

Kudzanai Chakona

**Changes in Macroeconomic Variables and
Their Impact on Stock Price Indices. A Case
Study of the Financial Times Stock
Exchange (FTSE) and Johannesburg Stock
Exchange (JSE) Indices**

Case Study

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CHANGES IN MACROECONOMIC VARIABLES AND THEIR IMPACT ON STOCK PRICES INDICES: A CASE STUDY OF THE FINANCIAL TIMES STOCK EXCHANGE (FTSE) AND JOHANNESBURG STOCK EXCHANGE (JSE) INDICES

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ABSTRACT

The purpose of this study is to analyse the changes in macroeconomic variables and evaluate the impact on a company's stock prices, by examining the impact of changes macroeconomic variables, determining which macro-economic variables that have the least and most impact on stock prices and also suggest ways in which the impact on the macroeconomic variables on stock prices can be hedged against using agricultural futures, metal futures or a risk-free asset.

The study will use five econometric models to test this impact, these include the Granger Causality test, Johansen Co-Integration test, Vector Error Model, Walt Test statistic, Multiple Regression Model. A review of a number of academic literature by notable analysis for both developed and developing markets will be provided. The FTSE share price index will be used in the study to represent the developed markets and the JSE share price index will be used in the study to represent the developing markets.

The results provided are mixed with the Johansen Integration and Multiple regression tests indicating presence of this impact on stock prices by macroeconomic variables. The Vector Error correction Model, Wald Test statistic and Granger Causality providing the opposite results. Based on the multiple regression model, interest rates having a negative impact, inflation, currency exchange and unemployment rate having a positive impact on stock prices in developed markets whereas in the developing markets the currency exchange rate and the interest rate had a negative impact on stock prices where as inflation had a positive impact. The developing and developed market's interest rates had the greatest impact and currency exchange rate had the least impact on stock market indices.

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CHAPTER ONE-INTRODUCTION

1.0 BACKGROUND AND INTRODUCTION

The UK has experienced a lot of instability in different macroeconomic variables since the result of the referendum to exit the European Union was announced on the 24th of June 2016. The Brexit decision also led to high volatility in stock prices (Ramiah, Pham and Moosa, 2017). Stock markets globally have of late been more connected than ever before this has often led to the effects of any changes being felt right across all the stock markets (Forbes and Rigobon, 2002).

According, to Rodionova, Cox and Chu (2017) the Pound Sterling depreciated against the United States Dollar by about 14% as a result of the decision to exit the EU. Also to be affected by this result was the UK FDIs which fell by about 0.9%, inflation for the country rose from 0.3% to 1.2% during the last quarter of 2016 and the official bank rate plunged by 50% to 0.25%.

A number of notable analysts have provided literature on stock price movements and how their determined. The main proponent of stock price movement/Efficient Market Hypothesis was Fama (1970) who suggested that any stock prices will change on the account of news which is unpredictable and any expected news/information is always included in the asset prices. Sharpe (1964), Lintner (1965) and Mossin (1966) invented one of the first viable asset pricing theories which used stock market index to explain an investors returns, known as CAPM (Capital Asset Pricing Model). CAPM uses just one factor, namely stock market index, in order to explain common stock returns. The CAPM model was heavily criticised because of its inability to include other factors to determine investors return. Ross (1976) introduced a multi-factor model and then introduced a multi-factor model known as Arbitrage Pricing Theory which included a few macroeconomic variables in his study.

Elton and Gruhen (1991), suggested that if expected returns affect share prices, hence share prices are determined by macroeconomic variables, because expected returns rely heavily on macroeconomic variables. Tobin (1965), suggested that inflation and real returns on Treasury bills (T-bills) were negatively correlated with

stock prices. French et al (1987), concluded that interest rates had no influence on stock prices. Sharma and Mahendru (2016) went on further to say that not only do macroeconomic variables influence share prices but also the countries' policies. McQueen and Roley (1993), suggested that if macroeconomic variables were favourable, stock market indices performed negatively.

1.1 AIMS AND OBJECTIVES

The aim of this research is to analyse the changes in macroeconomic variables and evaluate the impact on a company's stock prices. The objectives of this study are:

1. To examine the impact of changes in macroeconomic variables (Interest rates, inflation, gross domestic product and unemployment rates) on stock prices;
2. To determine which macro-economic variables has the least and most impact on stock prices
3. To suggest ways in which the impact on the macroeconomic variables on stock prices can be hedged against.

In order to help achieve the objectives stated above, the following research questions have been formulated:

1. What is the impact of changes on macroeconomic variables on stock prices?
2. Which macro-economic factors have the least impact on the stock prices?
3. Which macro-economic factors have the greatest impact on the stock prices?
4. Which hedging strategies can be adopted to mitigate the impact of macroeconomic variables on stock prices?

1.2 SCOPE AND METHODOLOGY

This study will focus on FTSE Indices (UK) and JSE Indices (South African). The macroeconomic indicators to be used will include, Currency, inflation rate, Interest Rates and Unemployment rate.

The scope of the study will be as follows firstly, the study will review academic literature to show gaps in my research, to demonstrate an understanding of the research on macroeconomic variables, stock prices and hedging strategies, generate a new null and alternative research hypothesis on whether there is a relationship between the macroeconomic variables and stock prices and summarise and evaluate past research indicating any similarities/differences. Secondly, the study will move onto discuss the methodology used to obtain data and information about the study and also carry out statistical the tests on extracted data. Lastly, the study will evaluate/analyse the findings from the tests carried out, recommend any solutions/hedging strategies and provide a conclusion.

1.3 FINDINGS

The findings indicated mixed results based on the models used in the study. The granger causality tests indicated that out of all macroeconomic variables in the UK the unemployment time series data could be used to predict the FTSE, in the developing markets interest rates and the JSE share price index could predict each other. The co-integration test in both developing and developed markets indicated that there was some form of co-integration between the stock price indices and the macroeconomic variables in their respective countries. The vector error correction model indicated that there was no long run relationship in both markets between the stock price indices and the macroeconomic variables. The Wald test statistic was there was no short run impact on the stock prices by the macroeconomic variables in either markets. The multiple regression model contradicted all models and reflected that in fact all changes in macroeconomic variables had an impact on stock prices, with interest rates having a negative impact, inflation, currency exchange and unemployment rate having a positive impact on stock prices, In the developing markets the currency exchange rate and the interest rate had a negative impact on