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Impact of Macroeconomic Variation on Stock Prices of Manufacturing Companies in Nigeria

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Abstract

Research Purpose: This study investigates the impact of macroeconomic variations on manufacturing stock prices in Nigeria from 2003 to 2022. The manufacturing All Share Index (ASI) is used as a proxy for stock prices, while interest rate, inflation, GDP, and exchange rate are considered as proxies for macroeconomic variables.

Methodology: The study employs the Auto-Regressive Distributed Lag (ARDL) and Error Correction Model (ECM) as statistical tools to analyse the extracted data. Various statistical diagnostics, including unit root tests and co-integration tests, are conducted to assess the short-run and long-run relationships between the variables.

Findings: The analysis reveals that the selected macroeconomic variables—inflation, interest rate, foreign exchange, and economic growth—account for over 90% of the variation in manufacturing stock prices in Nigeria. This indicates a strong influence of these variables on stock prices. Specifically, the findings suggest that:

- Inflation rate, economic growth, foreign exchange rate, and current interest rate have a strong negative impact on manufacturing stock prices.
- Previous inflation rate and interest rate exert a stronger positive influence on the variation in manufacturing stock prices.

Conclusion: The study concludes that macroeconomic variables significantly influence manufacturing stock prices in Nigeria. It highlights the importance of understanding these relationships for both investors and the manufacturing sector.

Recommendations: It is recommended that investors should prioritise fundamental analysis over technical analysis when making stock market decisions. Finally, the manufacturing sector should recognize and consider the correlation between stock market performance and macroeconomic variables in their strategic planning.

Key words: *Fundamental analysis, Long run, Short run, Stock price, Technical analysis.*

1.0 INTRODUCTION

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Macroeconomic variables are part of the global parameters used by financial analysts, researchers and academia in forecasting and predicting the outcome of major economic growth or decline that may affect a given economy. They act as a catalyst for predicting major happenings or incidences that may indicate movement in the financial outlook of a country. Macroeconomic variables entail the following: interest rate, inflation, fiscal policy, Gross National Product, unemployment rate, balance of payment, exchange rate, and others. Ajer (2021) in his articles opined that these variables are an aid to trade tools for most policy makers and economic analysts in their forecasting and strategic planning.

Gross Domestic Product (GDP) is the market value of all the final goods and services produced in a specific time period by a country or countries measured in monetary terms. GDP is defined as "an aggregate measure of production which is the sum of the gross values added of all resident and institutional units engaged in production and services (plus any taxes, and minus any subsidies, on products not included in the value of their outputs)" (OECD). It is also described as "the monetary value of final goods and services that are bought by the final user produced in a country in a given period (say a quarter or a year)" by the International Monetary Fund (IMF) (Dinh, bui and Pham 2020).

Farzard and Shokoofeh (2013) on the other hand viewed unemployment as the proportion of a country's labour force that is jobless but willing to work. It is a variable tools for sizing and measuring a country health status. It is expected that during an economic boom, the level of unemployment drops and vice versa. Thus, it is a litmus test for economic growth and development in determining when an economy is in a stable state or in turbulent condition. It's measured as the ratio of people not actively engaged over the total number of people that are gainfully employed. It also determines the level of economic progress and productivity.

Interest rate is an economic indicator that determines the trade-off between investment and savings, thus, usually referred to as the cost of funds for business opportunities and expansion. It is however a determining factor for a productive economy in attracting foreign investment and inflows. It is also an economic regulator for both inflation and investment. Imron, Tika and Puji (2019) however sees interest rate as a return on investment from loanable funds. Fluctuation in interest rate has a significant influence on stock prices either directly or indirectly.

Peiro (2015) affirmed that performance of most firms are highly dependent on their financial conditions, thus any fluctuations in their stock prices are linked to either domestic or international economic situations currently in place or expected to happen in the market in the near future. Stock prices are also seen as the determinant of the company value and the indicator of the firms' performance which are affected by systematic risks triggered by variation on the macroeconomic parameters within and outside the firm. Nijam, Ismail & Musthafa, (2015) stressed further that stock market is an economic catalyst for funds

mobilisation and allocations for companies with investment options to intending investors for returns and wealth maximisation.

1.1 The Study Objective

The objective of this study is to examine the effect of macroeconomic variables on stock prices of manufacturing companies in Nigeria.

1.2 Research Hypothesis

The following research hypothesis will be tested in this study:

Ho: There is no significant relationship between macroeconomic variables and stock prices of manufacturing companies in Nigeria.

H1: There is a significant relationship between macroeconomic variables and stock prices of manufacturing companies in Nigeria.

2.0 LITERATURE REVIEW

2.0.1 Arbitrage Pricing Theory (APT)

The word arbitrage is profiting from simultaneous engagement in opposite activities in various markets i.e. buying at lower price and selling at higher prices at another market for a return/trade off. Arbitrage Pricing Theory was propounded by Stephen Ross in 1976 as an alternative to CAMP theory. The theory is based on the linear predictability of expected assets returns from its or their relationship with the variation in macroeconomic variables. The aim and purpose of this theory is determinant of fair pricing of assets to guard against any avoidable exploitation by intending aggressive investors. That means taking advantage of slight pricing discrepancies to lock in a risk-free profit for the trade. This theory is based on the underlying assumptions; perfectly competitive market, Investors preference for higher wealth to less with certainty, and linear expression of systematic risk with diversification of unsystematic risk

2.0.2 Capital Asset Pricing Model (CAPM)

This model was developed in the 1960s by William Sharpe, Jan Mossin, and John Lintner as a Risk –return calculator with singular Beta. The model provides the process for measuring risk and transforming that risk into estimates of expected return on equity. The model is based on two underlying assumptions; perfectly informed investors, rational investors demand for premium in terms expected rate of returns.

Based on the implication and limitation of the CAPM model, the study shall focus on APT as the underlying theory for this study given his broad spectrum in considering all macroeconomic variables as part of risk and uncertainty measurement for various securities and investment.

2.1 Literature Review

Imron, Tika and Puji (2019) investigated Indonesia stock market based on their ASI to determine how it's been influenced by the country's macroeconomic parameters like inflation rate, industrial production index, and the interest rate with focus on only Islamic stocks. This is based on Gan et al., (2006) view that rational Investors based on their experience of the market have the conception that macroeconomic variability triggers a large impact on the fluctuation of the stock prices. Quantitative research design with multiple linear regression was adopted using monthly data collection from 2011 to 2017. The findings shows that Indonesia Sharia Stock Index was significantly impacted by the inflation rate, industrial production index, and interest rate.

Adeleke, Olabode and Oyinlola (2020) examined the effects of foreign direct investment, external debts, money supply and trade openness on returns from stock market for the period 1985 to 2014 using ARDL statistical model and tools for analysis of the data collected. It was observed that FDI and External debt does matter in changes or impacting of the country stock market ,however, the research study confirmed a strong positive relationship between the money supply (M2) and openness to trade on returns for stocks in the long-run.

Ayesha, Muhammad, Yasmeen, Sadaf, Jihoon and Seungmin (2022) examined the effects of gold index, crude oil price, interest rate, and exchange rate on returns from stock using daily data collections for the period under review based on cross sectional analysis of USA, Turkey and Hong Kong. Single-layer neural networks and OLS regression analysis was employed in analysing the collated data. The findings shows that gold index, interest rate, EUNS and exchange rate have statistically significant negative relationship with returns from stocks.It was therefore recommended the needs for adequate control of negative news against erosion of investors returns from stocks based on avoidable volatility and the need for portfolio diversifications and revision periodically

Ajer (2021) examined both the bond and stock market to investigate how it could be impacted by macroeconomic variables; real output, money supply and inflation on development in Botswana using ARDL-Bounds Test statistical tools for ease of analysing both short run and long run relationship of the study. The findings of the study shows that macroeconomic variables have a significant influence on the capital market development in Botswana. During the short run period, it was observed that real output, money supply and inflation have a positive relationship with the development of the stock market, while real exchange rate shows a negative relationship with its development. While in the long run, real output still has a positive influence on the stock market. On the other hand, inflation rate and lending rate have positive and negative relationships respectively on the bond market in the long run .Other macroeconomic parameters do not impact the bond market in the short run.

Khalid and Mohsina (2019) examined the impact of various macroeconomic variables i.e. inflation, industrial production, exchange rate, money supply, interest rate, and oil price on the Indian stock market within the period 2005 to 2015 using monthly collected data.

Multivariate linear regression model computed and Granger Causality test was adopted as the research statistical tools to analyse the data obtained from the sample frame. The research findings revealed that exchange rate has a significant negative relationship on returns from stocks, while money supply, inflation, interest rate and industrial production does not have any significant effects on the returns on stock.

Kaan and Michaela (2019) investigated the German stock market within the period 1991 to 2018 on the impact of macroeconomic factors, German government bond yields, sentiment and other leading indicators on the main German stock index. The study was able to establish that Money supply (M2) influences returns from stocks and changes direction within the two crisis periods. The influences on returns from stock were higher and greater during the crisis period than during the normalcy time or condition in the German stock exchange.

Ahmad and Sadeq (2019) examined the relationship between three selected macroeconomic variables; Money supply (M2), interest rate, oil prices, exchange rate, inflation rate and that of stock prices in Kuwait using the Kuwait stock exchange index. The study adopted VAR and VECM due to the existence of a long run relationship confirmed via the test of diagnosis for cointegration test. The study observed that there was a long-run unidirectional relationship between the Kuwaiti Stock Exchange Index and the aforementioned macroeconomic variables. This study also confirmed the existence of a short-run relationship between oil prices and stock prices in Kuwait.

Jana, Drahomira, Ha Pham and Thomas (2019) carried out a study of Automakers stock price volatility in order to identify the actual macroeconomic factors responsible for stock volatility using a multi factor statistical model. A Quarterly panel data of 39 automakers quoted on the stock exchanges within eleven countries from 2000 to 2017 were collected and used. The research findings revealed that there was a positive relationship between volatility of automaker's return from stock and the selected macroeconomic parameters such as stock market development, GDP and unemployment. On the other hand, a negative relationship was established between the returns from stock, money supply and IPI.

Ajayi and Mougoue (1996) assessed the short-run and long-run relationship between stock prices and exchange rates as the sole proxy for macroeconomic parameters with a sample of eight (8) major industrial markets. The research findings show that there exists a negative relationship with exchange rate in the short-run. Whereas it was observed a positive relationship between the stock prices and the exchange rate in the long-run.

Mai, Abdulnaser and Sameh (2019) examined Palestinian and Amman Stock exchange returns to identify how they are affected by macroeconomic factors and political factors. The study employed event study methodology with the application of eleven (11) scenarios and events. The research findings indicate that consumer price index, gross domestic product, and exchange rate have a significant effect on returns from stock , while industrial production index and balance of trade did not have any significant effect. The findings also show that

unstable political events also play a vital role in Palestine and Amman stock returns. This is validated by 7 and 9 out of 11 events outcome respectively posit a confirmatory factors for an impactful cases observed under the given scenario analysis. The final appraisal of the research findings revealed that the two stock markets are not stable or very volatile based on inefficiency and information asymmetry.

3.0 RESEARCH METHOD

The research method adopted is an ex facto research design with the use of secondary data extracted from the CBN portal and Nigeria Exchange statistics on All share index(ASI) of all manufacturing sectors within the period from 2003 to 2022 to validate or affirm the stipulated research hypothesis in this study .

3.1 Data sources and methodology

Data sources are mainly secondary from regulatory portals and they were tested for stationarity and co-integration respectively to establish the appropriate research statistical tool to be adopted. The findings prove ARDL and ECM to be the best and appropriate statistical tool for this research study based on the evidence of long run relationship and mixed levels of the data.

3.2 Model Specification and interpretation

The study model shall be derived from various reviewed literature on the subject both within and outside Nigeria i.e. Abugri (2006) for outside Nigeria and Ajayi & Mougoue (1996) for Nigeria study. For the purpose of this study, the researchers shall focus on the following macro-economic parameters based on the prevailing economic situation for the study; Foreign exchange, Inflation, Interest rate and economic growth proxy by GDP.

$$INASI = \alpha + \beta_1 INGDP + \beta_2 ININF + \beta 3ININT + \beta 4INFOREX + \mu$$

Where:

• INASI is the dependent variable (Manufacturing All share Index) as a proxy for manufacturing stock price

• INGDP is the proxy for Economic growth, ININF is the proxy for Inflation and ININT is the proxy for interest rate while FOREX is used as the proxy for foreign exchange volatility

IN=log of the variable to guard against outliers and skewness of data for normality objective

• Bj represents the various coefficients

• μt is the error term

3.1 Data Diagnosis and interpretation

3.2.1 Data Presentation and Diagnosis Testing

YEARS	ASI	FOREX	INFLATION	GDP	INTEREST Rate
2003	15,559.9	136.2	13.9	33,346.6	18.0
2004	24,738.7	133.5	15.4	36,431.4	18.3
2005	22,876.3	132.1	17.9	38,777.0	18.3
2006	28,088.7	137.1	8.4	41,126.7	18.4
2007	48,773.3	127.4	5.4	43,837.4	18.4
2008	50,789.8	120.7	11.5	46,802.8	18.7
2009	23,075.8	161.6	12.6	50,564.3	22.6
2010	24,775.6	153.1	13.8	55,469.4	22.5
2011	23,393.6	159.3	10.9	58,180.4	22.4
2012	23,432.6	160.9	12.2	60,670.1	23.8
2013	36,207.1	162.5	8.5	63,942.9	24.7
2014	39,409.3	171.4	8.1	67,977.5	25.7
2015	30,847.9	222.8	9.0	69,780.7	26.7
2016	26,616.4	372.9	15.6	68,652.4	27.3
2017	32,076.1	395.4	16.5	69,205.7	30.6
2018	37,186.1	361.8	12.1	70,536.4	31.1
2019	28,882.3	359.5	11.4	72,094.1	28.2
2020	26,495.7	433.7	13.2	70,800.5	29.6
2021	26,123.1	477.8	17.0	73,382.8	28.1
2022	24,222.6	553.1	18.8	75,769.0	25.5

***Source**: CBN portal and Xchange statistics*

Table 2. Unit Root Test and Analysis

S/N	VARIABLE	I(0)	I(1)	REMARKS
1	**INASI**	OK	NA	**Stationary at level**
2	**INFOREX**	NA	OK	**Stationary at first diff. level**
3	**ININF**	OK	NA	**Stationary at level**
4	**INGDP**	OK	NA	**Stationary at level**
5	**ININT**	NA	OK	**Stationary at first diff. level**

***Sources**: Extract From Eview 11 on Unit roots test*

Table 3 Co-integration Test

MAXIMUM EIGENVALUE		
NO OF COINTEGRATION	**Prob**	**REMARKS**
NONE	< 5%	SIGNIFICANT
AT MOST 1	< 5%	SIGNIFICANT
AT MOST 2	< 5%	SIGNIFICANT

AT MOST 3	>5 %	NOT SIGNIFICANT
AT MOST 4	> 5%	NOT SIGNIFICANT

***Sources**: Extract from Eview 11*

3.2 Interpretation of Findings

The outcome of the unit root result in table 2 warrant the application of ARDL statistical model for this study , while the existence of cointegration evidenced by the outcome of Johansen cointegration test means that ,the study model has a long run relationship that requires the estimation of short-run and long-run relationship.

3.2.1 Estimation and Interpretation of the Short-run Relationship

Table 4 Presentation of Regression Result

SHORT RUN EQUATION- ERROR CORRECTION REGRESSION			
VARIABLE	**COEFFICIENT**	**T-STAT**	**PROB**
D(INASI(-1)	0.3373	3.852	0.012
D(INFOREX)	-0.7082	-5.072	0.0039
D(INGDP)	-5.0292	-7.371	0.007
D(INFLATION)	-0.5914	-8.7563	0.0003
D(INFLATION(-1))	0.34	3.558	0.016
D(INTEREST)	-0.5536	-1.6886	0.1521
D(INTEREST(-1))	2.6152	6.1388	0.0017
CointEQ(-1)	-1.1205	-10.4246	0.00001
R SQUARE	0.9569		
ADJ. R SQUARE	0.9267		

***Sources**: Extract from Eview 11 and researcher compilation*

The short-run report and observation shows that the manufacturing stock price of previous year has a direct significant impact on the current market price of manufacturing stocks. And the Foreign exchange volatility on the other hand has a negative impact that is statistically significant to the manufacturing stock price. Contrary to expectations, the economic growth or condition has a rather negative impact on the manufacturing stock price. It was observed

that the current inflation rate also has a negative effect on the manufacturing stock price whereas the previous inflation spark has a positive effect on the manufacturing stock price. Current Interest rate movement posit a negative effects but however was not statistically significant in influencing the manufacturing stock price compared to the previous interest rate which has a positive effects on the stock price.

The negativity of the short-run coefficient and statistical significance depict that there exists a strong short run relationship.

The selected variables i.e. Inflation, Interest rate, Foreign exchange, and economic growth were able to account for above 90% variation in the manufacturing stock price, which further validated the strong influence of these variables on the manufacturing stock price in Nigeria.

It can be summarised that Inflation rate, Economic growth, foreign exchange, and current interest rate posit a strong negative influence on the manufacturing stock price. In contrast, previous/past inflation rates and interest rates show a stronger positive impact on Nigeria's manufacturing stock price variation.

3.2.2 Long-Run Effect of Macroeconomic impact on manufacturing stock prices

Table 5 Long-Run Relationship and Interpretation

LONG RUN EQUATION-			
VARIABLE	**COEFFICIENT**	**T-STAT**	**PROB**
INFOREX	0.6326	3.002	0.03
INGDP	0.5816	0.626	0.5658
INFLATION	-1.12792	-4.2309	0.0082
INTEREST	-2.16011	-1.24	0.27
C	10.3449	1.7909	0.1333

Sources: *Extract from Eview 11 and Researcher computation*

The Long run estimated equation shows that foreign exchange volatility has a positive influence and effect on the manufacturing stock price which is also statistically significant at the 5% confidence interval. The same with economic growth effects on manufacturing stock price, but it's however not statistically significant in the long run. Inflation rate and interest rate both have negative influence in the long run on the manufacturing stock prices, but the interest rate however is not statistically significant.

3.3 Major Findings of the study

Table 6 Summarised estimate of both Short run and Long run equation

VARIABLE	**SHORT RUN**	**STATISTICS**	**LONG RUN**	**STATISTICS**

INASI (MFG STOCK PRICE)	DIRECTION	VALIDITY	DIRECTION	VALIDITY
INFOREX	NEGATIVE	SIGNIFICANT	POSITIVE	SIGNIFICANT
INGDP	NEGATIVE	SIGNIFICANT	POSITIVE	NOT SIGNIFICANT
INFLATION	NEGATIVE	SIGNIFICANT	NEGATIVE	SIGNIFICANT
INFLATION(-1)	POSITIVE	SIGNIFICANT		
INTEREST	NEGATIVE	NOT SIGNIFICANT	NEGATIVE	NOT SIGNIFICANT
INTEREST (-1)	POSITIVE	SIGNIFICANT		

From the research findings, it could be summarised as follows that macroeconomic variables and parameters do have a significant impact on the manufacturing stock prices as follows;

Foreign exchange fluctuations or volatility in the short run has a significant negative effect on the manufacturing stock prices. While in the long run has a significant positive effect on the manufacturing stock prices. This finding was strongly supported by the work of Tams-Alasia, et al (2018). This is however, contrary to the general reaction of long run negative directional relationship between stock prices and foreign exchange as opined by Udobi-Owoloja, Iyiegbuniwe and Onwualu (2019). While Adaramola (2012) has a directly opposite view for both short run and long run, where he posited a positive influence in the short run and negative in the long run. It is, however, ascertained that foreign exchange greatly has a significant impact on the manufacturing stock prices.

Economic growth estimate only shows that the economic condition of the country only has a negative impact on the manufacturing stock prices in the short run and however positive in the long run which has no significant influence. Meaning that stock prices react spontaneously in the short run not waiting till the long run to react. This view was supported by the articles on the Times newspaper 2023 where it was opined that generally speaking, but not always, the stock market and economy move in lockstep with one another. That is due to market volatility, it is possible for stock prices to fall in good economic times as well as rise in bad ones. It was the markets that were frequently criticised by traders and investors for "overreacting" or for "not properly accounting for a particular move.". In fact, several factors that don't directly affect the country's economy can have an impact on the markets.

Inflation rate from the research study comes in two folds in impacting the manufacturing stock prices with the previous year's inflation having a positive effect on the current year stock prices while in the current year it has negative effects both in the short run and statistically significant. The negative effects may be judged from the impact of inflation on the decrease in the corporate profit due to high cost of production leading to drop in the

manufacturing stock price. Douglas (1982) in his articles emphasised that there exists a negative relationship between inflation and stock prices, but this is due to money illusion. He opined further that investors confused themselves in using nominal rate rather than real rate of discounted interest rate. Thus, the negative impact is translated via the impact on the manufacturing profit occasioned by increase in real tax burdens on earnings, through impairment on inventories and depreciation charges.

Interest rate influence from the findings revealed that it does not matter in the short-run due to non-statistical significance, but the prior year however does have a positive significant impact on the manufacturing stock prices. The finding however shows also that it was not statistically significant in the long run. These facts and findings were also emphasised by Chukwudum and Akpan(2019) in support of the study assertions that the impact of interest rate on stock prices is not significant when other variables affecting stock prices are controlled or held constant. This however signified that change or fluctuation in the rate of interest do not impact the variation in stock prices except for the previous year interest rate.

4.0 CONCLUSION AND RECOMMENDATIONS

In summary and conclusion, it could be deduced from the findings above and the outcome of the various macro-economic parameters coefficient test of significance conducted at both 5% and 10% confidence interval respectively .shows that all the variables do have a significant impact on the manufacturing stock prices except for interest rate that has its prior year impact. Thus, it could be concluded that macroeconomic variables have a significant impact on the manufacturing stock prices, which was also supported by over 95% coefficient of R-square value result observed (explained variable) . This is in support of Adaramola (2014) articles and study on the same subject matters.

4.1 Recommendations

Based on the fall out of the research findings and summary, the following recommendations are very germane for various stakeholders especially the investors, manufacturing sectors and the Government;

I. Investors should be more scientific in decision taking on stock by exploring fundamental analysis for a long term investment than technical analysis in portfolio decision making giving the significance of all the identified macro-economic variables in this study.

II. The Government on the other hand should be ready to strategically provide a proper policy mix of fiscal and monetary policy that could tame the volatility of the macro economic variables in the interest of ensuring an efficient and smooth ecosystem for the manufacturing sector's viability and growth.

III. The manufacturing sector should be able to understand the correlational relationship between the macro economic variables and their stock price reactions to be able to uphold their firm's values and protect their shares (Investors) values.

References

Adaramola, A.O. (2012). Exchange rate volatility and stock market behaviour: The Nigerian experience. European Journal of Business and Management, 4(5), 31-39.

Adaramola, A.O. (2014). The impact of macroeconomic variables on stock prices in Nigeria. ; BEING A THESIS, UNIVERSITY OF LAGOS, NIGERIA, DOCTOR OF PHILOSOPHY (Ph.D.) IN FINANCE,

Adeleke, Olabode, Oyinlola (2020) Effects of Selected Macroeconomic variables on Stock Market Returns in Nigeria. *Asian Journal of Economics, Business and Accounting l.* 16 (3), 3-4.

Ahmad and Sadeq (2019) The Impact of Macroeconomics Variables on Stock Prices in Kuwait. *International Journal of Business and Management*, Vol14, 14-15.

Ajer (2021). The Impact of Macroeconomic Variables on Capital Market Development in Botswana's Economy. *International Journal of Research and Innovation on Social Science* Vol IX, 3-4.

Amalaha (2015). Economic Fundamentals and Changes in Stock Prices. A Comparative Analysis of Nigerian and South African Stock Exchange, *A Journal of Social Science* 4 (4), 3-4.

Apan.I.T and Chukwudum Q.C.(2014). Impact of Interest Rates on Stock Prices: An Analysis of the All Share Index. International Journal of Finance and Accounting

Archin G. (2023). The relationship between economy & stock market. The Economic Time Markets. Business news market stocks news. https://www.researchgate.net/publication/5043225. •Corpus ID: 151238852.

Ayesha, Muhammad, Yasmeen, Sadaf and Jihoon (2018) An Empirical Study of Macroeconomics Factors and Stock Returns in the context of Economic Uncertainty. *Journal of Institute for Information and Communication Technology Planning and Evaluation* 5 (4), 5-7.

Dinh, Bui and Pham (2020) Impact of Selected factors on Stock Price. A case study of Vietcombank in Vietnam. *A Journal of University of Japan, Nigata Vol 7*. 4-5.

Douglas K. P.(1982). The impact of inflation on stock prices. North Carolina State University. https://www.researchgate.net/publication/5043225 Article

Endri, Zaenal, Toramg, Simanjuntak and Immas (2020) Indonesia Stock Market Volatility. *MontenegrinJournal of Economics Vol 16, 2-3.*

Farzard and Shokofeh (2013) The Stock Market and Employmeny relationship in USA, China and Japan. *International Journal of Economics and Finance Vol 5 No 3 22-24.*

Golam, Ashraful, Alam and Khan (2017) Effect of Macroeconomic Variables on Stock Market Performance of SAARC countries. *A Journal of Asian Economics and Financial review Vol. 7* 7-8.

Imron, Tika and Puji (2019) The Impact of Macroeconomic on Islamic Stock Prices. Evidence of Indonesia. *The 2nd International Journal on Islamic Economic, Business and Philanthropy*. 4-6.

ISSN: 2251-032X Volume 6, Issue 1, Pages 98 - 110: 2024

Isaac, Adebayo and Benjamin (2019). Random Forest Based feature selection of Macroeconomic variables for Stock Market Prediction. *American Journal of Applied Science* 5(6), 4-5.

Jana, Drahomira, Ha Pham and Tomas (2019). Macroeconomic Factors explaining Stock Volatility. Multi country empirical evidence from the Auto Industry. *Journal of Economic Research* 4 (4), 1-2.

Jefry (2020) Clinical Macroeconomic and Differential Diagnosis. *International Journal of Social Science*. 5 (4), 1-2.

Kaan and Michaela (2019) The Impact of Macroeconomic Factors on the German Stock Market. *International Journal of Financial Studies*. 63 (3), 1-4.

Khalid and Mohsina (2016) Do Macroeconomic Variables impact the Indian Stock Market. *Journal of Commerce and Accounting Research Vol 5, 9 (1) 2-3.*

Mai, Abdulnaser and Samih (2019) Impact of Macroeconomic factors and Political events on the Market Index returns at Palestine and Amman Stock Market. *Journal of Investment Management and Financial Innovations 3-4.*

Nijam, Ismail and Musthafa (2015) The Impact of Macroeconomic Variables on Stock Market Performance, Evidence from Sri Lanka. *Journal of Emerging Trends in Economics and Management Sciences Vol 4, 6 (1) 7-8.*

Popoola O. R., Ejemeyovwi O. J., Alege O. P., Adu O., Onabote A. A.(2017). Stock Market and Economic Growth in Nigeria.International Journal of English Literature and Social Sciences (IJELS) Vol-2, Issue-6, Nov - Dec, 2017 https://dx.doi.org/10.24001/ijels.2.6.15 ISSN: 2456-7620 www.ijels.com Page | 97

Pramod, Nalk and Padhi (2012) The Impact of Macroeconomic Fundamentals on Stock Prices revisited. An Evidence fron Indian Data. *Journal of Indian Institute of Technology Vol 4, 7 (1) 3-4.*

Sui and Sun (2016) Spillover Effects between Exchange Rates and Stock Prices. Evidence from BRICS around the recent Global Financial Crisis. *Journal of International Business and Finance Vol 6, 3 (1) 7-8.*

Tams-Alasia O. , Olokoyo F. O., Okoye L.U., and Ejemeyovwi J.O. Impact of Exchange Rate Deregulation on manufacturing Sector Performance in Nigeria. International Journal of Environment, Agriculture and Biotechnology (IJEAB) Vol-3, Issue-3, May-June-2018 http://dx.doi.org/10.22161/ijeab/3.3.36 ISSN: 2456-1878 www.ijeab.com

Udobi-Owoloja P.I.(2019). The influence of exchange rate on stock prices in Nigeria.The Nigerian Journal of Risk and Insurance (NJRI) Vol. 9, No.1, 2019, 144-158

Wong (2018) The Thin line between Empowering and Laisses-faire Leadership. *Journal of Management Vol 44 (2) 11-13.*

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IMPACT OF MACROECONOMIC VARIATION ON STOCK PRICES OF MANUFACTURING COMPANIES IN NIGERIA

Appendix 1: Short Run

ARDL Error Correction Regression
Dependent Variable: D(INASI)
Selected Model: ARDL(2, 1, 1, 2, 2)
Case 2: Restricted Constant and No Trend
Date: 11/07/23 Time: 00:21
Sample: 2003 2022
Included observations: 18

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INASI(-1))	0.337261	0.087537	3.852773	0.0120
D(INFOREX)	-0.708242	0.139618	-5.072706	0.0039
D(INGDP)	-5.029216	0.682219	-7.371852	0.0007
D(ININFLATION)	-0.591391	0.067538	-8.756369	0.0003
D(ININFLATION(-1))	0.340006	0.095570	3.557668	0.0163
D(ININTEREST)	-0.553596	0.327850	-1.688566	0.1521
D(ININTEREST(-1))	2.615293	0.426021	6.138883	0.0017
CointEq(-1)*	-1.120486	0.107486	-10.42451	0.0001

R-squared	0.956907	Mean dependent var	-0.001171
Adjusted R-squared	0.926743	S.D. dependent var	0.286690
S.E. of regression	0.077596	Akaike info criterion	-1.973507
Sum squared resid	0.060211	Schwarz criterion	-1.577786
Log likelihood	25.76156	Hannan-Quinn criter.	-1.918942
Durbin-Watson stat	2.762070		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	9.055876	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Appendix 2: Long Run Equation

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFOREX	0.632685	0.210756	3.001976	0.0300
INGDP	0.581554	0.928502	0.626336	0.5586
ININFLATION	-1.127918	0.266588	-4.230945	0.0082
ININTEREST	-2.160111	1.741847	-1.240127	0.2700
C	10.34499	5.776319	1.790931	0.1333

EC = INASI - (0.6327*INFOREX + 0.5816*INGDP -1.1279*ININFLATION
-2.1601*ININTEREST + 10.3450)

Appendix 3- Bounds Test for Long Run Relationship

ARDL Long Run Form and Bounds Test
Dependent Variable: D(INASI)
Selected Model: ARDL(2, 1, 1, 2, 2)
Case 2: Restricted Constant and No Trend
Date: 11/07/23 Time: 00:24
Sample: 2003 2022
Included observations: 18

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.59141	8.577556	1.351366	0.2345
INASI(-1)*	-1.120486	0.276517	-4.052146	0.0098
INFOREX(-1)	0.708915	0.196420	3.609173	0.0154
INGDP(-1)	0.651623	0.929664	0.700923	0.5146
ININFLATION(-1)	-1.263816	0.441302	-2.863836	0.0352
ININTEREST(-1)	-2.420374	1.529170	-1.582802	0.1743
D(INASI(-1))	0.337261	0.141231	2.388009	0.0625
D(INFOREX)	-0.708242	0.400349	-1.769059	0.1371
D(INGDP)	-5.029216	2.736220	-1.838016	0.1255
D(ININFLATION)	-0.591391	0.147758	-4.002416	0.0103
D(ININFLATION(-1))	0.340006	0.290530	1.170299	0.2946

Date: 11/07/23 Time: 00:14
Sample (adjusted): 2005 2022
Included observations: 18 after adjustments
Trend assumption: Linear deterministic trend
Series: INASI INFOREX INGDP ININFLATION ININTEREST
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.918726	111.7538	69.81889	0.0000
At most 1 *	0.833805	66.57509	47.85613	0.0004
At most 2 *	0.771139	34.27237	29.79707	0.0143
At most 3	0.342347	7.728814	15.49471	0.4948
At most 4	0.010248	0.185407	3.841465	0.6668

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.918726	45.17867	33.87687	0.0015
At most 1 *	0.833805	32.30272	27.58434	0.0114
At most 2 *	0.771139	26.54356	21.13162	0.0078
At most 3	0.342347	7.543406	14.26460	0.4270
At most 4	0.010248	0.185407	3.841465	0.6668

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):