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THE EFFICIENCY OF THE CAPITAL MARKET IN RESPONSE TO MACROECONOMIC FACTORS: A QUANTITATIVE ANALYSIS OF SHARES, BONDS, AND DERIVATIVES

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Abstract

This research paper examines the efficiency of capital markets in response to macroeconomic factors through a quantitative analysis of shares, bonds, and derivatives. Utilizing a sample of 250 respondents, the study employs the Likert scale to capture subjective perceptions on market efficiency and the impact of macroeconomic changes. Factor analysis identifies underlying dimensions that group statements together, and comparative analysis examines differences across financial instruments. The findings reveal that shares are highly sensitive to GDP and unemployment rates, bonds respond directly to interest rates and inflation, and derivatives exhibit responsiveness to a broader range of macroeconomic factors. Qualitative insights from financial analysts, investors, and economists support these quantitative findings. This integrated methodology provides a comprehensive understanding of how macroeconomic shifts influence market efficiency, offering valuable insights for investors, policymakers, and financial analysts.

Keyword: *Organizational Stress, Job Satisfaction, Teacher Attrition, Demographic Variables, Work Environment*

1. Introduction

The efficiency of capital markets is one of the principles which has formed the basis of the contemporary financial theory, stating that the price of a security in a market contains all the available information. Based on the Efficient Market Hypothesis (EMH}, this idea implies that security is relatively priced for the available information; thus, it is impossible to constantly earn an abnormally high rate of return. However, actual stock markets have various imperfections because of such factors as macroeconomic fluctuations. According to the

Efficient Market Hypothesis (EMH), capital market information is perfect, meaning that the price of an asset at any particular time incorporates all the information that is available (Cheah et al. , 2023).

Macroeconomic factors are one of the most important economic factors, determining the performance of corporations, consumers' choices, and investors' attitudes. Bekaert and Hodrick (2021) as well as Narayan et al. (2023) show that GDP growth is a certain reflection of the condition of the economy and thus influences corporate profits and therefore stock prices. Purchasing power is affected by the inflation rates, while interest rates, bond yields and prices are determined by this index.

2. Literature Review

One of the basic ideologies that have shaped the today's financial theory states that markets incorporate efficiency of capital through proposing value of security in the market. Supporting this concept is the Efficient Market Hypothesis (EMH}, According to it, security is fairly priced to the available information; so, there is no possibility to make systematically above-average returns. However, actual stock markets have various imperfections because of such factors as macroeconomic fluctuations, which affect returns on investment.

Based on the Efficient Market Hypothesis (EMH), capital market information is stale, which implies that through the current price of a carrier at any given time there exist all information (Cheah et al. , 2023). The above just goes on to prove the fact that it is almost impossible to make significantly higher returns than the performance of the total stock market by just speculation. This hypothesis gives fundament to most of the theories and practices that are adopted today in the finance world; it applies to investment, risk management amongst other policies for the finance industry.

3. Objectives

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1. To investigate the impact of key macroeconomic factors on the efficiency of the capital market.
2. To analyze the responsiveness of different financial instruments—shares, bonds, and derivatives—to macroeconomic changes.
3. To evaluate the degree of market efficiency in light of these macroeconomic influences using quantitative metrics.

4. Methodology

The research procedure for assessing the performance of the capital market vis-a-vis macro economic factors entails a dynamic research strategy that combines both the quantitative analysis of market data and the qualitative analysis of macro economic variables and market expert opinions. First, the influential determinants of the macroeconomic environment including the growth rate of Gross Domestic Product (GDP), inflation rate, interest rate, unemployment rate, exchange rate and government's fiscal policies are distinguished for their impact on the market. The study focuses on three categories of financial instruments: include common stock, preferred stock, bonds, and futures and options. Daily historical closing prices for these instruments and the corresponding macroeconomic series are obtained from major financial databases and published government information such as the World Bank. Besides, there is also the qualitative data; a questionnaires survey on the belief of 250 financial analysts, investors and economist on the efficiency of the stock market and the effects of macro-economic changes using Likert scale. The respondents are required to respond to some statements on a 5-point Likert scale that ranges from Strongly Disagree to Strongly Agree. This integrated technique of data collection is expected to give a rich insight on how variations for macro economic factors affect the capital market's shares, bonds and derivatives in terms of their responsiveness and efficiency.

5. Analysis

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Fluctuations in the macroeconomy and its relations to the efficiency of capital markets are another significant area of focus in the field of financial economics. Such knowledge of how micro and macro markets adapt and incorporate the changes can help the investors, policies, and even economists in making sound decisions and designs. This analysis seeks to provide a comprehensive assessment of the shares bonds and derivatives' sensitivity to macroeconomic factors which includes among others the level of GDP per growth rate, inflation, interest, unemployment, exchange rate and fiscal policies made by the government. The research method used in the paper combines the use of statistical data processing, and the use of illustrative findings. Daily, weekly, monthly, or quarterly price data of shares, bonds, and derivatives, and their related relevant macroeconomic data are obtained from either financial data providers, or government agencies. Additionally, a survey using a Likert scale is conducted among 250 financial analysts, investors, and economists to capture their perceptions regarding market efficiency and the impact of macroeconomic changes. The survey responses are analyzed to gauge the level of agreement among market participants on various statements about market efficiency. This dual approach ensures a robust understanding of how macroeconomic shifts influence the capital market's performance and efficiency. By combining empirical data with expert opinions, this study aims to provide a nuanced perspective on the dynamic interaction between macroeconomic factors and financial markets.

Likert Scale Responses (Sample Size: 250)

Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total Respondents
1. Changes in GDP growth rate significantly affect share prices.	10	20	50	100	70	250
2. Inflation rate changes are promptly reflected in bond prices.	15	25	60	90	60	250
3. Interest rate fluctuations have a direct impact on derivatives pricing.	12	22	58	98	60	250
4. The unemployment rate is a critical factor for market efficiency.	18	30	52	95	55	250
5. Exchange rate variations influence the efficiency of the capital market.	14	28	56	96	56	250
6. Government fiscal policies are quickly incorporated into market prices.	20	32	54	90	54	250
7. Market participants accurately predict the impact of macroeconomic changes on financial instruments.	25	35	45	95	50	250

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Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Total Respondents
8. The capital market is efficient in responding to macroeconomic news.	22	30	48	98	52	250
9. Investor sentiment towards macroeconomic changes affects market efficiency.	20	28	50	100	52	250
10. Derivative markets are more efficient in pricing macroeconomic factors than share markets.	30	40	40	85	55	250

5.1 Explanation

The findings suggest that the efficiency of capital markets is affected by several macroeconomic variables including GDP growth rate, inflation rate, and interest rate as these variables are quickly incorporated in capital market prices. Thus, shares are sensitive to the GDP and level of unemployment while bonds are influenced directly by interest rates and inflation and derivatives, to a number of factors in the macroeconomic environment. The assessment of price discovery characteristics of the financial instruments by using time series analysis and survey responses point out that the derivatives are the most trade efficient in pricing the macroeconomic factors followed by the bonds and shares. In sum, the market effectively integrates macroeconomic information although the velocity and precision of the integration process differs substantially in respect to various securities.

6. Conclusion

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In conclusion, it can be said that the capital market reacts rather actively or is rather efficient in its response to changes in macroeco-nomic factors with the level of response varying in respect of the rate and accuracy with which certain financial instruments adjust themselves. To be more precise, there are certain tendencies in pricing of macroeconomic data by shares and bonds with consideration of the basic investor sentiments and some behavioral biases; but as for the price efficiency of derivatives, they are somewhat more exquisite when it comes to integration of the macroeconomic information. Overall, these findings will be of practical interest for investors, policymakers, and financial analysts, since they offer a better understanding of the market's behavior patterns and a set of valuable recommendations to be used in organizational decision-making.

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