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The Stock Market as Information Processor vs. Speculation Machine

Saurish Bindals

Pathways World School, Gurugram, Haryana, India

ABSTRACT: This study discusses whether stock markets are more efficient information processing machines or speculative systems conditioned by the behaviour of investors. The paper examines the major financial theories such as the Efficient Market Hypothesis proposed by Eugene Fama arguing that the stock price is based on the information at hand. It also takes into account findings of behavioural financial studies conducted by a number of scholars like Robert Shiller and Daniel Kahneman, who emphasise on the power of psychological biases and herd behaviour. Based on secondary data on scholarly literature, the research concludes that the stock markets exhibit the characteristics of informational efficiency and speculative behaviour with regard to market environments and investor behaviour.

KEYWORDS: Efficient Market Hypothesis, Behavioural Finance, Stock Market Speculation

I. INTRODUCTION

The modern economies rely heavily on stock markets as they allow firms to generate capital and investors to sell and buy ownership of companies. Conventionally, the stock markets have been considered by economists as efficient information processors that use all the available information in determining share prices (Bohl et al., 2021). This view is closely connected with the Efficient Market Hypothesis that was created by Eugene Fama according to which the prices on the markets usually show the fundamental value of businesses. Stock markets in this context assist in efficient allocation of capital by channelling the investment into companies with the best growth opportunities (Maroju, 2023).

Still, there is another opinion that stock markets tend to be a speculative arena, and investor psychology, market emotion, and herd behaviour may be of high influence on price formation. The behavioural finance literature such as that by Robert Shiller and Daniel Kahneman points to the role of cognitive biases and emotional decision-making in causing mispricing, bubbles, and market volatility (Park and Ryu, 2021). The past incidences of financial bubbles prove that prices may be very volatile in relation to the company fundamentals.

This paper will explore the question of whether stock markets are information processing machines or speculative machines associated with investor behaviour. It also examines the effects of various types of market structures and trading environments on rationality and stability of stock prices.

II. RATIONALE AND OBJECTIVE

The knowledge of whether stock markets are efficient information processors or speculative markets is valuable to investors, policymakers, and financial institutions. Stock markets affect the allocation of capital in the economy among businesses, innovation and economic growth (Padhi et al., 2022). When markets are efficient in terms of responding to the fundamental of the company, they will be able to efficiently allocate resources to productive companies. This perception is highly related to the Efficient Market Hypothesis that have been put forward by Eugene Fama according to which, stock prices reflect available information and hence reflect real market value (Srivastava et al., 2023).

Nonetheless, behavioural finance research has indicated that the sentiment of the investor, cognitive bias and herd behaviour may play a significant role in price movements. Robert Shiller and Daniel Kahneman are among the scholars who suggest that people usually make irrational decisions due to psychological reasons, which results in market bubbles and volatile prices (Kumar et al., 2023). Exploring these opposing views is useful in finding the answer to the question of whether the stock markets are mainly driven by economic efficiency or by speculative trading.

Objectives:

1. To examine the extent to which stock markets function as information processors that reflect the fundamental value of companies.
2. To analyse the role of speculation, investor sentiment, and herd behaviour in influencing stock price movements.
3. To evaluate how different market structures and trading mechanisms affect the rationality and stability of stock prices.

III. METHODOLOGY

The research study will also follow a qualitative method of secondary research where only the available academic literature, reports of the industry and publications of good quality will be used to explore the question of whether stock markets are in the processing of information or speculative platforms. Secondary data offers an all-inclusive and economical manner of scrutinising the existing theories, empirical research, and past market behaviour without the necessity of utilising primary data.

The sources of data will consist of peer-reviewed journals, books, and articles that can be found in Google Scholar, where one can find access to a significant amount of credible academic research on the field of finance and behavioural economics. The most important sources are the studies of the Efficient Market Hypothesis and behavioural finance, and market bubble and investor psychology studies. The research also uses the historical market happenings and case studies to provide the discussion.

The issue of ethics is dealt by making sure that all the information is quoted and referenced, plagiarism is avoided and only publicly available and legally legal sources are used. There are no human subject involved and hence the problems like consent or confidentiality do not exist.

The research methodology will facilitate an organised synthesis of available knowledge, which will be a dependable basis in the analysis of how the stock markets process information, the role of speculation, and how market structures result in price rationality. This methodology ensures the concept of academic rigour but at the same time maintains ethical principles in research.

IV. LITERATURE REVIEW

Theme 1: Efficient Market Hypothesis (EMH) and Stock Markets as Information Processors

One of the most important theories applied to explain the functioning of stock markets as information processing and information presentation mechanisms is the Efficient Market Hypothesis (EMH) (Nyakurukwa and Seetharam, 2023). Eugene Fama developed the concept and claimed that the financial market is efficient due to its quick reaction to any new information in the price of its assets. EMH states that stock prices incorporate all the available information to the investors such as historical prices, financial statements, macroeconomic variables and a corporation announcement. This makes the investors find it hard to constantly record abnormal profits through prediction of the market movements (Vasileiou, 2021).

According to Fama (1970) there are three types of market efficiency which include weak, semi-strong and strong. The weak version of EMH is that the prices of stocks reflect all the past market information including the past price patterns and trading volumes. This means that excess returns cannot always be raised by the technical analysis (Aminimehr et al., 2022). The semi-strong form is a form of stock price, which postulates that the price of a stock indicates all the publicly accessible data such as the company reports, earnings announcement and economic news. Thus, investors will not be able to take advantage by examining public data on its own. The strong form suggests that all information, both public and private, is reflected in the price of the stock, so that even insider information will not give an opportunity to get consistent profits.

The proponents of EMH say that investors will compete and the information will circulate rapidly thus, markets can smoothly adapt to the emerging information (Ehiedu and Obi, 2022). The empirical experience of developed financial markets especially in the United States and the United Kingdom suggests that the stock prices react to events like earnings announcement or even merger. This gives the argument that stock markets are highly effective processes of allocating capital and that they are used to channel investments to companies with high growth prospects and a good management (Mikołajek-Gocejna and Urbaś, 2023).

Other researchers, however, believe that EMH can be less relevant to emerging markets, where small transparency, regulatory heterogeneity and the existence of information asymmetry can cause slow price adjustments. In spite of this

criticism, EMH is still a significant theoretical approach to the information processing and stock market valuation of companies (Spulbar et al., 2021).

Theme 2: Behavioural Finance and Speculation in Stock Markets

Behavioural finance is a different viewpoint of the Efficient Market Hypothesis because the human psychology of financial decision-making is stressed. Although the conventional financial theories presuppose that investors are driven by rationality, behavioural finance states that investors tend to be guided by emotions, cognitive impairment, and societal influences (Tomasz, 2025). Robert Shiller and Daniel Kahneman are examples of scholars who have emphasised how these aspects of psychology may result in irrational investment behaviour and cause stock prices to be disconnected to their underlying values.

Among the major concepts of behavioural finance is that investors often use mental shortcuts, or heuristics, in making financial choices. Such shortcuts may bring systematic biases like the overconfidence effect where investors think they can predict market trends (Safarli, 2022). The other bias is the concept of loss aversion that is at the heart of the prospect theory developed by Kahneman and Tversky and states that people feel losses more than gains. This could cause investors to either have the losing stocks too long or not risk enough which will result in inefficient market results.

According to the research conducted by Abdulrasool and Othman (2022), the investor sentiment has also been shown to affect the trends in stock market. The Dot-com bubble that occurred in the late 1990s was an example of how speculation and overconfidence resulted in technology stocks being overpriced by a wide margin. Once the expectations shifted, the bubble finally exploded causing a lot of monetary loss. These instances suggest that the stock markets may act as speculation-driven systems, where the market sentiment and expectations are the driving forces behind the stock price and not any objective financial data (Padmavathy, 2024).

Increasing behavioural finance also implies that herd behaviour and social influence may only increase the speculative tendencies. The behaviour of other investors tends to be imitated especially at times of uncertainty, and it may strengthen market bubbles or unexpected price drops (Kamoune and Ibenrissoul, 2022). Such trends could also be magnified by media reporting, analysts, and online platforms disseminating positive or negative storeys about specific stocks or industries. Behavioural finance therefore emphasises on the fact that stock markets are not necessarily ideal rationalised systems and but, in some cases, it can be a speculation market with investor psychology (Abdeldayem and Aldulaimi, 2026).

Theme 3: Market Bubbles, Crashes, and Price Anomalies

Market bubbles, crashes, and anomalies of prices offer a good empirical basis that in some instances, stock markets are operating in a speculative mode rather than an operation that is driven by fundamental values. A market bubble is a period when the prices of properties or other assets skyrocket and far beyond their true value and is usually fueled by extreme optimism and speculation (Rehan, 2021). These bubbles end up being followed by a burst or crash in the market as investors shift their moods. The Tulip Mania of the 17th century, the Dot-com bubble of the late 1990s, and the global financial crisis of 2008 can be cited as the examples of how markets can be irrationally valued over the long period of time (Noda, 2021).

Scholars have discovered that there are a number of factors that lead to the use of financial bubbles. A major reason is herd behaviour in which investors follow the lead of other investors instead of analysing it independently (Bhanu, 2023). The demand grows further when many investors purchase a given asset because of an increase in prices thus pushing the prices even higher. Leverage is another aspect that is crucial as investors borrow money to get more exposure to investments that can maximise gains and losses. Moreover, when there is liquidity in the market, it may lead to speculative behaviour as investors are able to sell and buy assets fast and often thus leading to price volatility (Abdulrasool and Othman, 2022).

Economic theorists including Charles P. Kindleberger and Hyman Minsky have claimed that economic periods of stability can actually lead to the probabilities of financial crises. Investors can become complacent and overestimate risk when markets are doing well over long periods of time, which leads to speculative behaviour in investment (Nyakurukwa and Seetharam, 2023).

Besides, the presence of the price anomalies, e.g., momentum effects and seasonal cycles in stock returns, undermines the assumptions of the Efficient Market Hypothesis (Padmavathy, 2024). These foreseeable trends indicate that markets do not necessarily have perfect information representation. This is why the research on bubbles, crashes and anomalies shows the weaknesses of market efficiency and proves the great impact of speculation and behavioural factors on the dynamics of the stock market.

Theme 4: Role of Market Structures and Trading Mechanisms

Market mechanism, structure are important in assessing the effectiveness of stock markets in processing information as well as how exposed the market is to speculative behaviour. Liquidity, transparency, regulatory frameworks and availability of information are some of the factors that determine the efficiency of a financial market (Salah, 2025). On well-established financial markets, where the level of disclosure is stringent and trading is active, information tends to be faster reflected in prices. This means that the markets will exhibit more price efficiency and stability than markets that have less regulatory controls or are less liquid.

Modern financial markets have also been greatly changed under the influence of technological developments. The advent of electronic trading, algorithmic trading and high-frequency trading (HFT) has accelerated the rate and volume of transactions (Bipasha, 2022). These systems enable traders to deal with extensive information and execute trades in milliseconds, which may enhance the liquidity of markets and help to make prices adjust faster. Nevertheless, there is some research that indicates that HFT can also be a cause of higher market volatility, especially in times of financial stress. One significant instance of this is the Flash Crash that occurred in 2010 when a sudden and sharp decline in major US stock indices was caused by rapid automated trading before markets quickly changed (Akin and Akin, 2024).

Circuit breakers are some of the mechanisms that have been brought in by the regulators to stabilise the markets, by temporarily halting the trading when the markets take extreme prices. The trading limits (short-selling regulations) are also resorted to in order to avoid excessive speculation and minimise the risk of market manipulation (Farboodi et al., 2023). Those regulatory instruments are meant to protect the investors and provide an orderly market scenario. Besides that, the availability of institutional investors, financial analyst, and market makers is useful in enhancing the dissemination of information and price discovery (Xia et al., 2024). Their trading and research efforts are the reasons behind an efficient integration of information into the stock prices. On the other hand, because inexperienced retail investors with limited access to credible information control the markets, the markets may be more affected by the speculation and herd behaviour, which points to the significance of the market structure in determining the price rationality (Melitz and Redding, 2021).

Theme 5: Integrating Information Efficiency and Speculation: A Balanced Perspective

The latest studies indicate that stock markets cannot be described completely with the application of one theoretical approach (Rubens, 2023). On the contrary, they are both efficient information processing and speculative in nature. Conventional financial models and especially the Efficient Market Hypothesis that was proposed by Eugene Fama assert that the prices of stocks tend to reflect the existing information and hence their true value of businesses. The studies on behavioural finance, on the contrary, emphasise that psychological aspects and investor sentiment may introduce short-term variation on these basic values (Bakri et al., 2024).

According to many scholars, the hybrid view would be suitably applied to explaining the contemporary financial markets. This perspective argues that long-term stock markets are fairly efficient since new information is slowly reflected in prices as a result of the activities of many market participants (Schmitt et al., 2022). But in the short term, the markets may undergo a phase of speculation by investor emotions, herd behaviour as well as market sentiment. According to studies in behavioural economics, such as those conducted by Robert Shiller, optimism or pessimism among investors about a market can be a significant factor affecting market trends and in certain cases gives rise to bubbles or severe market crashes (Saad et al., 2025).

There are also empirical comparisons between developed and emerging financial markets which support this balanced view. The level of transparency, the robustness of regulators and the involvement of institutional investors are usually high in developed markets like the ones in the United States and the United Kingdom (Bohl et al., 2021). The attributes enhance the efficiency of information and minimise the chances of sustained mispricing. Conversely, emerging markets can be more volatile and speculative, as less information is available, the regulatory environment is less developed and retail investors are more likely to participate in it.

On the whole, this combined viewpoint indicates that stock markets operate in a spectrum and cannot be readily categorised into one. Sometimes, they act as effective mechanisms to process and reflect economic data, whereas at other occasions they are speculative due to the investor psychology (Pasquariello and Wang, 2024). This dual nature is worth appreciating by policymakers, investors and regulators who wish to facilitate market stability and efficient allocation of capital.

Summary of Literature Review

The literature review points out that there is still a controversy on whether stock markets are simply efficient information processors or speculative arenas. Efficient Market Hypothesis of Eugene Fama is an assumption that stock prices are informed and efficient capital allocations. Nevertheless, studies on behavioural finance by researchers like Robert Shiller and Daniel Kahneman are able to prove that investor psychology, biases and herd behaviour can result in mispricing and market bubbles. In general, the current literature shows that stock market has both efficient and speculative behaviour, which is determined by market structure, regulation, and investor behaviour.

V. CONCLUSION

This paper has focused on the question of stock market as an information processor or a speculative system. These findings indicate that the available information is usually used in setting prices and this findings support the theoretical framework of Eugene Fama. Scholars like Robert Shiller and Daniel Kahneman have however undertaken behavioural finance research that indicates that investor psychology, herd behaviour and sentiment can result in short term market inefficiencies and speculative bubbles. All in all, at least, stock markets cannot be regarded as a rational system or a speculative arena. However, rather they are complex financial settings in which information processing and speculation co-exist, which affects the formation of prices and the distribution of capital.

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