The relevance of global political economic dynamics on the performance of Zimbabwe Stock Exchange

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Abstract
This study examines the relationship between the global economic dynamics and the stock market performance. The main objective of the study was to investigate the impact of global political and economic shocks on the pricing of stock securities on the Zimbabwe Stock Exchange. This relationship was examined using GARCH methods. Zimbabwe Stock Market performance was regressed against Growth Domestic Product (GDP), Global Financial Crisis (FC), Arabic Spring (AS) and Global Petroleum Crisis (GPC). The research aimed to establish whether global economic shocks impact negatively on the performance of the Zimbabwe Stock Market as explained by the econometric model. The study showed that global political economic dynamics are relevant in the pricing of securities on the Zimbabwe Stock Exchange.
Keywords: Global economic dynamics, Zimbabwe stock exchange, Efficient Market Hypothesis

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I. Introduction

Developed economies like USA; UK as well as other countries had practiced the third crisis stage as determined by mid-term economic slump connected to Juglar series. Global economics dynamics are progressively becoming vital as an origin of global capital movements (Pantin; 2012). It is now almost difficult for other nations to shield themselves from external impacts that arises from their economic markets. Successive admirable return as well as large inflows of foreign capitals have enhanced the Zimbabwe Stock Exchange (ZSE) since 2021. Though market liberalization rules appear to have transformed some arbitrage associations between stocks returns and revenues from other assets as well as goods together with sharp rises in stocks prices in 2022 have triggered some fear amongst foreign investors. It was noted by Akaev (2012) that there is a growing importance of stock market throughout the world; and this had increased some belief that global economic dynamics are vital for pricing of securities.

Gordon (2016) persists that, up-to-date geopolitical rigidities concurring with the long standing of 2007 global economic dynamics had severe effects on both financial and economic situations of the global community particularly on stocks, oil together with shares prices and pricing of securities. He further explained that the global wave uncertainty had reached the developing markets as well. However this paper opted to focus on several global factors like Stock Market Volatility; International Liquidity and Global Interest Rate Levels as well as assessing its impact on active pricing of securities.

1.1 Research objectives
This paper was guided by the following research objectives:
1) To establish effects of global political shocks on pricing of securities on the ZSE.
2) To determine the effects of global economic shocks on pricing of securities on the ZSE.
3) To provide recommendations on the results.

1.2 Theoretical Model
Theoretic model analysis explored model that illustrated more information on current topic under study as well highlighting which, thereby help in better understanding of the study in question whilst at the same time putting forth a reason for the current study. This study was guided by the Efficiency Market Hypothesis (EMH).

1.2.1 Efficiency Market Hypothesis (EMH)
The Efficient Market Hypothesis (EMH) is a model for how stock markets performances. Fama (1970), EMH asserts that markets incorporate public, historical and private information in coming up with security prices.
This study is going to explore the efficiency of the Zimbabwe Stock Exchange for the period under investigation. Grossian and Stiglitz (1980) go even further, they struggle that markets are informationally

perfect are impossible, such that if markets are perfectly well-organized, there would be little reason to trade and markets would finally collapsed.

Otherwise, the extend of market efficiency governs the effort investors are willing to expend to gather and trade on information, hence a non-degenerate market balance will arise only when there are sufficient profit occasions, that is, inefficiencies to recompense investors for the costs of trading and information assembly. All these facts cement the necessity to examine the effectiveness of the ZSE, how efficient is the Zimbabwe Equities Market, and if it is efficient, then the stock market would capture all global economic dynamics, which include the political shocks and the economic shocks.

II.   Literature Review

2.1 Overview of core concepts

The literature review appearances is on the thoughts as well as views forwarded by other researchers and academics around the world concerning the issue of the relevance of global economic dynamics on the pricing of securities. This discovered the conclusions of similar researches which were done before, the models that they used and their suggested factors that affect the pricing of securities. The literature review details will help in mapping up of methodologies to be used for this research and comparisons with the findings which then presents the research findings.

Theoretic analysis discovers theories that explicate on the topic under study and which, thereby help in improved thoughtful of the study in question whereas at the same time putting into view a reason for the present study. Empirical review on the other hand, pursuits studies that have been take on in a similar area of study with a view to establish gaps, conjunction as well as divergences that help to evidently find, define and once more, like in theoretic analysis, justify the researcher's study in question.

2.2   Political Shocks

2.2.1 The effect of the Arabic Spring on the performance of the global stock markets

According to Mohmad Mousavi (2014), financial markets are combined as well as all-pervading to news including political conflicts in some regions of the world. It seems that , financial markets still reacts differently to information movements from one region to another. Mohmad (2018), carried out a study on the effects of Middle East together with North Africa (MENA) disagreements, usually acknowledged as the Arabic Spring on the instability of menaces as well as returns of global together with regional stock markets such as gold as well as oil markets.

Empirically the conclusions of this study offered that the uprising events of MENA has more impact to volatility of risks as well as returns of both developed and developing countries and European Regions than MENA itself. Above and beyond, even however outcomes presented that volatility of both menaces as well as returns of both developed together with MENA regions were meaningfully affected by general disagreements in MENA. Volatility of MENA was affected throughout all intermissions together with advanced implication level. Although the entire MENA uprising impacted on volatility of risks especially of oil after five days then immediately after entering news eloquently, this revenues of these markets were not influenced by battles.

### 2.3   Global economic shocks and stock markets

2.3.1   The Great Economic Recession and its effects on stock markets

According to Thalassinos et.al (2015), the great economic recession has caused a considerable slowdown in most developed countries and has also affected financial markets and growth prospects in developing countries. He stated that the stock markets are well-thought-out of the indicator of any factual activities and that the first signs of financial crisis were noticeable over the variations recorded by performance pointers that categorized stock markets.

According to Krugman (2009); a framework about how financial crises emerge as well as how to look at the problem. Pointers which were used to look at stages in which business cycles of the economies were heading, which comprised of employment, private consumption , industry output, and GDP. Thus, when these indicators collapsed on an economy slump was certain to occur, bestowing to Krugman. In his theory of financial catastrophes which comprised: a torrent real estate bubble, a wave of bank rushes, a liquidness deception, complaints in international capital flows as well as wave of money catastrophes.

2.3.2 Conceptual framework

Fig 1: Conceptual framework
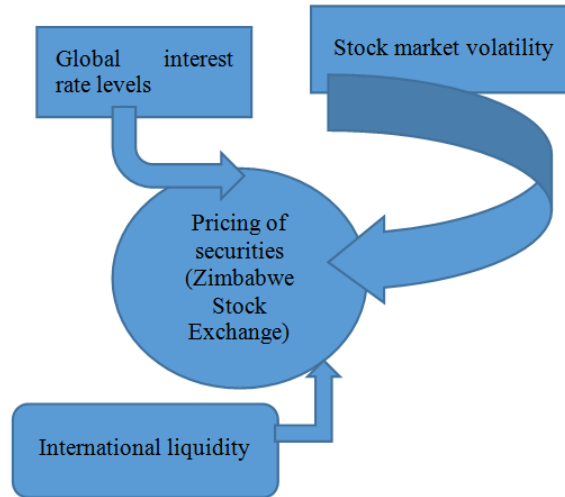
Source: Gordon (2016)

This study will focus on various global factors such as stock market volatility, international liquidity and global interest rate levels and its impact on the effective pricing of securities.

III. Methodology

The methodology outlines the stages involved in the treatment; procurement and testing of data with the aim of fulfilling the research objectives. The various stages of the process were explained so as to impart a vibrant gratitude of the extent of research conducted. Rigorous consultation to academic journals and textbooks on both treatment and analysis of data was made. The methods employed by the author are among the most common and pragmatic methods found in literature. The researcher is going to outline the models to use to test our models we stated for EMH. The explanation of unit root and stationarity tests; Phillips Peron and Augmented Dickey Fuller tests and Heteroscedasticity tests (GARCH and ARCH Models) was done. These tests as well as computations will give the researcher insight on the selection of the best empirical model.

3.1 Empirical Model specifications and definition of variables

To determine the relevance of global economic dynamics on the pricing of securities on the Zimbabwe Stock Exchange, this study shall modify the Guérin and Révil (2001) methodology. This study will examine the relationship between Zimbabwe Stock Market performance (Zindex) and the Growth Domestic Product (GDP), Global Financial Crisis (FC), Arabic Spring (AS) and the Global Petroleum Crisis (GPC), using the following model:

$$Zindex_{(it)} = B_1 GDP_{i,t-1} + B_2 FC_{i,t-2} + B_3 AS_{i,t-3} + B_4 GPC_{i,t-4} + e_i + \mu_t + \epsilon_{it} \ldots \ldots (8)$$

Where:

Zindex_(it) = the Zimbabwe Stock Market performance and it was measured as the monthly movements in the stock market, that is the monthly industrial indexes.

GDP_(i,t-1) = Growth Domestic Product;FC_(I,t-1) = Global Financial Crisis;AS_(I,t-1) = Arabic Spring; GPC(I,t-1) = Global Petroleum Crisis

However, using GARCH, the model will be represented as a system of equations for stock market performance (Zindex's) and global economic shocks (GESs) which simultaneously determine the relevance of the global economic dynamics stock market performance.

3.2 Research techniques

Various tests will be developed in order to study various aspects of time series data, within different tests designed for time series; Augment dick fuller and Phillips-Peron tests are designed for testing stationary in data . From the other side, ARCH-LM test is designed to test the presence of heteroscedasticity. Furthermore, ARCH correlogram can be used for testing serial conditional variance correlation in series.

3.3 Descriptive statistics

Leptokurtosis and time varying volatility are usually shown by a number of financial series, such as the stock market performance. Since Mandelbrot (1963) and Fama (1965) initially reported these two features, they have been intensively exposed in several studies. It is therefore necessary to do some descriptive statistics to study whether stock market performance displays time varying volatility characteristics.

Table 1: Descriptive statistics

Variable	*Zindex*
StandardDeviation	0.34
Skewness	5.77
Kurtosis	37.89
JB p-value	8104.41 0.0000

Table 1 above indicates the descriptive statistics of the stock market performance variable. Using null hypothesis of normal distribution, the p-value of J-B statistics is 0. The J-B value of 23.175 deviated from normal distribution. Likewise, skewness and kurtosis show the nature of departure from normality. Emenike (2010) posited that in a normally distributed series, skewness is 0 and kurtosis is 3. The coefficient of skewness measures asymmetry. The Z-index forskewness is 0.855 and it show positive skewness. A positive skewness shows that a tail on the right side is longer than the left side and mostof the values lie to the left of the mean. Furthermore, if skewness is positive, the average size of positive deviations isgreater than the average magnitude of negative deviations. The coefficient of the Z-index variable shows the existence of asymmetry in the Z-index. The norm is that the variable that follows a normal distribution should be symmetric.

3.4Testing for collinearity

Collinearity was done to check for the existence of linear relation between explanatory variables. The reasoning behind the assumption of no multi-collinearity is as follows: if two variables are collinear then it becomes hard to distinguish the effect of each individual independent variable on the dependant variable. To check whether multi-collinearity exists among independent variables, a correlation analysis was performed. The nearer the r number slants to +-1, irrespective of the route, robust is the present connotation display that a more linear association be present between two variables. The rule of thumb suggested; if the duos prudent association amongst two regressors is very high, in spare of 0.8 multi-collinearity it may stance thoughtful difficulties. The connection examination outcomes are exhibited below.

Table2 :Matrix of correlation of independent variables.

Variable	*Zindex*	*FC*	*AS*	*GPC*
Zindex	1.000000	0.261826	0.305787	0.270083
FC	0.261826	1.000000	0.099201	0.391755
AS	0.305787	0.099201	1.000000	0.135676
GPC	0.270083	0.391755	0.135676	1.000000

Table2 above indicates that the highest correlation coefficient valueis 0.3912 which is rather low. It is well below 0.8. The highest correlation numbers are lower than 0.8 which clearly indicate that none of the independentvariables are highly correlated and no multi-collinearity amongst independent variables exist.

3.5 Explanation of unit root and stationarity tests
Testing for units roots

Dickey-Fuller unit root test was used;
Under H0, this model for yt is:
$\Delta yt = \mu + \rho1\Delta yt\text{-}1 + \ldots + \rho k\text{-}1\Delta yt\text{-}(k\text{-}1) + \varepsilon t$ (4)
which is an AR(k-1) in the first difference Δyt
Thus, if yt has a (single) unit root,
then Δyt is a stationary
For the reason that this stuff, we say that if yt is nonstationary, but Δdyt is stationary, then yt is combined of directive d (denoted yt ~ I(d)) or has d unit roots
A (non-stationary) variable is said to be integrated of order d, denoted I(d), if it needs to be differenced d times to achieve stationarity;

The order of differencing depends on the number of unit roots - this means that, for example, an I(1) variable needs to be differenced once to achieve stationarity and that it has only one unit root.

Some observations: deterministic regressors

Potential models are:

$$\Delta yt = \mu + \delta t + (\rho - 1) yt\text{-}1 + \ldots + \varepsilon t \quad (6)$$

Whereby

$\mu = \delta = 0$ is devoted to as a model deprived of drift;

$\delta = 0$ is mentioned to as a model with drift; and then as a model with drift. The test is not exact if the unique data sequence covers a continuous and/or a drift.

Campbell and Perron (1991) illustrated that researchers may fail to reject the null hypothesis of a unit root because of a misspecification concerning the deterministic part of the regression.

Table3 : Augmented Dickey Fullerunittest

		Level			First Difference		
Variables		Constant	Constant and Trend	None	Constant	Constant and trend	None
Zindex		-1.60	-2.28	1.28	-7.35***	-7.4***	-7.05***
LGDP		-0.73	-2.59	1.93*	-4.88***	-4.85***	-4.23***
GPC		-1.95	-1.96	-0.28	-4.33***	-4.30***	-4.36***
FC		-2.33	-2.23	-2.2***	-4.11***	-4.18***	-4.15***
AS		-1.44	-2.20	-1.41	-9.12***	-9.14***	-8.97***
Critical Values	1%	-3.53	-4.10	-2.60	-3.54	-4.11	-2.60
	5%	-2.91	-3.48	-1.95	-2.91	-3.49	-1.95
	10%	-2.59	-3.17	-1.61	-2.60	-3.17	-1.61

***, ** and * denotes rejection of the null hypothesis at 1%, 5% and 10% respectively.

Table4: Phillips-Peron(PP)UnitRootTest

Level		Constant	Constant& Trend	First Difference None	Constant	Constant & Trend	None
Variables							
Zindex		-1.78	-3.42	-2.58	-13.97***	-21.55***	-10.70***
LGDP		-0.68	-2.10	2.84	-4.38***	-4.33***	-4.30***
GPC		-1.84	-1.88	-0.49	-6.36***	-6.31***	-6.39***
FC		-2.48	-2.38	-0.18	-7.73***	-7.73***	-7.80***
AS		-1.84	-1.88	-0.49	-6.36***	-6.31***	-6.40***
Critical Values	1%	-3.53	-4.10	-4.10	-3.53	-4.10	-2.60
	5%	-2.90	-3.48	-3.48	-2.91	-3.48	-1.95
	10%	-2.59	-3.17	-3.67	-2.60	-3.17	-1.61

***, ** and * denotes rejection of the null hypothesis at 1%, 5% and 10% respectively.

Tables 3 and 4 present the Augmented-Dickey-Fuller and the Phillips-Peron tests outcomes respectively. The null hypothesis expects presents of unit roots. This is rejected if the t-statistic, in absolute terms, is greater than the critical values. The Augmented-Dickey-Fuller tests include (i) intercept in trends and (ii) trends and intercept and(iii) no trend and no intercept. All variables are stationary at first difference thus integrated of order I(1).

3.6   Heteroscedasticity tests

The ARCH test can be used to test for heteroscedasticity to show that there is null hypothesis of no heteroscedasticity or that the residuals are homoscedastic. The null hypothesis will not be rejected when the p-value is higher than 0.05. The null hypothesis would have been rejected had the p-value been less than the 5 per cent significance level in the test. To show whether there is normal distrbution in the error terms, the JB test is used. The null hypothesis is the existence of normal distribution. The null hypothesis would be rejected if the p-value in the test is less than the 0.05 significance level. The findings of the diagnostic tests can jointly be concluded to ascertain that the model is a stable one whose results can at least be relied upon.

3.7 ARCH Test
ARCHtest was usedto examine forARCHeffectsontheresiduals.Theresults areshown in the table 5 below

Table 5 : Heteroskedasticity Test: ARCH

F-statistic	108.2324	Prob. F(1,141)	0.0000
Obs*R-squared	62.09959	Prob.Chi-Square(1)	0.0000

Table 5 above indicates that the statistic labelled "Obs*R-squared" is the ARCH test of autocorrelation inthesquaredresiduals.Thep-value(0.0000)showsthenullhypothesiscanberejectedwhich means that there is no heteroscedasticity in the residuals. This shows that the zero-probabilityvalue strongly shows the presence of heteroscedasticity in the residuals. The presence of heteroscedasticity makes the use of GARCH more evident in this study. Table 5 above illustrates suggestion of ARCH properties as designated by autocorrelations of the squared residuals. There is no autocorrelation up to the 4th lag, thereafter autocorrelation manifests. The test p-values are all significant, and therefore the no ARCH hypothesis is rejected.

IV. Discussion of findings

4.1   Global financial crisis

The outcomes show a positive relationship between the global financial crisis variable and stock market performance in Zimbabwe. These findings were consistent with basic economic theory of markets (Fama, 1965) and the Keynesian Liquidity Preference Theory. The assumption is that the ZSE reacted to information (shocks) thus a performance rise as investors sought to hold onto financial assets rather than liquidity. The coefficient value was statistically significant. This implied as effect of positive 0.55%. These outcomes were inconsistent with World Bank (2009) findings which stated the negative impacts of the financial crisis on Russian markets.

4.2   Arab spring

The Arab spring variable outcomes showed that while a positive performance resulted on the ZSE at 0,03, the margins were relatively small. The expected outcomes was positive. This was based on the notion of political instability in one region of the continent being a possible driver of better economic sentiments about other markets. The market reaction was consistent with both the EMH and the MPT. Hassan et al. (2022) and Batten et al. (2022) outcomes showed divergent results with the current ones in the study. The findings were also inconsistent with Hisham (2013) and Mousari (2014) who both found significant negative impacts of the Arab spring on global financial market performance.

V. Conclusions

The study aimed at investigating ZSE market performance volatility to major global political and economic events. The aim was to develop a view of efficiency of the stock market. The primary deterministic variables tested for where the global financial crisis, the Arab spring and the oil price crisis. Therefore the findings from literature review and primary study concluded that: the ZSE did in certain way react to international influences, but rather in manner which was inconsistent with larger, more exposed and dominant markets.

5.1. Conclusions from objective 1: Effects of global political events.

The results from the analyses clearly showed that while the ZSE did respond in particular ways to the Arab spring, the market was not as volatile as would be anticipated with other open markets. Secondly, the market's reaction was counter to that experienced by many financial markets around the globe. The ZSE mild but positive response was indicative of a market largely insensitive to global shocks, even substantial ones.

5.2. Conclusions from objective 2: Effects of global economic events.

Like the political events, the reaction of the ZSE was counter to the general performance of international markets. The ZSE performed well during both period of the global financial and the petroleum price crises. These elasticities to the events were quite significant. It can be concluded logically that the internalized nature and size of the ZSE make the bourse less exposed to financial market ripples generated from external events. The reactivity of the market is such that it essentially rallies as others are underperforming.

VI.   Recommendation

Encourage inter-bourse listings – the ZSE is clearly a small market relative to both regional and international markets. Several firms operating with the country, are not listed on the domestic market in any form. To enhance the performance of the ZSE, it is crucial that the market be open to and encourage multiple listings, particularly of multinational organizations. While the robustness and inertness of the ZSE in periods of notable global political and economic shocks, the relationship is double-edged in that the market also fails to reap positive outcomes from enhanced global economic performances.

Digitalization of the market - E-trading is a critical component driving digital transformation in financial markets. It has the benefits of enhanced efficiency through time savings, is cost effective and largely convenient. Sufficiently digitalized markets are accessible globally and allow for instantaneous trade of financial assets. These linkages with the over 2 billion connected people develop potential for market expansion and investment.

Future research

The study employed a single market case, time series quantitative design. A natural limiting factor which immediately arises is the one-dimensional research approach. Limiting the study to a purely time series approach created informational deficiencies. The approach may be useful in capturing temporal effect but is largely lacking in assessing the cross-sectional matters. More comprehensive conclusions of both temporal and cross-sectional effects may be drawn through application of pooled data approaches (Robinson, 2014).

Conflicts of interests

The writer declared that she doesn't have any conflicts of interest regarding the publication of this paper.

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