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Efficient Market Hypothesis: A Systematic Literature Review

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Abstract

The Efficient Market Hypothesis is a very important idea in today's money world, helping us understand how money markets work everywhere. This organized study of existing writings carefully looks at the ideas and proof connected to the Efficient Market Hypothesis. The study looks closely at its three types: weak, semi-strong, and strong, along with ideas like investors acting wisely and prices changing randomly. The findings reveal uncertain proof about whether this idea works all the time. Some studies agree, suggesting that market prices quickly show all available information. However, the existence of unusual market behaviors constantly challenges this idea. These differences are often described by emotional factors learned in the study of behavioral finance, which go against the idea that market players always make reasonable choices. Special focus is given to market situations that often show clear weak-form problems. This mainly happens because of uneven information levels and greater market changes. The study of existing writings finally decides that while the Efficient Market Hypothesis is still the main way to look at markets, its ability to explain things needs extra help. It's important to add behavioral ideas to explain market differences we see, giving useful advice for creating strong investment plans, especially in growing economies.

Keywords: Efficient Market Hypothesis, Market Anomalies, Emerging Markets, Systematic Literature Review

1. Introduction

The Efficient Market Hypothesis (EMH), introduced by Eugene Fama in 1991, applies key principles of neoclassical theory, such as rational behavior and market balance, to financial markets. This hypothesis looks at how prices behave in the asset market. Initially, the term “efficient market” referred to the stock market, but this idea soon extended to other asset markets[1]. However, the trade-off between risk and expected returns creates market inefficiencies. Sometimes, price changes are not completely random, even if the market acts rationally[2]. According to Tijjani, stock prices follow a martingale model, where prices fluctuate randomly around a constant average[3].

An efficient capital market is one where the price of a traded convertible stock or bond reflects all available information[4]. Efficient market conditions can happen if investors act rationally and there are no costs to access information, meaning information is unlimited. Given these conditions, creating a global capital market is necessary through a theory known as the Efficient Market Hypothesis[5]. This hypothesis is based on the idea that all available information is reflected in the asset's price. Attempts to achieve above-average profits become ineffective. As a result, the chance of taking advantage of price inefficiencies is greatly reduced, even through arbitrage. As Oliveira Neto points out, this framework acknowledges that information shapes investment decisions[6]. There is a clear connection between EMH and neoclassical theory, especially concerning self-regulating markets[7].

Ngene, Tah, and Darrat studied eighteen emerging market stock markets. They found that conventional ADF tests supported EMH in seventeen countries. However, unit root tests with breaks provided less evidence, confirming EMH for only six countries[8]. Nguyen and Parsons used a stronger set of statistical methods, including double-paused unit root tests and spectral analysis, to confirm EMH for twelve emerging markets[9]. To explain the non-normal distribution, Nartea, Valera, and Valera applied the quantile unit root framework to twelve Asia-Pacific countries[10]. They found that traditional approaches support EMH for most countries, but the quantile unit root test showed the stationarity of stock prices at higher quantities, implying EMH at lower quantities. This study aims to evaluate the relevance of the Efficient Market Hypothesis (EMH) in emerging markets and explore the need for

a behavioral approach to explain market anomalies. To answer these goals, research questions (RQ) are needed which are formulated below:

RQ 1: How relevant is the Efficient Market Hypothesis (EMH) in explaining capital market behavior in developing countries?

RQ 2: To what extent do empirical research results support the validity of EMH in emerging markets?

RQ 3: What behavioral factors lead to deviations from market efficiency (anomalies) in developing countries?

2. Efficient Market Hypothesis

Conceptually, efficient market theory says that current prices reflect available information, meaning past information is not useful for predicting future prices. Most researchers view EMH as a hypothesis that needs testing and adjustment to fit current market conditions[11]. The rise in international trade and financial activities, along with advancements in communication technology over recent decades, has caused formerly isolated emerging markets to be affected by common factors[12]. Researchers observe that consumption and production are linked, shaped by material and emotional ties. Market designers and marketers work to create new connections: social, technical, emotional, legal, sentimental, and practical[13]

The efficiency of the market hypothesis is divided into three parts: weak efficient market, semi-strong, and strong efficiency. A weaker and more plausible version of the efficiency hypothesis states that prices reflect information to the point where the benefits of acting on that information do not outweigh the costs[14]. Semi-strong efficiency indicates that prices reflect both past prices and all published information. This information is quickly incorporated into the stock price without bias (Fernando, 2023). The strongest version of this hypothesis claims that the cost of obtaining and using information is zero[15].

EMH has significant implications for asset pricing and portfolio diversification, leading to a wealth of documented empirical literature[16]. Research by Amgain offers a valuable perspective while challenging the Efficient Market Hypothesis (EMH)[17]. This study examined the link between behavioral finance and investment choices. The findings indicate that investment decisions are often swayed by various mistakes, such as emotional errors and flawed thinking, which lead investors to act irrationally, contrary to EMH expectations. Conversely, Zen found that anomalies in the Hungarian market are less pronounced than in the Romanian market, possibly due to differences in market maturity[18].

In contrast to earlier work, Fama and French identified a positive relationship between average returns and book-to-market ratios[7]. Stocks with high book-to-market ratios tend to generate higher average returns than those with low ratios. This momentum implies that stocks with superior performance in one period typically exceed average performance in the next period[19].

3. Research Methods

The research method used in this study is Systematic Literature Review (SLR), which aims to identify, evaluate, and synthesize empirical and conceptual findings related to Efficient Market Hypothesis (EMH) testing in various financial market contexts. The SLR approach was chosen because it was able to provide a comprehensive overview of the development of EMH theory and empirical evidence, as well as detect patterns of differences in results between studies. According to Tranfield, Denyer, and Smart, the SLR method allows researchers to conduct literature reviews in a structured, transparent, and replicable manner to produce a robust scientific synthesis[20]. Therefore, in this study I used the PRIISMA process introduced[21]

The review process is carried out by following the general stages recommended by Kitchenham et al., namely the formulation of research questions, the search of literature in reputable academic databases such as Scopus[22]. In the search section, the following keywords are used: [(“Efficiency Market Hypothesis” OR “Market Efficiency” OR “Capital Market Behavior” OR “Bibliometric Analysis” OR “Market Anomalies” OR “Emerging Markets”)]. From the search results, scopus yielded 1,897 articles with a time span applied to be 2019-2025. Next I created a filter on the database by adding the following criteria:

Fields of Study : Business, Management and Accounting;

Document Type : article,book chapter,coference paper,review,book,editorial

Language : English

Source Type : Journal

From the results of this filtering, the data obtained must be more specifically related to the theory discussed in this literature where the remaining number of filtering is 235 articles, etc. Furthermore, from these 235 articles, I further narrow the filtering area in order to provide accurate data quality guided by Fantini et al., I provide special criteria to maintain data quality, including, relevance to my theory, completeness of the document, the analysis is appropriate, and the method used[23]. The results of this filtering were obtained by 22 articles. On the other hand, I also searched for other articles using Google Scholar and found articles that match the recommendations [23]. However, there are also several documents that do not match the subject criteria intended for SLR based on[21]. Judging from the search on google scholar, I got 3 articles. So in the end there are 25 articles that I used in this research.

4. Results and Discussions

In this section, the results of the analysis are given on SLR with a database from scopus

4.1 Research on EMH

- a. After the data filter was carried out, I followed the recommendations of Hien Vo Van, et al, namely publications that were taken from year to year from the selected primary source[24].

Based on Figure 1 of the publication distribution (2020–2025) which presents the results of the Systematic Literature Review (SLR) analysis with data from Scopus, the publication trend regarding the Efficient Market Hypothesis (EMH) shows consistent but fluctuating research activities over a six-year period. Starting with around 40 documents in 2020, the number of publications had increased in 2021 before experiencing a significant decline in 2022 to reach around 37 documents. This trend then rebounded, peaking at around 47 documents in 2024, reflecting high research interest ahead of a projected decline in 2025. A stable level of publication never zero and always at a significant level indicates that EMH remains a relevant and active research topic. This ongoing research activity is a positive indication of the theoretical and empirical evidence from various studies, as it shows that there are continuous academic efforts to test its validity, either to confirm (strengthen) or reject (challenge) the hypothesis with new data and methodologies.

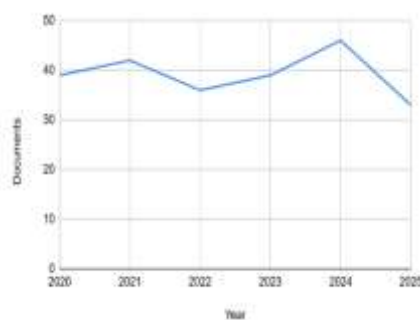


Figure 1. Distribution of publication (2020–2025).

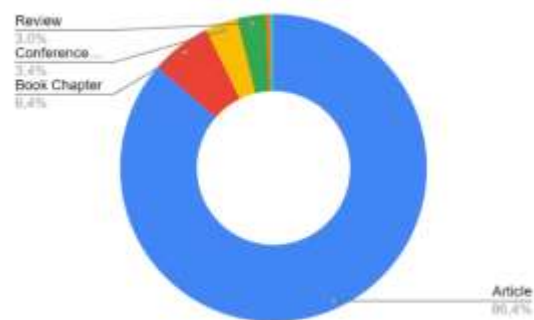


Figure 2. Source by Type

- b. Publication Source by Type

The analysis of the types of documents in Figure 2 shows that research on the topic of EMH is dominated by publications in the form of articles (journals). With a total of 203 papers or 86.4% of the total, this dominance indicates that the most up-to-date and significant theoretical and empirical findings are published through leading

scientific journals (Proceedings of Business and Economic Studies, European Scientific Journal, Financial Innovation, etc.). This large proportion indicates that the majority of studies have gone through a rigorous peer-review process, which indirectly reinforces the validity and scientific credibility of the evidence presented. Other types of publications are in a much smaller proportion, such as Book Chapters as many as 15 documents (6.4%), Conference Proceedings as many as 8 documents (3.4%), and Review as many as 7 documents (3.0%). The existence of Book Chapters and Conference Proceedings shows the dissemination of findings in forums that are more applicable or integrated in the book literature, while the Review type documents show that there are efforts to synthesize and summarize existing literature.

c. Publications by Country

Figure 3 shows that the contribution of research to the topics analyzed is strongly dominated by countries with strong research ecosystems and mature financial markets. The United States (10.0%) is in the top position as the main contributor, followed by India (6.5%) and the United Kingdom (6.2%). This dominance indicates that most of the theoretical and empirical evidence that makes up the literature comes from the leading institutions in those countries.

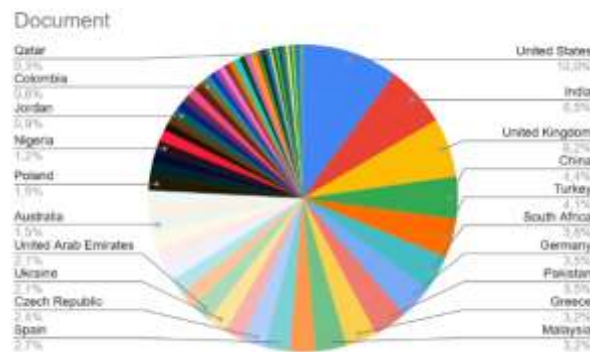


Figure 3. Source by Country

4.2 Findings From the Proposed Research Questions

- How relevant is the Efficient Market Hypothesis (EMH) in explaining capital market behavior in developing countries?

Empirical studies on the Efficient Market Hypothesis (EMH) in emerging markets predominantly use a quantitative approach. This method specifically focuses on Market Anomaly Analysis and Event Studies to test how efficient the market is at reflecting all relevant information on stock prices. Mapping results from various studies consistently show that the relevance of EMH to emerging markets is generally weak and highly variable. Most empirical findings tend to reject market efficiency in the research of Kofarbai & Zubairu, especially in the semi-strong form, where the price should reflect all public information and the strong form where the price reflects all information, both public and private[25]. The market anomalies found even show that emerging markets, especially the Indonesian Capital Market, are not fully consistent with the Weak-Form EMH. As highlighted by the study of Valentika, Mangku and Erliana, there is a significant contemporary connection between *trading volume* and *stock returns*[26]. Based on the logic of weak-form EMH, a predictable relationship between volume and stock price changes should not exist.

- To what extent do empirical research results support the validity of EMH?

The results of the research of Souza & Vinicius, using Univariate tests such as ADF/KPSS found strong evidence of the existence of weak-form EMH in individual exchanges[27]. This means that, separately, the prices of assets in those markets tend to move randomly and cannot be predicted based solely on historical price data. Although weak-form EMH was found, the findings of the stationarity test also implied that prices were non-stationary and predictive (the market was inefficient).

There is a contradiction, If the price is predictable (non-stationary), then the market is inefficient (as opposed to EMH). This suggests that support for EMH in those markets may be inconsistent or dependent on the type of test

used. Empirical evidence suggests that emerging markets may be efficient only in certain periods and inefficient in other periods. Referring to research conducted by Khuntia & Pattanayak, this supports a more recent view, the Adaptive Market Hypothesis (AMH), which states that efficiency is a dynamic and variable state[28].

c. What behavioral factors cause deviations from market efficiency (anomalies)?

Anomalies in developing countries are mainly caused by significant investor behavior factors. This bias encourages irrational investment behaviors where decisions are often based on emotional sentiments (such as fear) and are even influenced by artificial *intelligence* in the research of Amin Aminimehr, et al, instead of on rational fundamental analysis[29]. This irrationality directly violates the basic assumption of the Efficient Market Hypothesis (EMH) regarding fully rational investors. In addition, low *financial literacy* exacerbates this bias and increases investment risk. Collectively, the findings also highlight the role of *herding behavior* and market sentiment that trigger anomalies, supported by strong evidence of momentum effects in the research[19]. The superiority of multi-factor models (such as *The Five Factors Pricing Model*) in explaining stock *returns* over traditional EMH models (such as CAPM) indicates that behavioral and macroeconomic risk factors (including momentum, size, and value) are price determinants, which is contrary to EMH's view that only systematic risk is relevant. This behavior allows for predictable price movement patterns such as price *momentum* that starts, stops, and reverses. The role of these behavioral factors becomes more dominant during periods of high uncertainty, as seen in the COVID-19 Crisis in the research[30] Although EMHs may be more persistent in developed markets, emerging markets show a deviation from *random walks*, with market reactions driven by panic and emotion, rather than logical risk assessments.

5. Conclusion

Overall the SLR data conclude that EMH is theoretically difficult to maintain as a valid descriptive model for emerging markets. This confirms that although the Efficient Market Hypothesis (EMH) remains a globally relevant and active research topic, its validity is very weak and inconsistent in emerging markets. Research on EMH shows consistent activity (around 37–47 papers per year between 2020–2024), dominated by the publication of Journal Articles (86.4%), indicating that the findings presented have high scientific validity and credibility because they have gone through a rigorous peer-review process. The largest research contributions come from countries with large markets such as the United States, India, and the United Kingdom. The results of empirical findings consistently show that the market is broadly rejecting semi-strong and robust forms of EMH. Even at the lowest levels of efficiency, emerging markets (especially Indonesia) show inconsistencies. Some tests (such as ADF/KPSS[27]. Found evidence of weak-form EMH in individual exchanges, but contradictory non-stationariness test findings suggest that efficiency is inconsistent and only applies to specific periods[28] Thus, the SLR Data concludes that EMH is theoretically difficult to maintain as a valid descriptive model for emerging markets. These markets are more appropriately characterized as dynamically inefficient or efficient markets, where asset prices are driven by behavioral, seasonal anomalies, and institutional factors, which collectively provide opportunities for investors to generate abnormal returns.

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