Determinants of Earnings Response Coefficient in the Nigerian Post-IFRS Implementation Era

Sunny Biobele Beredugo[1*]

[1]*Department of Accounting, Arthur Jarvis University, Akpabuyo, Cross River State, Nigeria.*

Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

Aims: The study assessed the determinants of earnings response coefficient in the Nigerian Post-IFRS implementation era. It critically looked at the impact of investors' protection, earnings persistency, and systematic risks on earnings response coefficients.
Study design: The study adopted an ex-post facto research design.
Methodology: A sample of 35 companies was drawn from the population of the listed companies in the Nigerian Stock Exchange between 2013 to 2020. Secondary data was used. The Generalized Least Square was used to test the hypotheses
Results: The study shows that the earnings response coefficient improves with the influence of investors' protection, systematic risk, and earning persistency. Although the influence from systematic risk brings about an inverse effect on ERC, it is a fundamental determinant nonetheless. It was recommended that firms should improve on their investors' protection and that their financial reports should be designed to improve the information contents of accounting earnings to include inherent socio-economic risk, past and prospective earnings.

Keywords: Earnings response coefficient; earnings persistency; investors protection; systematic risk.

1. INTRODUCTION

Presently, expanded volatility and illiquidity have continued to trigger a persistent downturn in the Nigerian Stock Exchange (NSE), bringing up more questions concerning the timeframe for the end of the current weak performances and decreased investors' patronages, even after IFRS had been long implemented.

Corresponding author: E-mail: beredugosunny@gmail.com;

Before the adoption and implementation of the IFRS, investors' patronage of businesses in the Nigeria Stock Exchange was still on a low scale (CBN, 2018) and the major propellant for increased investors patronage in the NSE was the need for IFRS implementation. However, in recent times, the IFRS implementation has not resonated in the expected increase in investors patronage as speculated. Indeed, the persistent apathy and waning investors' confidence that have beset the country's securities exchange in the previous few years kept on reflecting on market indices and continue to spark a steady fall in share prices of listed firms. This relies on the deficiency of accounting information on the earnings target and other relevant information.

Investors need all the information they require to make favorable decisions/responses on prospective earnings before, during and after the earnings announcement. Research on earnings response coefficient (ERC) is therefore principal to decision usefulness to effectively respond to a company's earnings information through favorable market reactions. This study demonstrates empirically the determinants of ERCs using the information on investors' protection, earnings persistency and systematic risk model, where the coefficient of cumulative abnormal return and unexpected return is assumed to be a valid proxy for ERC.

Accessibility of accounting information is critical to investor's reactions on all given occasions, particularly during earnings declarations. The contrast in the information environment can influence the degree to which price changes anticipate earnings changes [1]. Investors have come to terms with the necessity of all information on expected risk and return before predicting a company's performance. The Efficiency Market Hypothesis is underpinned by this article and also posits that share market price is required to mirror all information. Security prices are functions of a firm's characteristics, earnings persistency, investors' protection regime, associated market risk, and level of compliance with extant law and reporting requirements. All of which have the capacity of influencing the earnings response coefficient.

All publicly available information is usually built into the share market price. Market participants with superior information could only exploit this information until share prices have effectively impounded the information [2]. In the aggregate, a portion of changes in a company's share price

is expected to result from changes in the relevant information available to the market.

The earnings response coefficient, therefore, measures the unexpected return of the market in response to the unexpected parts of the reported earnings of the organization that has issued the securities. Lending their voices to this argument were Dechow, Ge, and Schrand [2] who show that ERC is a good proxy concerning decision usefulness by evaluating the market perception of value relevance of various accounting measurement and recognition criteria.

The major thrust of this study, therefore, revolves around the identification of the components that influence the earnings response coefficient. This is on the ground that the issues of investors' protection have not only been grossly undermined in the firms' annual reports but that investors in Nigeria are equally not quickly moved upon receipt of new information on the market value of the securities which according to them could be a sham [3]. This is because most prices of securities traded in the market might not fully incorporate the efficacy of earnings persistency and systematic risk among others in the companies' annual reports.

It is in view of the above the study critically looked at the impact of investors' protection, earnings persistency, and systematic risks on earnings response coefficients. The construct validity of the earnings response coefficients (ERC) is equally not fully known in some quarters and the paucity of research on ERC determinants in Nigeria necessitates the indispensability of accessing the determinants of ERC in the Nigerian post-IFRS implementation era.

2. LITERATURE REVIEW

Investors' reaction to the earnings announcement has recently found out that investors become more active during the earnings announcement period, placing a discount on optimistic earnings forecasts. Al-Baidhani, Abdullah, Ariff, Cheng and Karbhari Y [4] found that investors become more active during the earnings announcement period, placing a discount on optimistic earnings forecasts. Stock price changes and response at the time of prediction presentations depends on the type of predictions and adjustments which is exposed by the management during the fiscal year to fulfill the investors' expectations [5].

Most investors are looking to maximize the return on their investment. Therefore, recognizing the correct time to buy, sell or keep the stock will enable them to reach their goal of maximizing the return on their investment [6]. By knowing the factors that affect Earnings Response Coefficient from the information published by a company, investors will be able to predict the level of the stock price that is to come.

Amongst its various description, ERC is "a measure of the relation of stock returns to earnings surprises around the time of corporate earnings announcements" or "the relationship between a change in a company's stock price and any unusual statements in a company's earnings announcement".

Given the above, the use of earnings information can reduce the uncertainty of the financial performance of the company in the future, so the quality of decision-making will increase. Favourable ERC could represent an indication of the quality of earnings depending on the abnormal return of stocks seen from the ups and downs of stock prices and market prices based on the profits obtained by the company [7]. ERC can also be measured by the regression slope of the cumulative abnormal return and unexpected earnings. The ERC is measured by the regression slope of the stock market price changes or market reactions (proxied by cumulative abnormal return) and accounting profit (proxied with unexpected earnings). Specifically, the factors affecting ERC have been expounded in several jurisdictions. However, much has not been said on earnings persistency, beta and investor's protection in the Nigeria Post-IFRS implementation era.

Prior to the implementation of IFRS in Nigeria, decision usefulness of the earnings related information were not truncated by the fair value measurement (IFRS 13). However, the resultant effect of IFRS in the decision usefulness of financial statement information, still remain a mirage among investors in Nigeria. This is because, despite the relevance of IFRS to the quality financial reporting in Nigeria, it has engendered the inability of the listed Nigerian firms to increase the decision usefulness to be more earning oriented rather than non-earning information.

IFRS implementation in Nigeria has led to increase earnings volatility and consequently, less accurate earnings forecasts, which was not the case in the pre-IFRS implementation era [8].

These frivolities have an untold effect on the earning response coefficient of listed Nigerian companies; while, a lot of investors still consider other factors together with earnings in taking their decisions.

2.1 Investor's Protection and ERC

Strong investor protection engenders quality accounting information [9]. Houqe, Zijl, Dunstan and Karim [10] argued that "earnings quality as a proxy of ERC is a joint function of investors' protection and the quality of accounting standards. By extension, lower investor protection breeds managerial discretion within the organization which impedes the production of high-quality accounting numbers, - despite high-quality accounting standards.

Information on investors' protections is likely to contribute to better growth prospects and favour response to earnings announcement by investors. Hope [11] added that firms with weak protection for minority shareholders' interests provide greater incentives as well as opportunities for managers to engage in corrupt accounting practices which impede the ERC. Holthausen and Watts [12] also provided evidence that the absence of investor protection would likely lead to a reduction in the perceived quality of the financial statement and investor response to the earnings announcement.

Investor protection is measured using the weighted average index of board independence and protection of minority shareholder' interest [13]. The first null hypothesis of the study is therefore presented as follows: H_0: Investor protection does not significantly affect the Earnings response coefficient of listed Nigerian companies.

2.2 Earning Persistency and ERC

It is expected that the variation in ERC will be positively related to earnings persistence. The unfavorable earnings response recorded could be attributable to the non-reportage of the growth opportunities of the firm. The ERC is expected to be relatively associated with the rate at which the current earnings of a firm persist into future earnings. Good and production information leads to good and production reactions to the news. Invariably where information on earnings persistency is reported in perpetuity, there are tendencies of the current period's earnings shocks to persist in the future and affect future earnings expectations; this would instigate a

favorable earnings response coefficient. Although from the empirical study conducted by Mashayekhi and Aghel [14] on the determinants of earnings response coefficient in an emerging market. They were able to establish that earnings persistence is not significantly associated with ERC. This is no doubt a contention that require further examination in the Nigeria economic environment.

Specifically, the earnings persistence can be measured by the regression slope with the previous year, according to Mulyani, Asyik and Andayani [15]: $Xit = \alpha i + \beta it\ X(it-1) + \varepsilon it$; Where: Xit = Accounting Profit of firm i on year t; $X\ (it-1)$= Accounting Profit of firm i on year t-1.

To further establish the efficacy of the above assertion, the following hypothesis which states that "Earnings persistence does not significantly affect ERC of listed Nigerian Companies" was appraised in the subsequent chapters.

2.3 Systematic Risk and ERC

Systematic Risk (Beta) is the volatility that affects many industries, stocks, and assets. It measures the exposure of risk a particular stock has concerning the market. Hasanzade1, Darabi1 and Mahfoozi [16] posit that systematic risk is the non-removable part of the total risk of the portfolio and it is due to factors that affect the total price of securities. The relations of Beta to ERC indicate that where a firm's future expected returns are characterized by a sequence of high risk, the lower its value will be to a risk-averse investor. Higher beta increases the discount rate that the market uses to price the unexpected revision of future earnings; therefore, beta is negatively associated with ERC. Empirically Hasanzade1, Darabi1 & Mahfoozi [16] in their study on factors affecting ERC in Iran; discovered that systematic risk is inversely associated with earnings response coefficient. Shen and Chih [17] also found the same significant and negative correlation between ERC and beta. Collins and Kothari [18] added that the ERC is a decreasing function of a security's systematic risk. However, all activities/ information that hurt operations can be effectively managed so long they are identifiable and reported. Measurement and effective reporting of the associated risk and means of limiting their potency on the firm can add quality to the firm's financial statement. Beta is measured using systematic risk using Capital Assets Pricing Model [15]. Given the above, the following third null hypothesis was tested as follows: H_0: Systematic risk does not significantly affect the Earnings response coefficient of listed Nigerian companies.

2.4 Conceptual Model

Based on the hypothesis development, the researcher examined the determinants of ERC as presented below:

3. METHODOLOGY

The study adopted Ex-post facto in assessing the determinants of the earnings response coefficient of listed companies in Nigeria. Samples of 35 companies were drawn from the population of the listed Nigerian companies (2013 to 2020) through purposive selection from the manufacturing and banking and service sectors. The selected companies were continuously listed in the NSE from 2013 to 2020. Other criteria for selection were that the firms were actively traded and their financial statement year ended on December 31st.

3.1 Model Specification

The model used in this work was developed by Collins and Kothari [18] and adapted for this study. The empirical models are specified as follows:

Model 1: $ERC = \beta_0 + \beta_1 IP + \beta_2 PER_i + \beta_3 BETA + e$

Where: ERC = Earnings Response Coefficient; IP= investors' protection; PER= Earnings persistency; BETA= beta (systematic risk). β_0, = unknown constant; β_1, β_2, β_3, = unknown coefficient to be estimated (ERC); e = stochastic error.

The study adopted the Generalised Least-Squares (GLS) equation techniques. Hypotheses were tested using the panel regression analysis.

Fig. 1. Determinants of earnings response coefficient

4. RESULTS AND DISCUSSION

This section is connected with the presentation of data from selected Nigerian listed companies used. 35 companies' annual reports from 2013 to 2020 were used to examine the determinants of Earnings Response Coefficients (ERC). The data used for the study were computed with the aid of Microsoft excel. Table 1 presents an analytical description of the companies used. 35 companies' annual reports were used covering a period of 2013 to 2020. The table reveals the earnings and disclosure index of the firms. The indexes were within 0.23 to 0.78 for the earnings response coefficient. The log of investors' protection falls within 0.009 to 11.330. The log of earnings persistency ranges from 3.92 to 9. The log of beta lies between -53.942 and 95.456.

A correlation analysis was computed for all the variables. The result in Table 2 shows that the three variables of earnings persistency, investors' protection, and beta (systematic risk) are highly correlated. There also abound fascinating discoveries regarding earning persistency and beta (systematic risk), indicating that firms with high earnings persistency tend to have lower total risk (i.e. lower stock volatility), as such, firms with lower earnings persistency are associated with higher systematic risk (beta).

From Table 2, the high correlation that abounds between investors' protection and ERC indicates that earnings quality can be improved where investors' protections are in place. The results also suggest that there is the absence of multicollinearity and that the independent variables are not measuring the same thing.

The results of the Breuch Pagan Lagrangian Multiplier test for the model as presented in Table 3 shows that the chi-square (X^2= 17.21) for the model was significant, since the p-values = 0.000. The random effect model is therefore appropriate for the cumulative abnormal returns.

The result of the Hausman specification test was also conducted and the chi-square (X^2 = -4.13) for the model was not significant (p>0.05). The result suggests an insignificant difference between the coefficients of the random effects and the fixed effects models for model 1. Random effect model was therefore used for the study.

In a similar vein, other diagnostic test shows that shows the absence of heteroskedasticity problems in the model with the modified Wald test for heteroskedasticity indication a probability values (P<0.01) that is less than 0.01.

Table 1. Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
ERC	0.23219	0.7802	0.61402	0.82092	280
IP	0.00952	11.330	3.93431	4.57907	280
PER	3.92380	9.000	5.635	3.71766	280
BETA	-53.942	95.456	37.4156	7.09009	280

Source: Field work, 2021

Table 2. Correlations matrix of the determinant of ERC

		ERC	IP	PER	BETA
ERC	Pearson Correlation	1	.815[**]	.401[**]	.383[**]
	Sig. (2-tailed)		.000	.000	.000
	N	280	280	280	280
IP	Pearson Correlation	.815	1	.192[*]	.208[*]
	Sig. (2-tailed)	.000		.044	.033
	N	280	280	280	280
PER	Pearson Correlation	.401[**]	.192[*]	1	.476[**]
	Sig. (2-tailed)	.000	.044		.000
	N	280	280	280	280
BETA	Pearson Correlation	.383[**]	.208[*]	.476[**]	1
	Sig. (2-tailed)	.000	.033	.000	
	N	280	280	280	280

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Source: Field work, 2021

Table 3. Random Effects Regression results on the determinants of Earnings Response Coefficient

Random-effects Regression	β (t stat)	Model 1	β (t stat)
Constant	2.301 (2.97)**	R Square	0.8012
		Wald chi 2	69.87
			0.0328
IP	27.001 (4.54)**	Lagrangian Multiplier	17.21**
		Hausman χ2	-4.13
PER	3.0128 (2.51)**	Heter. Wald (χ2)	289.1**
BETA	-2.031 (-3.94) *		

*Notes: The coefficient values are presented with the t-statistics in the parenthesis, *p<.10; **p<.05; ***p<.01, probabilities represent one-tailed when the direction of the coefficient is consistent with expectations, two-tailed otherwise*
Source: Fieldwork, 2021

Concerning the test of the hypothesis, it was proposed in the null form that earnings persistency, systematic risk, and investor's protection are not significantly associated with the earnings response coefficient of firms listed in the Nigerian stock exchange. With specific regards to the determinants of the ERC and using the information presented from the Random effect regression results, it was discovered that investor's protection is associated (t-stat. = 4.54 > $t_{0.05}$ = 1.96) with ERC; earnings persistency is significantly associated with ERC (t-stat. = 2.51 > $t_{0.05}$ = 1.96); and that systematic risk is associated (t-stat. = -3.94 > $t_{0.05}$ = 1.96) with the ERC. The R^2 of random effects regression which shows 80.1% indicates that the collective effects of earnings persistency, systematic risk and investor's protection can bring about 80.1 percent changes in the earnings response coefficient of listed companies in Nigeria.

Our results on investors' protection were also supported by the study of Houqe, Zijl, Dunstan and Karim [10] which argued that lower investor protection breeds managerial discretion within the organization which impedes the production of high-quality accounting numbers and favourable earnings information. The result on the significant association between earnings persistency and ERC was however contradicted by Mashayekhi and Aghel [14] who established that earnings persistence is not significantly associated with ERC. Lastly, our result on the association between systematic risk and earnings response coefficient corroborates the findings of Hasanzade1, Darabi1 and Mahfoozi [16] which established that the relationship between the earnings response coefficient and systematic risk is negative.

The result in Table 3 also shows a high and statistically significant value of the Wald chi2 = 69.87 for the model which confirms the overall significance of the model and the predictive power of their respective independent variables.

5. SUMMARY OF FINDINGS

Results from the hypotheses reveal that earnings persistency, systematic risk, and investor protection all play a significant role on the earnings response coefficient. This can further be evidenced in that impressive explorations earnings can be zeroed in on the connection between security returns and startling earnings to survey the information content of a company's financial statement.

The assessment of high earnings persistence entails reviewing the extent to which a company's current period's earnings shocks tend to persist in the future and affect future earnings expectations. Where this is favorable it brings about higher ERC and vice-versa. Higher persistence brings about the higher expected change in future earnings due to a current-period shock and presumably a higher change in cash flow available for dividend payments. The information need of systematic risk (beta) for investment decision is gaining dominance. Investors are interested in information possible exposure a firm or industry is exposed to. This includes exposures or volatility that affects industries, stocks and assets. Investors are not only interested in good news but in what could impair the incomes and earning capacities of firms. It follows therefore that the higher the information on systematic risk, the relative the reaction on earnings response by investors. This corroborates Collins and Kothari [18] who

established that ERC is a decreasing function of a security's systematic risk.

The result from our study suggests that strong investor's protection engenders a favourable reaction to the regressive slopes of changing market prices and unexpected earnings in that the pieces of evidence of investors' protections regime in a firm contributes to better growth prospects and investors patronages even in the presence of unfavourable changing market prices and unstable earnings.

6. CONCLUSION

As discovered from this study, the earnings response coefficient improves with the influence of investors' protection, systematic risk, and earning persistency. Although the influence from systematic risk brings about an inverse effect on ERC, it is a fundamental determinant nonetheless. By implication, firms with low risk have higher ERC, and the riskier the sequence of a firm's future expected returns are, the lower its value will be to a risk-averse investor; and 'good news on high earnings persistency on operating efficiencies, would lead to high ERC.

7. RECOMMENDATIONS

In line with the discoveries from this research, the following recommendations were proposed:

1. Firms listing in the Nigerian stock exchange should as a result of necessity improve on their investors' protection regime to promote a high earnings response coefficient.
2. The financial reports of listed Nigerian companies should be designed to improve the information contents of accounting earnings to include inherent socio-economic risk, full disclosure of net income, past and prospective earnings to boost investors' patronage and enhance share market prices.

8. SUGGESTION FOR STUDIES

Based on this research, the study focuses only on three variables to include investors' protection, earnings persistence and systematic risk. The suggestions for further study on the determinants of earnings response coefficient in Nigeria should include company size, leverage, industry types, level of multi-nationality.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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