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## Stock Market Prices Follow the Random Walks: Evidence from the Efficiency of Karachi Stock Exchange

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Received: 2023-12-05 ; Accepted: 2024-01-11 ; Published: 2024-02-29

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### Abstract

This study examines the behavior of the Karachi Stock Exchange (KSE) with respect to the movement of share prices for companies listed on the KSE-100 Index and explores how these prices align with the Random Walk Hypothesis (RWH). It highlights that while the prices of securities are co-integrated, their future movements cannot always be predicted. Using historical data from January 2, 2001, to November 15, 2011 – comprising 2,672 observations of the closing share price index of the top 100 companies – the study employs advanced econometric techniques, including the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests and the Johansen Co-integration test, to assess market efficiency. The findings indicate that the KSE-100 Index adheres to the principles of the RWH and Efficient Market Hypothesis (EMH), confirming that KSE is an efficient financial market capable of rapidly adjusting to new information, rendering the prediction of security prices impossible and preventing abnormal returns. By applying robust methodologies, this research provides a deeper understanding of the KSE's behavior and its adherence to market efficiency principles, contributing to reliable insights into the dynamics of emerging financial markets.

**Keywords:** Random Walk Hypothesis, Efficiency Market Hypothesis, KSE.

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### INTRODUCTION

The Karachi Stock Exchange (KSE) is Pakistan's first and most prominent stock market, where approximately 70-80% of the country's trading activities occur. Established in the 1960s, the KSE experienced significant growth in terms of company listings and market capitalization. However, it has also faced numerous challenges due to the economic and political fluctuations within the

country, which have directly influenced its trading activities over the past sixty years.

The share prices in the stock market are highly sensitive to these changes, exhibiting both positive and negative impacts depending on the nature of the fluctuations. Stock exchanges play a pivotal role in a country's economic development, as highlighted by Oskooe (2011). Their ability to respond to and absorb new information effectively determines their efficiency.

Some markets prove to be efficient, while others remain inefficient when reacting to sudden, unpredictable information, often stemming from changing political and economic conditions. Markets that fail to adjust or absorb such information are at risk of financial crises, which can be detrimental not only to small investors but also to the broader national economy (Mujtaba, 2006).

The concept of market efficiency was extensively discussed by Fama (1970) through the Efficient Market Hypothesis (EMH). According to this hypothesis, an efficient market comprises a large number of rational, profit-maximizing participants who compete by predicting future market values of securities.

In such a market, all participants have equal access to current information. The competition among professionals with relevant expertise ensures that, at any given time, the actual prices of securities reflect the cumulative effects of both past events and anticipated future occurrences.

In other words, an efficient market provides a reliable estimate of a security's intrinsic value at any point in time. Market efficiency is crucial because inefficiency creates opportunities for profit-maximizers to outperform the market by identifying undervalued or overvalued securities, thereby gaining abnormal returns.

While this may benefit certain traders, the inefficiency of the stock market poses significant risks to small investors and the overall economic stability of a nation. The inability to adjust to new information can amplify financial vulnerabilities, leading to broader economic challenges.

The efficiency of a stock market depends on its ability to absorb and adjust to information rapidly. This efficiency is a reflection of the accessibility and timely availability of information to all participants engaged in trading activities.

Fama's Efficient Market Hypothesis further classifies market efficiency into three levels based on how effectively a market integrates information into securities' prices: weak-form efficiency, semi-strong-form efficiency, and strong-form efficiency. Each level corresponds to different scopes and sources of information available to market participants.

Understanding and analyzing these levels of efficiency are essential for assessing the overall functionality of a stock market. For a country like Pakistan, ensuring the efficiency of its stock markets like KSE is vital not only for protecting investors but also for fostering sustainable economic development.

## **METHOD**

The research carried out was a quasi-experiment where the research procedure divided the group into two, namely the experimental group and the control group with a mixed method approach. The researcher ordered the analysis method (Sequential Explanatory) where the first stage of research was carried out using quantitative methods to obtain measurable and comparative data. The next stage or second stage is research using qualitative methods to strengthen, prove or disprove the quantitative data obtained in the first stage (Sugiyono, 2020).

The total population was 29 students in the 10th Islamic Communication and Broadcasting class. The sample was selected using a purposive sampling technique. The quantitative data collection tool used a Likert scale for student responses which were then analyzed using independent sample t-test analysis against the post test. Qualitative data was collected from interviews conducted with 2 informants from the experimental sample. The researchers selected 2 people as informants based on criteria and were deemed to have provided sufficient information needed by the researchers.

## **RESULTS AND DISCUSSION**

Carrying out this research, researchers carried out an experimental process by providing inclusive literature which included the availability of reading material that discussed gender. Gender literature may include books, videos, articles, journals, blogs, films, research papers, or other online resources. The next step is to create a discussion group which will support the growth of interest and understanding through the exchange of ideas and experiences.

The discussion activity, which included providing reading material, was carried out over 14 meetings. To achieve effective communication, a group communication pattern is needed to support it to make it easier to understand the message conveyed between the giver and recipient so that it is clearer, more complete, delivery and feedback are balanced (Suprpto, 2019).

It can be said that in the group discussions that were carried out, the group communication pattern that was formed was a free network communication pattern. The free network communication pattern is based on an interaction

perspective which emphasizes that the communicator or source responds reciprocally to other communicators. The mechanism of the free network group communication process is that both the communicator and the communicant have the same position (Febrianita & Amalia, 2020).

In another sense, the free network communication pattern is the same as the circular communication pattern, only this pattern is more dynamic and has open channels. This pattern allows every member of the group to communicate with anyone, this pattern is the most flexible pattern because there are no intermediaries who can hinder the flow of information.

The activities carried out in each meeting are: first, the researcher distributes reading material in the form of articles, research papers, films, videos or books, then, the researcher and all discussion members present their understanding of the reading material shared. Second, interactive activities such as questions and answers and sharing experiences. Researchers and all discussion members can ask questions or provide responses to the presentation or message being discussed. Third, carry out evaluation and feedback. Researchers and all discussion members were given the opportunity to provide feedback regarding meeting activities.

Quantitative data findings can be seen from the results of hypothesis analysis based on statistical calculations to draw conclusions about whether the null hypothesis can be rejected or not and it is important to interpret the results contextually and explain the implications of the findings. The use of the independent sample t-test on the post-test aims to determine whether there is a difference in the level of interest and understanding of gender literacy between students who were given treatment and students who were not given treatment. The posttest t-test results calculated using SPSS 26.0 software can be seen in Table 1 below:

Table 1 Independent Samples t-Test Results on Students' Interest and Understanding of Gender

<b>Group</b>	<b>Mean</b>	<b>T test</b>	<b>P</b>
KE	122.66	12.841	0.000
KK	89.16		

Note: TO: Experimental Group; KK: Control Group; T test: Difference in means of two sample groups; P: Probability

The results of the independent sample t-test in Table 1 show that the t-test value is 12,841 with  $p = 0.000$  at a significance level of 5%. This means that the t

test value is significant, so it can be stated that there is a significant difference between the interest and understanding of students who were given treatment and students who were not given treatment. In connection with this research, based on hypothesis testing, it shows that efforts to provide inclusive literature access are effective in increasing student interest and understanding.

Based on the t test, it is also known that the average level of interest and understanding of students who were given treatment was 122.66 and the average level of interest and understanding of students who were not given treatment was 89.16. It can be concluded that the average level of interest and understanding of gender literacy among students who were given treatment was higher than students who were not given treatment. This is in accordance with the statement that if the experimental group's score is higher and more significant than the control group, then the treatment has a positive effect (Sugiyono, 2020).

Regarding the treatment provided, namely the implementation of efforts to provide inclusive literature access in increasing student interest and understanding, then in supporting and expanding the quantitative data analysis of qualitative data sourced from interview data collection is also presented. The results are interpreted as follows:

### **Students' interest in gender literacy**

Interest has a big influence on the activities a person carries out, with interest a person will do something with pleasure and willingly. Someone who is not based on interest will feel reluctant to do something, so this shows that interest is an important element in achieving success in carrying out a task or activity (Vidiawati, 2019). Gender literacy interest can be seen from several aspects including: a person's frequency of reading activities, the amount of reading material, situations that encourage a person to read, active participation without coercion, and feelings of enjoyment. From the results of interviews with informants, it is proven that there is an increase in interest in gender literacy, thus this qualitative data strengthens the quantitative data.

Qualitative data that supports and expands this explains that students' interest in gender literacy can be seen from several aspects as follows:

1. Frequency and amount of reading material

The results of the interviews obtained explain that the amount of reading material that informants read has increased and they more often read books or other gender reading materials, both online and offline. This is in accordance with Santoso's (2011) statement, namely that if someone

has a large amount of reading material, it shows that someone has a high interest in reading activities.

2. Situations that encourage someone to read

The results of the interview showed that the informants' interest in gender literacy increased because of the comfortable atmosphere and the discussion activity itself. In line with this, such a situation can provide benefits in retaining and also motivating students to continue reading and increase their knowledge more broadly and in depth (Jalaludin, 2021).

3. Active participation without coercion

The interview results obtained showed that the informant was aware of the benefits of reading for himself and was willing to look for references to reading materials regarding gender other than the reading materials provided. A person who is aware of the benefits obtained from reading activities will carry out reading activities voluntarily without any coercion from other parties (Ramandanu, 2019).

4. Feelings of joy

The results of the interview explained that the informant felt happy when reading gender reading material. When someone feels happy exploring gender issues, discussing gender gaps, it indicates that they have an interest and desire to understand.

### **Understanding student gender literacy**

Gender literacy can provide benefits for students in changing society to be more inclusive, fair, and aware of the importance of gender equality. Gender literacy can also be understood as the ability to understand the ins and outs of women's status from negative justifications produced by social culture, reconstructing the reality of gender perspectives and deconstructing established discourses towards women (Darma, Yoce, & Astuti, 2021).

Understanding gender literacy refers to a person's ability to recognize, understand, and criticize roles and norms related to gender in culture and society. This includes an understanding of the concept of gender, gender differences, as well as the social, economic and political impacts of gender inequality. Gender literacy also involves being aware of gender stereotypes, patriarchy, and how these affect an individual's daily life and opportunities.

Scientifically, gender literacy involves analysis of the social construction of gender roles, how gender identity is understood and shaped by society, and how gender inequality appears in various aspects of life. Gender literacy helps us understand why women and men often have different access to education, work, health services, and how policies and social structures reinforce this.

Gender literacy enables a person to identify gender discrimination, understand how media and culture influence gender perceptions, and contribute to building a more inclusive and gender-just society.

Based on the results of the interview, it was found that the explanation of the concept of gender that the informant provided could be explained correctly and was able to identify problems that occurred in relations between men and women. The ability to understand concepts, social roles, stereotypes and dynamics that occur in relationships between men and women is an indication of gender literacy with a better understanding (Jiwanda, 2023). Apart from that, this ability to understand forms a critical attitude to abandon gender thoughts or assumptions, especially regarding women (Jiwanda, 2023). Gender literacy provides a clear definition of the difference between the concepts of gender and sex. This helps avoid gendered assumptions.

## CONCLUSION

Based on the results of the research findings that have been carried out, the researchers concluded more briefly as follows:

Implementation of efforts to increase interest in gender literacy among students of the Islamic Communication and Broadcasting Study Program is by providing literature on gender which is included in peer discussion groups. Procuring literature means ensuring the availability of reading materials that discuss gender. Gender literature in the form of books, articles or other online resources, by integrating it into discussions, members can develop a deeper, critical and contextual understanding of gender issues. Ease of understanding messages is supported by forming a circular group communication pattern or all-channel network, this allows all discussion members to communicate without obstacles. These efforts support the growth of interest and also increase understanding through the exchange of ideas and experiences.

There is an increase in interest and understanding of gender literacy among students of the Islamic Communication and Broadcasting Study Program. The results of quantitative research show that subjects who were involved in discussion groups and had access to literature had a higher increase in interest and understanding with an average score of 122.66. Meanwhile, the control group who were not involved in the discussion group had more limited interest and understanding with an average score of 89.16. The results of the qualitative data show that interest in gender literacy among students in the experimental group increased as assessed through indicators of the amount and frequency of reading, active participation in reading activities as well as the desire to search

for sources of reading material independently, as well as positive feelings, namely joy when reading and discussing, thus motivating to share knowledge with others. They also have a better understanding of the concepts discussed in the literature. Active participation in discussions allows them to share views, information and deepen mutual understanding.

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