Archives of Business Research – Vol. 12, No. 4
Publication Date: April 25, 2024
DOI:10.14738/abr.124.16680.
Omoduemuke, E. A., Ogbebor, P. I., & Lawal, E. (2024). Consensus Analysts Target Price and Stock Price Returns in Nigeria. Archives of Business Research, 12(4). 38-56.

Consensus Analysts Target Price and Stock Price Returns in Nigeria

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ABSTRACT

This study focuses on the effect of an Investment Valuation technique (Consensus Analysts Target Price) on Stock Price Return of listed companies in the Nigerian Exchange between the period of 2011 and 2023. The *ex-post facto research* design was employed in this research due to the use of historic (secondary) data from the selected fifteen (15) companies across 3 major sectors on the Nigeria Exchange (NGX). Panel autoregressive distribution lag model was the estimation techniques and inference made on 5% significance level. Prior to the data analysis, a number or pre-estimation test were carried out such as co-integration, homogeneity, and cross-sectional dependence in addition to basis correlation and descriptive analysis. Findings from the short run reveals a significant negative coefficient (-0.273) for lagged Stock Price Return (L.STR), indicating a substantial short-term correction effect. Conversely, the lagged Consensus Analyst Target Price (L.CATP) shows a positive coefficient (0.141) without statistical significance, suggesting a modest positive relationship without an immediate impact on Stock Price Return. Transitioning to the long run, the highly significant negative coefficient (-1.273) for long-run Stock Price Return (lr_STR) emphasizes a robust and persistent negative adjustment effect. Over an extended period, Consensus Analyst Target Price (lr_CATP) introduces a marginally significant positive coefficient (0.077), implying a modest positive impact on Stock Price Return. Based on the results, one recommendation concerning Consensus Analyst Target Price (CATP) and Stock Price Return is to exercise caution in relying solely on CATP for short-term decision-making. Investors should be aware that, in the short term, deviations from the lagged return may not be significantly influenced by CATP. Therefore, considering additional factors or indicators alongside CATP could enhance the accuracy of short-term decision-making in understanding stock price movements.

Keywords: Consensus analysts target, Stock, Price, Stock Price Returns

INTRODUCTION

One prevailing issue affecting the stock price performance of listed firms can be attributed to economic instability (Rakshit & Neog, 2021). The price to earnings ratio (P/E ratio) for several firms has shown a decline, reflecting investors' concerns about the profitability and growth

prospects across countries (Vasconcelos & Martins, 2020). In Asia, one prevailing issue impacting the stock price performance of listed firms is the regional economic slowdown, particularly in countries like Japan. This economic deceleration has led to weaker price returns and declining price-to-earnings ratios for many Japanese companies (Kuang, 2021). According to data from 2021, the Nikkei 225 index, which represents the performance of major Japanese stocks, witnessed a decline in price returns of approximately 5% over the past year (Lee & Watts, 2021).

Pandey (2015) posited that all assets whether financial or real can be valued, but the complexities and the details of valuation will vary from case to case. Some analysts used discounted cash flow models to value shares, while others used price multiples such as the price-earnings and price-book value ratios. Technical analysts believed that prices were driven as much by investor psychology as by any underlying financial variables. The price-earnings Ratio is a multifaceted financial metric with implications beyond its numerical value. It encapsulates investor sentiment, guides investment decisions, and is integral to corporate financial strategies and relative valuation analysis. It is worth noting that certain issues in the capital market, such as information asymmetry, create difficulties in making such investment decisions.

While highlighting the importance of market frictions, Morck, Yeung and Yu (2000) examined the information content of different stock markets. Their results showed that firm-specific return variation is high in countries with well-developed financial systems and low in emerging markets. They argued that in countries with well-developed financial markets, traders are more motivated to gather information about individual firms; as a result, prices reflect more firm-specific information. Ağca and Mozumdar (2017) posited that internal funds and cash flows are important and significant determinants of firm investment as they demonstrate that these internal sources of funds provide firms with the necessary financial flexibility and stability to undertake investment projects. Furthermore, Ağca and Mozumdar's underscores the significance of prudent financial management in enhancing a firm's investment capacity, ultimately influencing its growth trajectory and overall financial performance.

Numerous studies have explored factors influencing price returns of firms in the global financial space (Dechow & You, 2020; Park & Cho, 2020; Rathnasingha & Weerasinghe, 2021); however, there exists a significant knowledge gap specific to the impact of consensus analyst target prices in the Nigerian Stock Exchange. This gap stems from the limited understanding of how consensus analyst target prices, comprising forecasts and recommendations, affect the price returns of selected listed firms in the Nigerian stock market (Obalade & Adekanmbi, 2020). This research deficit presents a substantial issue, as it hampers the ability of investors, analysts, and stakeholders to make well-informed decisions and implement strategies aimed at optimizing returns and ensuring the sustained growth of these selected listed firms (Adegboyega, 2021). Additionally, the absence of research in this area leaves investors exposed to various uncertainties, including market fluctuations, unexpected stock price movements, and the lack of guidance on potential future returns (Oyewola et al., 2021). Consequently, this study seeks to bridge this knowledge gap by investigating the relationship between consensus analyst target prices and the price returns of selected listed firms on the Nigerian Exchange. Consequently, this study aims to bridge the knowledge gap by investigating the effect of

URL: http://doi.org/10.14738/abr.124.16680

consensus analyst target prices on stock price returns of selected listed firms on the Nigerian Stock Exchange.

LITERATURE REVIEW

Conceptual Review

Price Return:

Price return is a crucial topic with many different applications and aspects in the fields of finance and economics. According to Tsen et al. (2018), price return is the percentage change in an investment's value over a certain time period while accounting for both capital growth and income. This definition highlights its crucial function in assessing investment performance. Additionally, Assael and Challet (2021) highlight price return as a metric of profitability, reflecting the gains or losses in money resulting from changes in the price of an asset. By emphasizing that price return is a dynamic indicator that reflects market mood, economic circumstances, and investor behaviour, Osah and Mollick (2023) add to this viewpoint. Price return is defined by Cayon and Sarmiento (2022) as a crucial factor in risk assessment, which clarifies another aspect of price return. They contend that market uncertainty' effect on price return volatility may have a big influence on investment choices. This debate is furthered by Arias-Calluari et al. (2022), who emphasize that price return analysis in combination with other financial measures offers important insights into asset performance and portfolio diversification tactics. The idea of anomalous price returns is first introduced by Han et al. (2023), who emphasize the importance of departures from anticipated returns and its implications for event studies.

Shi et al (2019) description of price return as a key factor in financial modeling and forecasting adds to the conversation. They contend that reliable price return forecasts are essential for risk management and asset allocation. Furthermore, Hammoudeh et al. (2022) emphasize the international nature of price return, highlighting its importance in international finance and its function in determining cross-market correlations. In their discussion of how price returns may be analyzed on different time scales, from brief intraday swings to lengthy trends, Dai et al. (2021) go into further detail on the temporal element. By emphasizing how investor opinion and psychological biases affect price return in addition to objective market variables, M'ng et al. (2020) expand the definition to include behavioural considerations. Wong (2019) places a strong emphasis on the informational character of price return, arguing that it reflects market participants' overall assessments of a company's prospects for the future. By proposing that price return, as a measure of market efficiency, encompasses both public and private information, Jareo et al. (2020) broaden this viewpoint.

Consensus Analysts Target Price:

The term Consensus Analysts Target Price (CATP) has been given several different meanings in the financial literature. Ho et al definitions of CATP as a projection of a security's future price or worth based on the collective predictions and views of financial analysts, investors, or experts is one that is often used. Usually, a mix of quantitative methods, professional judgment, and market sentiment analysis is used to arrive at this consensus. Wang et al (2021) .'s further emphasis on the usefulness of CATP for investors in helping them make wise investment selections by offering a projected price target. The term is expanded upon by Dechow and You (2020), who emphasize the significance of CATP in the valuation of publicly listed enterprises.

They claim that CATP often has a crucial impact on equities research since it may help analysts and investors determine whether a company is cheap or overpriced in relation to its current market price. According to Patel (2021), CATP is an essential instrument in financial analysis since it not only forecasts prices but also provides a thorough assessment of an asset's possible future performance.

Ho et al. (2018) add to this issue by highlighting the fact that CATP is a changing estimate that may alter over time in reaction to new information and market factors rather than being a fixed number. This dynamic nature emphasizes how crucial it is to constantly review and update CATP to reflect changing market circumstances. In addition, Hao and Skinner (2023) propose that CATP should be taken into account in conjunction with other financial metrics and indicators to provide a thorough knowledge of an investment opportunity.

According to Hsieh et al. (2023), CATP may be used to analyze bigger market indexes or sectors in addition to individual equities. They contend that CATP for indices acts as a barometer for general market mood and might affect choices about portfolio allocation. Gu et al. (2022) further emphasize that CATP may be utilized for a variety of asset classes, such as fixed income and commodities, in addition to equity investments, broadening its use in the financial sector. The geographical and cultural differences in CATP techniques are highlighted by Erkilet et al. in 2022. They note that owing to regional variances in data accessibility, market dynamics, and investment behaviour, consensus analysis may vary. Therefore, while evaluating CATP estimates, it is crucial to take these geographical differences into account. Finally, Bonini et al. (2022) underline the collaborative aspect of CATP since it depends on the combined wisdom and insights of financial professionals, which may provide predictions that are more solid and trustworthy than individual estimates.

Theoretical Review

The Efficient Market Hypothesis (EMH) is a fundamental theory in finance asserting that asset prices accurately reflect all currently available information, and financial markets efficiently allocate resources (Colin-Jaeger & Delcey, 2020). Eugene Fama and Paul Samuelson were prominent proponents of EMH when it emerged in the early 1960s. Fama's 1965 study delineated three forms of EMH: weak, semi-strong, and strong. The weak form posits that forecasting future price movements is impossible since historical price and volume data are already incorporated into stock prices (Leković, 2018). The semi-strong form asserts that stock prices encompass all publicly accessible information, including historical price data and current news (Delcey, 2019). The strong form contends that stock prices instantaneously reflect all information, both public and private (Brown, 2020). These assumptions imply that investors cannot consistently generate abnormal returns as asset prices account for all relevant information.

EMH has garnered support from renowned economists and financial experts. Eugene Fama, a Nobel laureate whose research underpins EMH, has staunchly endorsed the idea (Liu et al., 2022; Sandubete et al., 2023). Economist Burton Malkiel, through his book "A Random Walk Down Wall Street," further promoted EMH (Malini, 2019). Empirical data overwhelmingly support EMH, particularly regarding how efficiently markets respond to new information (Malini, 2019). Institutional investors and proponents of passive investment, like index funds

URL: http://doi.org/10.14738/abr.124.16680

and ETFs, align with EMH concepts as they emphasize market efficiency and eschew active stock selection (Brătian et al., 2021; Khan et al., 2021).

Despite its popularity, EMH has faced criticism from various sources. A common argument contends that financial markets are not entirely efficient, as anomalies and bubbles occasionally emerge and persist (Amyulianthy & Asriyal, 2018; Rossi & Gunardi, 2018). Behavioral economists like Richard Thaler attribute market inefficiencies to investor psychology and biases (de Aragão Batista, Maia, & Romero, 2018; Xu, 2021). Empirical research has challenged the strong form of EMH by occasionally identifying evidence of abnormal returns (Jovanovic, 2018; Wang et al., 2019). Critics often cite examples of insider trading and information asymmetry as proof that not all information is instantly reflected in stock prices (Ali, Lai, & Shad, 2021). In response to these concerns, alternative theories with more nuanced explanations of market behavior have emerged, including behavioral finance and the adaptive markets hypothesis (Mubarok & Fadhli, 2020; Salas-Molina et al., 2021).

The examination of the impact of investment assessment on the stock price performance of selected listed firms in Nigeria is very relevant to the efficient market hypothesis. If the EMH is accepted, it suggests that the stock prices of these institutions already represent all information that is readily accessible to the general public. As a result, efforts to generate anomalous returns via informational advantage through investment appraisal may be restricted in their efficacy. If the EMH is determined to be less relevant in the context of Nigerian exchange, it may indicate that there are market inefficiencies that may be taken advantage of via careful investment analysis. For investors and policymakers looking to make wise choices and improve market stability in the area, understanding the degree of market efficiency on the Nigerian exchange would be essential.

Empirical Review

Hao and Skinner (2023) examined whether adding expected dividend yields implied by analyst dividend forecasts to expected capital gains implied by analyst target prices improves the portfolio strategy of buying stocks with the highest expected returns and selling stocks with the lowest expected returns. They found that the strategy based on the expected total returns performs only slightly better at the 1-month horizon because the short-term return predictability of the expected dividend yield is weak. They also found that the strategy generates significant abnormal returns regardless of sorting the stocks universally or within industries, although sorting stocks within industries improves the performance.

Shahandashti et al., (2023) presented several investment valuation methods, such as a stochastic life-cycle cost analysis technique and a real options analysis method, to evaluate investments in construction projects under uncertainties. The stochastic life-cycle cost analysis captures the volatility of the input variables in investment valuation based on their historical values, propagates them through the life-cycle cost analysis method, and determines the probability distribution of the life-cycle cost. Real options analysis evaluates real (nonfinancial) investments under uncertainty with elements for strategic management flexibility and delayed investment. Various examples of construction investment valuations, along with the R codes, are presented in this chapter to enhance the learning experience. These resources can be extended for the assessment of other construction investment projects.

Gu, Guo and Zhang (2022) documented that institutional herding behavior is associated with analyst target price revisions even after controlling for the effects of analyst recommendations and earnings forecasts and provide insights into the price impact of institutional herding. Institutional investors tend to buy the same stocks following an upward target price revision and sell the same stocks following a downward price revision. Moreover, institutional investors tend to overreact to analysts' target price revisions, which exacerbates the mispricing in the stock market. Such price destabilizing effect is particularly pronounced for herding among investment firms. Findings revealed that analyst target price revisions provide incremental information in the presence of analyst recommendations and earnings forecasts when institutional investors make their portfolio construction and rebalancing decisions. Institutional investors tend to buy the same stocks following an upward target price revision and sell the same stocks following a downward revision.

Blake and Pickles (2022) formulate a mental time travel financial investment valuation model which identifies the causes of asymmetries in valuation. They provide examples of both rationally discounted irrational projections (market crises, tech stock carve-outs and mega infrastructure projects) and irrationally discounted rational projections (dual-listed shares and dual-class shares) and showed how short-termism and long-termism might result from: irrational expectations; irrational discounting; and the differing perceptions and preferences of heterogeneous agents.

Erkilet, Janke and Kasperzak (2022) examined which valuation approaches financial analysts use to value a company and whether the chosen valuation approach affects the target price accuracy. To address these questions, they conduct content analyses of 867 hand-collected analyst reports on German publicly listed companies published between January 2014 and June 2017. The result find that sell-side analysts more frequently use the single-period market approach when formulating target prices, followed by the multiperiod income approach, and a mixture of both by combining the results, the socalled hybrid valuation approach. Additionally, it showed that 612 of the analyzed analyst reports are based on a holistic valuation methodology instead of a sum of the parts valuation technique. Both univariate and multivariate analyses emphasize that the choice of valuation approach is significantly associated with the accuracy of price targets. Specifically, the income and market approach lead to significantly more accurate target prices compared to the hybrid approach. They also found that the target price accuracy is higher when analysts apply the holistic rather than the sum of the parts valuation approach to determine the fundamental value of the company. Additional results emphasize that target price accuracy improves when analysts use the sum of the parts valuation that bases solely on market or income approaches rather than hybrid approaches.

Bonini and Kerl (2022) analyze how sell-side analysts estimate target prices and show that they consistently employ subjective adjustments to baseline models. For a panel of analyst reports, it shows that target price forecasts that deviate significantly from simple multiple-based pseudo-target prices are (ex-post) more accurate. By controlling for various stock and broker characteristics, they also demonstrate that the results are not driven by the degree of sophistication of the valuation models. Furthermore, we show that investors know about this increased informativeness of forecasts as the abnormal market return around target price

URL: http://doi.org/10.14738/abr.124.16680

revisions is significantly higher if analysts deviate from simple pseudo-target prices when issuing their forecasts.

Patel (2021) study considered financials, demand and expectations for measuring the effectiveness of target price accuracy with two objectives: (a) to construct the model of target price achievement and (b) to construct the model of target price accuracy. The study considered all the banking stock listed on the National Stock Exchange (NSE). The study concludes with the models and found that promoters' holding is the most significant indicator, for measuring target price accuracy, followed by financials, price-to-book ratio, for the Indian banking stocks.

Ogbebor, Awonuga, Oyamendan and Oamen (2021) examined the relationship between stock returns, inflation and interest rate in Nigeria with objective of testing the Fisherian theory. The Fisherian theory of interest postulates that changes in the value of money would be reflected in nominal interest rates and stock returns in the same proportion over the long-run. A battery of econometric techniques was employed (descriptive and inferential) for the sake of robustness. The findings established a long-run relationship among the selected series. Specifically, the study found that the price level coefficient exhibits a positive and significant relationship with stock price in the long-run. Therefore, evidence abounds of a great deal of the Fisherian postulation in the analyses carried out and conclude that common stocks are, indeed, a good hedge against inflation in Nigeria.

Guo, Huang and Jia (2020) applied the real options valuation (ROV) method with a jump process to consider the uncertainty of multiple unexpected events (UEs) when building investment valuation models for natural tourist attractions (NTAs). They considered multiple UEs from a pre-event, micro-level perspective. In considering both homogeneous and heterogeneous UE scenarios, certain conclusions can be drawn, so long as the project value of an NTA is known. In assessing diverse scenarios, it can be generally predicted that the greater the UE effects, the higher the degree of uncertainty; also, the more extensive the damage caused by UEs and the more frequent their occurrence, the greater the expense of an investment opportunity, and the longer the wait until the optimal time for investment. In assessing both homogeneous and heterogeneous UE scenarios, the study finds that investments should be valued differently under each type of scenario. In determining the optimal time to invest in NTAs that face differing types of UEs, strategic delay is found to be advantageous in many cases.

Dechow and You (2020) investigated the determinants of analysts' target price implied returns and the implication of their findings for investment decision-making. They identify four broad sets of factors that help explain the cross-sectional variation in target price implied returns: future realized stock returns, errors in forecasting fundamentals, errors in forecasting the expected return to risk, and biases relating to analysts' incentives. The results suggested that all four sets help explain target price implied returns, with errors in forecasting the expected return to empirical risk proxies having the greatest impact. Collectively, these variables explain nearly a quarter of the cross-sectional variation in target price implied returns. They also use the model to predict the optimistic bias in target price implied returns and evaluate whether investors correctly ignore the predictable bias. The results suggest that investors make similar valuation errors to analysts and/or do not perfectly back out the predicted bias in target prices.

Zahed, Shahandashti, and Diltz (2020) analysed the financial means and enabling legislations for implementing Underground Freight Transportation (UFT) systems; deterministic investment analysis of implementing UFT systems; and investment valuation of implementing UFT systems under uncertainty using a real options approach. A comprehensive Life-cycle benefit-cost analysis of the UFT systems for five different scenarios of implementing UFT systems in Texas showed that these systems are economically feasible. Results of sensitivity analysis highlighted the most uncertain parameters affecting the economic feasibility of UFT systems. This analysis showed that the economic feasibility of the large and medium size UFTs is more sensitive to construction cost and revenue from shipments.

Gonzalez-Ruiz et al., (2019) developed an investment valuation model using the mezzanine debt mechanism based on blue bonds that explicitly allude to public–private partnerships (P3s) and project finance (PF). Additionally, the study proposes the financial captured value (FCV) theory for measuring how much financial value lenders may capture by becoming sponsors through financing of sustainable infrastructure systems (SIS). The investment valuation model was validated through the Aguas Claras wastewater treatment plant as a case study. The empirical results showed that lenders may capture financial value by converting outstanding debt into equity shares throughout the operation and maintenance stage. Furthermore, case study results provide new insights into the implications of the debt–equity conversion ratio on the relationship between the sponsors' internal rate of return and the FCV.

Shi et al., (2019) investigated the abnormity in five leading Bitcoin platforms. By analyzing the financial index, *i.e*., the normalized logarithmic price return, they found that the properties of price return in bitFlyer are completely different from others. In exploring the possible reasons, they found that the abnormal ask price and bid price appear simultaneously in bitFlyer, which may be potentially linked to either price manipulation or money laundering. It verified their conjecture that there may be abnormity or price manipulation in Bitcoin platforms. Furthermore, their findings on price return could also provide an innovative and effective method to detect the abnormity in Bitcoin platforms.

Rijal and Mustafa (2019) developed long-term investment of stock cash flow activities comprising of how yearly investment contribution turns to share units and vice versa, how the series of dividends pay out are declared and finally, how the growth of share units is generated over the investment horizon. These investment model activities form cash inflows and outflows and hence, in return, the performance of this investment model can be evaluated. In addition, this model also constrained that, the yearly dividends obtained were being reinvested together with the annual contributions in accumulating shares. Besides presenting the computation of purchasing and selling of share units and the amount of dividend obtained, this paper contributed to the computation of the growth of the shares in a year, based on share issuance such as share split or consolidation, as well as bonus share rewards. They illustrated the computation of MIRR by looking at the investment activity towards Prolexus Berhad from the year 2011 to 2015. The increase of company's share prices through years, the encouraging series of dividend rates and generosity of the company in the issuance of shares to the shareholders, were also clear factors that determined the attractiveness of the MIRR.

URL: http://doi.org/10.14738/abr.124.16680

Ho, Strong and Walker (2018) studied the relationship between analysts' target price revisions and recent market returns, excess stock returns, and other analysts' target price revisions. Empirical results showed that, after controlling for earnings forecast and recommendation revisions, target price revisions are associated with each of these information sources. Result also found that target price revisions were more sensitive to negative than to positive excess stock returns. They conjectured that firms' tendency to withhold bad news, while releasing good news promptly, drove this effect and, using proxies for firms' withholding of bad news, they reported evidence supporting their hypothesis.

METHODOLOGY

Research Design

In the context of the study, we explored the impact of consensus analyst target price on price return of selected listed firms within the Nigerian Exchange. In this study, the researcher adopted the ex-post facto approach within a panel data framework. This choice was grounded in several considerations. Firstly, the requisite data for this investigation were publicly available and extracted from pre-existing sources. Secondly, the researchers intended to utilize this data without making any alterations to the original values. These factors collectively made the ex-post facto approach within a panel data framework a suitable and methodologically sound choice for this research, aligning with the research objectives and the nature of the data currently at hand.

Secondary data were gathered for this research, specifically from Bloomberg and the financial statements of the selected listed companies. The data covered the period of thirteen (13) years between 2011 and 2023. More so, this study adopted a panel data, which is a combination of time series data and cross-sectional data. That is, the data comprises of certain groups over a time period, quarterly.

Population and Sampling

From the population of the listed firms in Nigeria, Table 2 below shows the selected sample and the rationale for selection while Table 1 shows the spread per sector.

Table 1: Sample Companies

S/N	Companies	Sector	Rationale
1	Dangote Cement Plc	Industrial Goods	Market Capitalization
2	Lafarge Africa Plc	Industrial Goods	Availability of data
3	Nigerian Breweries Plc	Consumer	Market Capitalization
4	Nestle Nigeria Plc	Consumer	Market Capitalization
5	Flour Mills of Nigeria Plc	Consumer	Market Capitalization
6	Unilever Nigeria Plc	Consumer	Market Capitalization
7	Guinness Nigeria Plc	Consumer	Market Capitalization
8	Cadbury Nigeria Plc	Consumer	Availability of data
9	PZ Cussons Nigeria Plc	Consumer	Availability of data
10	UAC of Nigeria Plc	Conglomerates	Market Capitalization
11	Zenith Bank Plc	Financial services	Market Capitalization
12	UBA Plc	Financial services	Market Capitalization
13	Guaranty Trust Bank Plc	Financial services	Market Capitalization

14	Access Bank Plc	Financial services	Market Capitalization
15	First Bank Plc	Financial services	Market Capitalization

Table 2: Sector Spread

S/N	Sectors	Population of Sector	Sample selected
1	Agriculture	5	
2	Conglomerate	6	1
3	Construction/Real Estate	8	
4	Consumer Goods	21	7
5	Financial Services	49	5
6	Healthcare	7	
7	ICT	9	
8	Industrial Goods	13	2
9	Natural Resources	4	
10	Oil and Gas	9	
11	Services	23	
	TOTAL	154	15

Model Specification

To investigate the effect of investment valuation on stock price performance, the work of Antonio and Fernando (2018) was adapted. Antonio and Fernando (2018) study premised on the Price-Earnings Multiple as an Investment Assessment Tool in Analyzing Stock Market Performance of Selected Universal Banks in the Philippines. Antonio and Fernando (2018) model were specified below:

$$PER_t = (ROEGR_{it}, EPS_{it}, DPO_{it}, PVB_{it}, NIGR_{it}, PSE_{it}, INFR_{it}, GDPGR_{it}, INTR_{it})$$

Where:

$ROEGR_{it}$, = ROE Growth Rate, EPS_{it} = Earning Per share Growth Rate, DPO_{it}, = Dividend Payout, PVB_{it}, = PBV Ratio, $NIGR_{it}$, = Net Income Growth Rate, PSE_{it}, = PSE index, $INFR_{it}$, =Inflation Rate, $GDPGR_{it}$, = GDP Growth Rate, $INTR_{it}$ = Interest Rate

To complete the specification of the econometric model and indicate the metrics for price performance (Stock returns), we consider the form of algebraic or linear relationship among the economic variables. The corresponding econometric model is

$$STR_{it} = \alpha_0 + \alpha_1 STR_{t-1} + \alpha_2 CATP_{it}\mu_{1it}$$

Where:

- STR is the stock price return.
- CATP is the consensus analysts' target price.

α_0 = Intercepts, the mean value of the response variable when all independent variables are equal to zero, α_1= Parameters to be estimated, μ = Stochastic or error term which reflects the unaccounted variables not included in the model, *i* = each of the companies in the cross section

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Description and Measurement of Variables

Table 3: Variables, Indicators, Measurement and Sources

Variable	Indicators	Measurement	Source
Stock Price Return	STR	Stock return is the current change in stock price from one price of the immediate past quarter. $(P_t - P_{t-1})/(P_{t-1})$	NGX and Bloomberg
Consensus Analysts' Target Price	CATP	This is the consensus of target prices from various analysts.	Bloomberg

Source: Author's Computation (2023)

Estimation Techniques

Given the nature of the study as a cross section examination of listed manufacturing firms over a set period of time, panel analysis will be used in this investigation. To determine the nature of the variables' collinearity, the correlation matrix, a fundamental test of descriptive statistics was carried out. The Estimation technique employed for this study was Long Run Panel Autoregressive distributed lag model (ARDL) to depict the effect of consensus analyst target price on stock price return, for the selected listed firms on the NGX, both on the short and long run, due to the result of the unit root test that revealed stationarity with and without differencing for the lagged STR and CATP respectively. The study took consideration of the pre-estimation test of the study. Some of these tests were correlation matrix, Panel unit root test, cointegration test, cross sectional dependence and homogeneity.

RESULT AND DISCUSSION

Pre-Estimation Test

Table 4: Descriptive Statistic Result

Variable	Obs	Mean	Std. Dev.	Min	Max
STR	780	111.79	268.00	2.26	1500.39
CATP	780	119.22	283.76	3.99	1724.87

Author's computation, 2024

The descriptive statistics presented in Table 4 offer a comprehensive examination of several key financial variables, shedding light on their central tendencies, dispersions, and overall distributions. This analysis examined Stock Price Return (STR) and Consensus Analyst Target Price (CATP). The ensuing interpretation provides nuanced insights into the implications of these statistics for investors and financial analysts, especially for investors who invest based on trends, high and low levels, as well as inflection points.

Beginning with Stock Price Return (STR), the mean value of 111.79 signifies a positive average return, yet the substantial standard deviation of 268.00 suggests considerable variability and potential volatility. This variability, ranging from a minimum of 2.26 to a maximum of 1500.39, underscores the diverse spectrum of stock returns within the dataset. Investors should be particularly attentive to this dispersion, indicating both low and high-performing stocks in the market. Consensus Analyst Target Price (CATP) displays a mean of 119.22, representing the average target price assigned by consensus analysts. The high standard deviation of 283.76 underscores substantial variability in analysts' target prices, spanning a wide range from 3.99

to 1724.87. Investors are advised to consider this wide dispersion in expectations when evaluating the consensus on stock target prices.

Table 5: Cross-Sectional Dependence Test

Variable	**Pasaran (CD) 2015**	**Juodis, Reese (CDw) 2021**	**Pasaran, Xie (CDw+) 2021**
STR	-2.14**	-1.30	**214.39*** **
CATP	-1.83*	-2.94***	**-2.94**
Slope Homogeneity	**Delta**	**Adj. Delta**	**Conclusion**
MODEL	24.328***	25.061***	**Heterogeneous slope**
Statistical significance at the 1%, 5%, and 10% levels is denoted by ***, **, and *, respectively. statistical significance implies rejection of the null hypothesis of Weak cross-sectional dependence for CD test and null hypothesis of slope homogeneity			

Source: Author's Computation, 2024

In financial modeling, the examination of cross-sectional dependence (CD) and slope homogeneity is crucial for understanding the dynamics of relationships among variables and ensuring the validity of models. Table 5 presents the results of CD tests and slope homogeneity tests applied to the various financial variables, shedding light on the intricacies of cross-sectional behavior.

The analysis begins with the variable STR, where the Pasaran (CD) 2015 test yields a significant test statistic of -2.14 at the 5% level, indicating the presence of cross-sectional dependence. A complementary test, Pasaran, Xie (2021) - CDw+, reinforces this finding with a highly significant test statistic of 214.39 at the 1% level. In contrast, the Juodis, Reese (2021) - CDw test produces a non-significant result (-1.30), implying weaker evidence against cross-sectional dependence for STR. The variable CATP exhibits cross-sectional dependence at the 10% and 1% levels based on Pasaran 2015 and Juodis, Reese (2021), respectively. However, Pasaran, Xie (2021) does not support this conclusion for CATP (see Table 4.3 for Cross sectional dependence test).

Table 5: IPS Unit Root Test

Variable	**Level**	**1st difference**	**Conclusion**
STR	-1.7317	-5.850***	**I(1)**
CATP	-2.018*	-7.075***	**I(0)**
Statistical significance at the 1%, 5%, and 10% levels is denoted by ***, **, and *, respectively. Result indicates a mixed order of integration.			

Source: Author's Computation, 2024

The unit root test employed is the Im, Pesaran, and Shin (IPS) test, a first-generation unit root test that does not consider cross-sectional dependence. The IPS result is reported in Table 6. To account for Cross sectional dependence in the series, the CIPS test is also applied in later.

The IPS test statistic at the level for STR is -1.7317. 1st Difference: After taking the first difference, the test statistic is -5.850, highly significant at the 1% level. STR displays a mixed order of integration, identified as integrated of order 1 (I (1)) at the level and achieving

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stationarity through differencing. The IPS test statistic at the level for CATP is -2.018, significant at the 5% level. After the first difference, the test statistic is -7.075, highly significant at the 1% level. CATP unveils a mixed integration nature, characterized as integrated of order 0 (I(0)) at the level and achieving stationarity through the first difference.

Panel Co-integration Test

Table 7: Westerlund ECM panel cointegration tests

Statistic	Value	Z-value	Conclusion
Model 1			
STR	-3.177***	-6.034	**There is Cointegration**
CATP	-14.421***	-5.178	**There is Cointegration**
*** indicates rejection of the null hypothesis of no cointegration at 1% level. Statistical significance implies the rejection of the null hypothesis of no cointegration			

Source: Authors Computation, 2024

Results for Westerlund ECM panel cointegration tests are reported in Table 7. The presence of cointegration implies long-run relationship among variables in the specified model.

In Model, STR: The test statistic is -3.177, resulting in a Z-value of -6.034, leading to the conclusion that there is cointegration for this variable. CATP, similarly exhibit significant Z-values, indicating cointegration. The model demonstrates cointegration across all variables, suggesting a stable long-term relationship among them. The Westerlund cointegration test results consistently point towards the existence of cointegration among the variables in the specified model. The rejection of the null hypothesis of no cointegration at the 1% level underscores the statistical significance of these relationships. These findings are crucial for understanding the long-term dynamics and interdependencies among the variables under consideration, providing a solid foundation for further analysis and modeling in the context of time series data.

Inferential Result

Table 7: Model 1-(Dynamic) Common Correlated Effects Estimator - (CS-ARDL)
The effect of Consensus Analyst Target Price (CATP) on Stock Price Return (STR)

D.STR Coef.		Std. Err.	z	P>z
Short Run Est.				
L.STR	-0.273 ***	0.077	-3.550	0.000
L.CATP	0.141	0.088	1.590	0.111
Adjust. Term				
lr_STR	-1.273 ***	0.077	-16.550	0.000
Long Run Est.				
lr_CATP	0.077 *	0.043	1.770	0.076
R	0.72			
r (mg)	0.31			
F	3.63 ***			
CD	-0.54			

Source: Author's Computation, 2024

Table 7 shows the result on the effect of consensus analyst target price on stock price return. In the short run, the lagged Stock Price Return (L.STR) exhibits a significant negative coefficient of -0.273 ($p < 0.001$). This implies a substantial short-term correction effect, where a one-unit increase in the lagged return corresponds to a noteworthy decrease of 0.273 units in the current return. On the other hand, the lagged Consensus Analyst Target Price (L. CATP) shows a positive coefficient of 0.141, albeit not statistically significant ($p = 0.111$), suggesting a modest positive relationship without immediate impact on Stock Price Return.

Transitioning to the adjusted term, the long-run Stock Price Return (lr_STR) unveils a highly significant negative coefficient of -1.273 ($p < 0.001$). This points to a robust long-run relationship, indicating a substantial negative adjustment effect. A one-unit increase in lr_STR is associated with a pronounced decrease of 1.273 units in Stock Price Return in the long run, emphasizing a persistent negative adjustment dynamic.

In the long run, Consensus Analyst Target Price (lr_CATP) introduces a positive coefficient of 0.077, demonstrating a marginally significant positive relationship ($p = 0.076$). This suggests that, over an extended period, Consensus Analyst Target Price has a modest positive impact on Stock Price Return.

Beyond the variable-specific interpretations, additional metrics shed light on the overall model performance. The R-squared (r) value of 0.72 signifies a robust fit, indicating that the selected variables collectively explain a substantial portion of the variability in Stock Price Return. The Mean Group R-squared (r (mg)) of 0.31 emphasizes the model's explanatory power across diverse groups. The statistically significant F-statistic (3.63, $p < 0.001$) further attests to the overall significance of the model. However, the Cross-Sectional Dependence (CD) value of -0.54 suggests some level of caution in the interpretation due to potential interdependencies among different observations.

Discussion of Findings

The findings from the short run depicts that the lagged stock price return exhibits a significant negative coefficient (-0.273, $p < 0.001$), indicating a substantial short-term correction effect. Conversely, the lagged consensus analyst target price shows a positive coefficient (0.141, $p = 0.111$), suggesting a modest positive relationship without immediate impact. Transitioning to the long run, the long-run stock price return reveals a highly significant negative coefficient (-1.273, $p < 0.001$), emphasizing a robust long-run negative adjustment effect. In the long run, consensus analyst target price introduces a marginally significant positive coefficient (0.077, $p = 0.076$), indicating a modest positive impact on stock price return. Additional metrics, including an R-squared value of 0.72, signify a strong model fit, while the F-statistic (3.63, $p < 0.001$) attests to the overall significance.

Considering the findings, several studies offer contrasting perspectives. For example, Hao and Skinner (2023) investigated the effectiveness of incorporating expected dividend yields into portfolio strategies based on analyst target prices, finding only slight improvement in short-term returns due to weak predictability of expected dividend yields. In contrast, the empirical studies revealed significant short-term and long-term relationships between lagged consensus analyst target prices and stock price returns, indicating an impact over different time horizons.

URL: http://doi.org/10.14738/abr.124.16680

More so, the empirical result which observed how institutional investors react to target price revisions, albeit with differences in the strength and persistence of the effect, align with the study by Gu, Guo, and Zhang (2022) whose study examined institutional herding behavior in relation to analyst target price revisions, emphasizing the price impact of such behavior.

Another study by Blake and Pickles (2022), whose study introduced a mental time travel financial investment valuation model, highlighting asymmetries in valuation, is in tandem with the empirical findings of this study. While their focus diverges from explicit target price dynamics, their exploration of irrational and rational projections contributes to the broader understanding of market dynamics, aligning with the complexity inherent in financial markets. More so, Erkilet, Janke, and Kasperzak (2022) delved into the valuation approaches employed by financial analysts and their impact on target price accuracy. The empirical study of this research, while not directly addressing valuation methodologies, complements their insights by emphasizing the relevance of lagged stock price returns and consensus analyst target prices in predicting stock returns over various time frames. In addition, the empirical study, without geographical restrictions, complements Patel (2021) focus by providing empirical evidence of the impact of consensus analyst target prices on stock returns. Patel (2021) concentrated on constructing models to measure target price achievement and accuracy in the context of Indian banking stocks. Lastly, the study was in tandem with the empirical work of Ogbebor et al. (2021) whose study delved into the relationship between stock returns, inflation, and interest rates in Nigeria, with emphasis on understanding the factors influencing stock price returns. Both studies contribute to the broader understanding of economic indicators impacting stock market dynamics.

SUMMARY AND RECOMMENDATIONS

This study focuses on the effect of consensus analyst target price on Stock Price returns of listed companies on the Nigerian Exchange. The *ex-post facto research* design was employed in this research due to the necessity to use historic (secondary) data from selected fifteen (15) companies across 3 major sectors on the Nigeria Exchange. Panel autoregressive distribution lag models was the estimation techniques and inference made on 5% significance model. Prior to the data analysis, a number or pre-estimation test were carried out such as co-integration, homogeneity, stationarity, and cross-sectional dependence in addition to basis correlation and descriptive analysis. In the short run, the study reveals a significant negative coefficient (-0.273) for lagged Stock Price Return (L.STR), indicating a substantial short-term correction effect. Conversely, the lagged Consensus Analyst Target Price (L.CATP) shows a positive coefficient (0.141) without statistical significance, suggesting a modest positive relationship without an immediate impact on Stock Price Return. Transitioning to the long run, the highly significant negative coefficient (-1.273) for long-run Stock Price Return (lr_STR) emphasizes a robust and persistent negative adjustment effect. Over an extended period, Consensus Analyst Target Price (lr_CATP) introduces a marginally significant positive coefficient (0.077), implying a modest positive impact on Stock Price Return. Despite the variable-specific interpretations, additional metrics, including an R-squared value of 0.72 and a significant F-statistic (3.63, $p < 0.001$), support the overall model's robust fit, explanatory power, and significance. However, the Cross-Sectional Dependence (CD) value of -0.54 suggests caution due to potential interdependencies among different observations.

Further to the findings of the study, the following recommendations were made:

1. Based on the results, one recommendation concerning Consensus Analyst Target Price (CATP) and Stock Price Return is to exercise caution in relying solely on CATP for short-term decision-making. Investors should be aware that, in the short term, deviations from the lagged return may not be significantly influenced by CATP. Therefore, considering additional factors or indicators alongside CATP could enhance the accuracy of short-term decision-making in understanding stock price movements.
2. Policymakers could explore initiatives that encourage a focus on long-term investment strategies. Since the study highlights a highly significant negative coefficient for the long-run Stock Price Return and the lr_STR, policymakers may advocate for measures that discourage short-term speculation and promote sustained, well-informed investment decisions. This could involve tax incentives or regulatory frameworks that reward investors with longer investment horizons, fostering stability in the stock market.

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