the impact of information barriers on asset price volatility, leading to greater market fluctuations.

5. Policy Implications

Based on the above theoretical analysis, several indications have been derived for market design and regulatory practice. First, improve the openness of information to increase the speed of price discovery. Strengthen mandatory disclosure obligations for listed companies to reduce selection-based or delayed release of information by regulators. A relatively open society will reduce information asymmetry and help prices reach their fair level according to the efficient-market hypothesis. Second, strengthen efforts to reduce information asymmetry among the different groups of investors. Strengthen public information platforms, improve the accessibility of financial data, and enhance investor education. Enhance the retail investors' information-collection and analysis capabilities in the market, promote more equitable and efficient development of the whole market. Third, focus on the lack of technology in the information-processing field. With the development of high-frequency trading and algorithmic strategies, there is now a higher demand for the speed and computing efficiency of information processing. Strengthen supervision of the market infrastructure to prevent the abuse of a technological advantage for unfair competition. Improve the quality of the information-spreading platform in the final stage. Reduce noise and fake news in the informal channel of social media to limit excessive sentiment-driven trading and promote market stability.

6. Conclusion

Integrate information asymmetry theory, the efficient market hypothesis and behavioural finance to explore how information barriers affect financial asset price discovery in this paper. The main results show that information barriers reduce the efficiency of price discovery through a chain of causes: unequal access to information for institutional and retail investors leads to continuous information asymmetry, and disparities in technological capabilities and disclosure methods further exacerbate this gap. Therefore, the spread of information is slow and irregular, and it may not be reflected in asset prices for some time. In addition, the various responses from investors are also affected by informational asymmetry and behavioural biases such as herd behaviour and overreaction; thus, they lead to greater market distortions, a wider deviation from intrinsic value, increased volatility, and potential market segmentation.

However, this study remains purely theoretical, lacking empirical evidence, and it does not take into account other market factors such as liquidity conditions, macroeconomic shocks, or regulatory differences. Future research will address these shortcomings through empirical analysis of high-frequency or cross-market data.

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Conflicts of Interest

The authors declare no conflict of interest.

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