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Effect of Environmental and Ethical Disclosures on Market Value of Listed Consumer Goods Firms in Nigeria

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ABSTRACT

The study examined the effect of environmental and ethical disclosures on the market value of listed consumer goods firms in Nigeria using a sample of 16 firms selected using purposive sampling technique from a population of 24 listed consumer goods sector firms. The study employed secondary data extracted from the annual report of the firm from 2014 to 2025 and adopted the Panel Corrected Standard Error regression technique to analyze the data. The result revealed that environmental disclosure does not significantly influence the market value of listed consumer goods firms in Nigeria. However, ethical disclosure has a significant negative effect on the market value of the listed consumer goods firm. The study recommended that disclosure should focus on areas that directly improve operational efficiency such as energy conservation, waste reduction, and resource efficiency which have positive links to firm value.

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1. INTRODUCTION

In the contemporary global corporate landscape, the evaluation of a firm performance has transitioned from pure financial paradigm to a perspective that incorporates non-financial parameters (Borre & Gelmini, 2024). Corporate sustainability reporting specifically environmental and ethical disclosures has emerged as some of the major strategies used by organizations to communicate long-term viability and societal responsibility to stakeholders (Kandpal et al., 2024). Environmental disclosures entail communication of a firm's impact on the ecosystem while ethical disclosures involve reporting on corporate governance integrity, anti-corruption policies, human rights, and societal compliance.

The Nigeria consumer goods firms have continued to suffer from high volatility and structural instability of value due to the continuous fluctuation of share price on the Nigerian Exchange (NGX) (Okanlawon et al., 2025). Over the last decade, major players in the Nigerian consumer goods sector have experienced severe capital erosion and unstable equity valuations due to macroeconomic shocks, escalating operational costs, foreign exchange losses, and shifting investor sentiments. According to the Tradingview (2026) International Breweries Plc experienced a major decline in equity valuation as the share price peaked at an all-time high of ₦52.40 in January 2018, but subsequently dropped by over 95% to hit an all-time low of ₦2.20 in August 2020. It has remained highly volatile since as it struggle around ₦4.00 to ₦6.00 in 2024 before showing signs of reconstruction-driven adjustment to trade at ₦13.30 in 2026. In addition, Champion Breweries Plc equity drop to an all-time low of ₦0.60 per share on March 29, 2020, before undergoing a highly volatile recovery path that saw it increase ₦21.50 in August 2025, and subsequently fluctuate back down to trade around ₦12.35 to ₦13.40 in mid-2026 (Tradingview, 2026). Also, Nestle Nigeria Plc which is traditionally considered a high-priced blue-chip stock with an all-time high of ₦1,600 per share, faced severe downward valuation pressure. Following a record-breaking net loss of ₦164.6 billion in the 2024 financial year due to currency devaluation, the company share price crashed to ₦975 by early 2025 which is about 40% dip from the historical peaks before experiencing highly volatile swings in 2026 (Tradingview, 2026). In the Nigeria equity market environment that is characterized by such financial

precocity, these firms heavily rely on equity markets to raise capital, as evidenced by recent capital reconstruction strategies and multi-billion Naira public offerings. However, institutional and retail investors are increasingly hesitant to price shares favorably without a clear understanding of the hidden risks, environmental liabilities, and sustainable practices within these organizations. Another major issue is the dilemma faced by corporate managers on spending substantial capital on environmental remediation, waste management, and ethical compliance upgrades, yet it remains unclear whether the investment is reflected in the non-financial disclosures.

Furthermore, while there is a growing body of literature on Environmental, Social, and Governance (ESG) disclosure, significant empirical contradictions persist. Prior international and local studies such as Akinleye and Ogundipe (2024) and Msomi et al. (2025) argued that environmental disclosures enhance firm value. On the other hand, Jing et al. (2026) and Oshiole (2024) reported that certain environmental disclosures particularly those tied to pollution costs and community development have no significant impact on market value. This suggests that investors may discount disclosures that revealed heavy remediation expenses and reward those that signal green innovation. From the methodological stance, most of the existing Nigerian studies aggregated environmental, social, and governance factors into a single composite ESG score. This aggregation created an empirical blind spot that does not account for the isolated effects of environmental components and ethical components. Based on the gap inherent in the literature, this current study assessed the effect of environmental and ethic related disclosure on the market value of listed consumer goods firms in Nigeria.

2. LITERATURE REVIEW

2.1 Concept of Market Value

The market value of a firm is the collective assessment of an organization current performance, strategic positioning, and future earnings potential by capital market participants. In corporate finance and accounting literature, market value serves as a vital indicator of investor confidence and economic wealth maximization. Evidence from previous literature revealed that different measures have been employed as a proxy for market value. For instance, Okpala and Iredele (2018) employed only Tobins Q ratio while Orshi et al. (2025) employed market value of share and Tobin's q ratio as a measure of market value. This current study employed share price as a measure of market value in line with Orshi et al. (2025). This is because the share price give a true reflection of a firm financial and non-financial activities.

2.2 Concept of Environmental Disclosure

Environmental disclosure is one of the dimensions of corporate social responsibility reporting which cover how enterprise communicates the ecological impacts, performance, and mitigation strategies associated with the organization operational activities (Deegan, 2007). The concept is evolving with the global rise of environmental advocacy and regulatory frameworks as it has moved from just voluntary practice into an important mechanism for corporate accountability and strategic communication (Akinlo & Iredele, 2014). Environmental disclosure entails the transformation of qualitative ecological management practices into quantifiable indexes in line with international standards such as the Global Reporting Initiative framework (Hindley & Buys, 2012). Within the context of corporate reporting, comprehensive environmental disclosure involve parameters such as environmental protection policies, energy conservation initiatives, waste management expenditures, compliance with environmental laws, biodiversity impact assessments, and investments in cleaner production technologies (Akinlo & Iredele, 2014). According to Okpala and Iredele (2018) modern corporate reporting paradigms view environmental disclosure as a critical channel to reduce informational gaps and signal proactive risk management to capital market participants (Okpala & Iredele, 2018).

2.3 Ethic-related Disclosure

Ethic-related disclosure is the publication of corporate values, principles, and governance mechanisms designed to ensure fair, transparent, and morally responsible treatment of all internal and external stakeholders. Unlike standard financial declarations, ethic-related reporting concentrates on the human, social, and moral infrastructure of the firm and it cover dimensions such as human rights protections, stakeholder interest guarantees, fair trade arrangements, employee welfare systems, product responsibility, and anti-corruption policies (Okpala & Iredele, 2018). In corporate communication, disclosure of ethical standards serves as a formal declaration that the firm does not merely operate under a wealth-maximization motive, but balances the fiduciary duties with a moral obligation to maximize broader stakeholder welfare (Etzioni, 1988). Consequently, ethic-related disclosures provide capital markets with measurable perceptions into the non-financial risk profile of the business which enable ethical investors to differentiate firms based on organizational integrity and governance quality (Chami et al., 2002).

2.4 Empirical Review

2.4.1 Environmental Disclosure and Market Value

From the international perspective, Evidence from Chinese Listed firm by Li et al., (2025) revealed that stock prices increased information through the signalling channel. Another study by Jing et al., (2026) reported that environmental information disclosure (EID) is associated with lower firm value. Also, Evidence from Gulf Cooperation Council (GCC) countries by Gerged

et al. (2021) environmental disclosure is value-enhancing and the result was robust across disclosure sub-indices. In South Africa, Msomi et al. (2025) assessment of ESG disclosure and firm value of listed non-financial firms revealed that environmental disclosure enhance the value of the firms. Similarly, Al Amosh and Khatib (2024) study of 173 firms listed in Jordan exchange from 2012 to 2019 revealed that environmental disclosure positively influence market value. Another evidence from Chinese listed firms by Zhang and Yang (2023) revealed that environmental disclosure improve corporate market price efficiency. In a different region, Pedro (2021) investigation of listed firms on the Brazilian stock market further supported the result that environmental disclosure is value enhancing.

Akinleye and Ogundipe (2024) study of 21 listed consumer goods firms showed that environmental protection and environmental R&D disclosures had positive and significant effects on market performance, while pollution-cost disclosure was negative and significant and waste-management disclosure was positive but insignificant. John and Ukpong (2025) found that environmental information disclosure positively affected stock-price reactions after controlling for firm size and leverage. Oshiole (2024) study on listed consumer and industrial goods firms found that community-development cost and pollution-control disclosure had a negative insignificant effect on market value. Okpala and Iredele (2019) also found that corporate social-environmental disclosure had a significant effect on market value. The preceding suggests that investors reward disclosure that reads as credible stewardship or innovation, but may discount disclosure tied to pollution control or remediation costs. Therefore, the study hypothesized that;

H_{01}: Environmental Disclosure has significant effect on market value

2.4.2 Ethic-Related Disclosure and Market Value

The evidence from the literature on the link between ethic-related disclosure and market value revealed that the disclosure dimension is omitted in most of the literature. The empirical evidence is mixed, for instance Jiao (2011) reports a positive relation between disclosure rankings and stock returns, with firms at the top having Qs 35% higher than firms at the bottom while Charumathi and Ramesh (2020) and Kumar (2025) find positive associations between voluntary disclosure and firm value. Moreover, Aboud and Diab (2018) study of Egyptian firms from 2007 to 2016 reported that social ethic related disclosure significantly enhance the market value of the firms. Moreover, evidence from 523 North America and Western Europe international firms listed on the ESG index by Chouaibi and Chouaibi (2021) revealed that societal and ethical practices significantly enhance market value.

Elayan et al. (2014) observed positive stock-market reactions to ethics upgrades and negative reactions to downgrades, Cormier et al.(2016) found that ethical lapses affect legitimacy and standing in financial markets while Engstfeld et al.(2021) found no statistically significant overall scandal reaction, though smaller firms are hit more than larger ones. Moreover, Orshi et al. (2023) study on listed manufacturing firms in Nigeria from 2014 to 2021 revealed that ethic-related disclosure has significantly enhance the market value of the firms. Based on the preceding, the study hypothesized that;

H_{02}: Ethic-Related Disclosure has significant effect on market value

2.3 Underpinning Theory

The study is underpinned by the resource-based view theory, legitimacy theory and stakeholder theory. The resource-based view presumes that organizations are bundles of heterogeneous idiosyncratic resources and capabilities that are imperfectly mobile across competing entities (Barney, 1991). When these resources are valuable, rare, inimitable and non-substitutable, it serve as a source of sustained competitive advantage (Hart, 1995). In relation to the study, it implies that firm reputation for environmental stewardship and ethical integrity is a highly valuable intangible asset (Chami et al., 2002). According to this theory, environmental and ethical disclosures should not be seen as defensive mechanisms to satisfy external regulatory mandates and appease public pressures, but as active strategic instruments for corporate differentiation (Okpala & Iredele, 2018).

Furthermore, legitimacy theory explains that firms utilize environmental and ethical disclosures to establish conformity with the social contracts, values, and norms of the society in which they operate (Deegan, 2002). Concurrently, stakeholder theory maintains that a corporation long-term survival relies on securing the approval and support of the organization diverse stakeholder groups (Chan, 1996). The three theories explain that proactive environmental and ethical reporting acts as a strategic deployment of corporate capabilities that transform transparent stakeholder engagement into a value-relevant intangible asset that drives capital market evaluations.

3. METHODOLOGY

This study adopted an ex-post facto research design. This design is deemed appropriate because the events under investigation have already occurred, and the researcher has no direct control over or manipulation of the independent variables. The study utilized panel data (combining cross-sectional and time-series data) extracted from the audited annual reports of the sampled firms. The target population consists of all consumer goods firms listed on the Nigerian Exchange Group (NGX) as of December 31, 2025. To select the sample, a purposive sampling technique was applied based on the following filtering criteria:

i. The firm must remain actively listed on the NGX throughout the study period (2014–2025).
ii. The firm must have consistently published audited annual financial reports for the entire duration of the study.

iii. The firm must have complete financial and non-financial records regarding the variables of interest.

The criteria lead to the selection of a sample of 16 firms which includes Cadbury Nig, Champion Breweries, Dangote Sugar, Flour Mills of Nigeria, Guinness Nig, Honeywell Flour Mill, International Breweries, Mcnichols Consolidated, Nascon Allied, Nestle Nig, Nigeria Breweries, Nigerian Enamelware, Nigerian Northern Flour Mill, Pz Cussons, Unilever Nig and Vitafoam Nig.

Furthermore, secondary data used in the study were gathered from the audited annual report of the sampled listed consumer goods firms. The study spans a 12-year period from 2014 to 2025. Moreover, the variables are categorized into Dependent (Market Value), Independent (Environmental and Ethic Disclosures), and Control variables to eliminate omitted variable bias. In addition, the study employs unweighted binary content analysis based on the Global Reporting Initiative (GRI) Standards. The GRI framework is selected because the Nigerian Exchange Group (NGX) Sustainability Disclosure Guidelines (2018) is anchored upon GRI guidelines. Annual reports of the sampled listed consumer goods firms are scanned against specific GRI-coded indicators.

The Environmental Disclosure Index measures the transparency of listed consumer goods firms regarding ecological footprint, resource consumption, and waste management practices. This index is constructed using 6 environmental disclosures which includes GRI 302 (Energy Management), GRI 303 (Water and Effluents), GRI 305 (Emissions), GRI 306 (Waste), GRI307 (Environmental Compliance) and GRI 308 (Supplier Environmental Assessment). The second independent variable which is the Ethic-Related Disclosure Index covers corporate transparency regarding fair institutional behavior, labor protection, anti-corruption, and product safety. The index was developed based on 6 distinct indicators drawn from the GRI 205 (Anti-Corruption) and GRI 400 (Social) series which includes Anti-Corruption (GRI 205), Employment and Labor Relations (GRI 401 / GRI 402), Occupational Health and Safety (GRI 403), Human Rights and Non-Discrimination (GRI 406 / GRI 408 / GRI 409), Local Communities (GRI 413) and Customer Health and Safety (GRI 416). Table 1 below presents the measurement of the variables

Table 1: Summary Variable Measurement

Variable Name	Acronym	Measurement	Source
Market Value	SP	Opening Share per price + Closing Price per Share) divided by 2	Amiolemen (2018); Orshi et al. (2023).
Environmental Disclosure	EVDI	Disclosure Index = total items disclosed divided by total required items (0 to 1 scale based on GRI items).	Emeka-Nwokeji, and Osisioma (2019); Olagunju and Ajiboye (2022); Orshi et al. (2023)
Ethic Related Disclosure	ETDI	Disclosure Index = total items disclosed divided by total required items (0 to 1 scale based on corporate ethics).	Orshi et al. (2023).
Firm Size	FSIZE	Natural Logarithm of Total Assets	Emeka-Nwokeji, and Osisioma (2019); Olagunju and Ajiboye (2022)
Capital Structure	CAPS	Net Income divided by Total Assets	Orshi (2023).

Source: Developed base on the Literature Review

3.5 Model Specification

The model for the study is specified below;

$SP\ it = \alpha_0 + \beta 1ENDIit + \beta 2ETDIit + \beta 3FSIZEit + \beta 4CAPSit + £it$

Where: SP = Share Price, ENDI= Environmental Disclosure Index, ETDI = Ethical Related Disclosure Index, FSIZE = Firm size, CAPS = Capital Structure I= Individual corporate entity, t = Time dimension (years), β_0 = Intercept or constant term, $\beta 1 - \beta 4$ = Coefficients of the independent variables, μ= Stochastic error term

3.6 Method of Data Analysis

The analyses conducted using STATA included the descriptive Statistics, diagnostic tests such as Multicollinearity test, Heteroscedasticity and Serial Correlation tests to check for constant variance and error independence, and Hausman Specification Test which led to the selection of Panel Corrected Standard Error (PCSE) as the main model for the study.

4. RESULT AND DISCUSSION

The empirical analysis which included the descriptive statistic, pairwise correlation matrix, diagnostic test, and regression are presented and interpreted in this section.

4.1 Descriptive statistic

The descriptive statistics which shows the major data attributes is presented in table 2 below;

Table 2: Descriptive Statistics

Variable	Observations	Mean	Std Dev.	Minimum	Maximum
SP	191	105.2015	328.5210	0.4600	1530.8000
EVDI	192	0.1973	0.2653	0.0000	0.7500
ETDI	192	0.4549	0.3484	0.0000	1.0000
CAPS	188	0.5865	0.1634	0.0430	0.9950
FSIZ	192	7.6263	0.7837	5.5066	8.6836

Source: STATA Output (2025)

The descriptive statistics in table 2 above revealed that share price (SP) has a mean of 105.20 Naira and standard deviation of 328.52. This variation shows that there is wide variation in the share price of listed consumer goods firms in Nigeria as further evidence by the minimum share price of 0.46 Naira and the maximum of 1530.80 Naira. In addition, the mean value for the Environmental Disclosure Index (EVDI) is 0.1973, this shows that on average, listed consumer goods firms in Nigeria disclose only 19.73% of the environmental parameters recommended by global reporting frameworks. The minimum value of 0.0000 indicates that some firms do not provide any environmental disclosures, while the maximum value of 0.7500 suggests that even the most proactive firms do not achieve full disclosure. This low average level of environmental reporting suggests that green accounting is still in the early stages in Nigeria. Conversely, the mean for the Ethical Disclosure Index (ETDI) is higher at 0.4549. This indicates that consumer goods firms are more transparent regarding governance policies, codes of conduct, and anti-corruption measures, with at least one firm achieving full disclosure as evidenced by the maximum value of 1.000.

For the control variable, Capital structure (CAP) has a mean of 0.5865 with slight variation across the firm as shown by the standard deviation value of 0.1634. The average value indicate that the consumer goods firms finance 58.65% of their asset base through debt. Firm size (FSIZ) has a mean of 7.6263 with slight variation across the listed consumer goods firms as evidenced by the standard deviation value of 0.783.

4.2 Pairwise Correlation Analysis

To examine the linear relationships between the variables and check for early signs of multicollinearity, a pairwise Pearson correlation analysis was conducted and the result is presented in table 3 below;

Table 3: Pairwise Correlation Result

VARIABLE	SP	EVDI	ETDI	CAPS	FSIZ
SP	1.0000				
EVDI	0.0533	1.0000			
ETDI	0.1444*	0.2254*	1.0000		
CAPS	0.3011*	-0.0493	0.0178	1.0000	
FSIZ	0.2377*	0.5395*	0.3615*	0.1513*	1.0000

Note: * indicates statistical significance at the 5% level (p < 0.05).

Source: STATA Output (2025)

The correlation result presented in table 3 above indicate that environmental disclosure has a positive but statistically insignificant correlation with share price as shown by the coefficient of 0.053. This implies that environmental disclosures does not have a direct linear relationship with market value. On the other hand, ethical disclosure has a positive and statistically significant correlation with share price as indicated by the coefficient of 0.1444, this implies that an increase in ethical disclosure will lead to an increase in the share price of the listed consumer goods firms in Nigeria. Moreover, capital structure (coefficient of 0.3011) and firm size (coefficient of 0.2377) are positively and significantly correlated with share price as shows in the result in table 3. there is no perfect correlation between the explanatory variable. Also, the correlation coefficients between the independent variables are all below the standard threshold of 0.70, this indicate that However, further test for multicollinearity is presented in table 4 to investigate the problem in the regression model.

4.3 Diagnostic Tests and Model Selection

To ensure the statistical validity and reliability of the regression parameters, the diagnostic tests presented in table 4 below were conducted.

Table 4: Diagnostic Test

Diagnostic Dimension	Test	Test Statistic	p-value	Statistical Decision
Multicollinearity	Variance Inflation Factor (VIF)	Mean VIF = 1.31	N/A	No multicollinearity..
Residual Normality	Shapiro-Wilk W Test on Residuals (r)	W = 0.9720, z = 3.159	0.0008	Reject normality of residuals ($p < 0.01$).
Cross-Sectional Heteroskedasticity	Breusch-Pagan / Cook-Weisberg Test	chi2(1) = 145.74	0.0000	Reject constant variance ($p < 0.01$).
Groupwise Heteroskedasticity	Modified Wald Test (Fixed Effects)	chi2(16) = 339,623.77	0.0000	Reject homoskedasticity across panel groups ($p < 0.01$).
Panel Individual Effects	F-test (Fixed Effects u_i = 0)	F(15, 168) = 239.24	0.0000	Presence of significant unobserved firm-specific heterogeneity.
Specification Consistency	Hausman Specification Test (FE vs. RE)	chi2(4) = 0.85	0.9314	Random Effects (RE) is consistent and more efficient than Fixed Effects (FE).
Cross-Sectional Dependence	Breusch-Pagan LM Test of Independence	chi2(120) = 494.37	0.0000	Reject cross-sectional independence ($p < 0.01$).
Serial Correlation	Wooldridge Autocorrelation Test	F(1, 15) = 4,695.34	0.0000	Reject the null of no first-order serial correlation ($p < 0.01$).

Source: STATA Output (2025)

The diagnostic tests in table 4 above revealed that multicollinearity is not an issue in the model because the mean VIF of 1.31 is above the minimum threshold of 10. However, the table shows the presence of groupwise heteroskedasticity, non-normality of the residuals, serial correlation, and cross-sectional dependence. Based on the result in table 4 above, the study Breusch-Pagan/Cook-Weisberg and Modified Wald tests reject the null hypothesis of homoscedasticity, as the p-value of 0.0000 is less than 5%. In addition, the Wooldridge test for autocorrelation confirms the presence of first-order serial correlation as evidenced by the F-value of 4,695.34 and probability value of 0.0000, while the Breusch-Pagan LM test of independence indicates cross-sectional dependence with a probability value of 0.0000. These results indicate that standard OLS and standard panel estimators would produce biased standard errors and unreliable significance tests. To address these issues, model selection test was conducted using a structured sequence.

The Hausman test suggests that the Random Effects model is most appropriate compared to the Fixed Effects model as indicated by the Hausman chi^2 value of 0.85 and probability value of 0.9314. However, standard random effects GLS estimators can produce biased standard errors and inflated t-statistics when there is the problem of groupwise heteroskedasticity, serial correlation, and cross-sectional dependence, As such, the study adopted the Prais-Winsten regression with Panel-Corrected Standard Errors (PCSE) with panel-specific AR (1) autocorrelation structure to address heteroskedasticity, autocorrelation, and cross-sectional correlation.

4.4 Panel Regression Result

The Panel-Corrected Standard Errors (PCSE) result is presented in table 5 below.

Table 5: Regression Result

Variable	Coefficient	Panel-Corrected Std. Err.	z-statistic	p-value
EVDI	1.770988	20.96937	0.08	0.933
ETDI	-38.73188	9.452739	-4.10	0.000
CAPS	26.66310	25.91641	1.03	0.304
FSIZ	34.72537	9.872474	3.52	0.000

CONS	-220.47120	71.31121	-3.09	0.002
R-squared	0.1661			
Wald chi2 (4)	27.20			
Prob > chi2	0.0000			

Source: STATA Output (2025)

Table 5 above shows that overall model is statistically significant as indicated by the Wald chi^2 statistic of 27.20 with a p-value of 0.0000. This confirms that the independent variables (EVDI, ETDI, CAPS and FSIZ) jointly exert a significant effect on share prices (SIZ). The R-squared value of 0.1661 indicate that approximately 16.61% of the variance in the firms' share prices is explained by the independent and control variables included in study. In relation to the explanatory variables, the PCSE regression results show that environmental disclosure (EVDI) has a positive but statistically insignificant effect on the share prices of listed consumer goods firms in Nigeria as indicated by the coefficient of 1.7710 and p-value of 0.933. This means that a unit increase in EVDI disclosure leads to 1.7710 unit increase in share price of listed consumer goods firms in Nigeria. This positive but statistically insignificant relationship suggests that the Nigerian capital market does not currently price these aggregate disclosures into share valuations. The study rejects the hypothesis that Environmental Disclosure has significant effect on market value of listed consumer goods firms in Nigeria. This finding does not align with the study Li et al. (2025), Gerged et al. (2021), Msomi et al. (2025), Al Amosh and Khatib (2024), Zhang and Yang (2023), and Pedro (2021) which all found that environmental disclosures enhance corporate value. Moreover, the finding also differs from the findings of domestic studies of John and Ukpong (2025), Okpala and Iredele (2019), and Busari (2026), who noted that voluntary environmental reporting positively influence share price performance. However, the finding aligns with the work of Oshiole (2024) which found that community development and pollution control disclosures had negative and insignificant effects on market value, and Akinleye and Ogundipe (2024) which reported insignificant effect across different environmental disclosure sub-components. According to Akinleye and Ogundipe (2024) investors reward disclosures related to environmental protection and R&D as signs of good stewardship, but discount disclosures related to pollution costs and remediation as future liabilities.

Moreover, the PCSE result revealed a negative and statistically significant relationship between ethical disclosure (ETDI) and share price as evidence by the coefficient of -38.7319 and probability value of 0.000). This means that a unit increase in ETDI results in -38.7319 units decrease in share price. This indicates that higher levels of ethical disclosure are associated with lower stock prices among listed consumer goods firms in Nigeria. The study rejects the hypothesis that Ethical related Disclosure has significant effect on market value of listed consumer goods firms in Nigeria. This finding does not agree with studies such as Jiao (2011), Charumathi and Ramesh (2020), Kumar (2025), Aboud and Diab (2018), and Chouaibi and Chouaibi (2021) that reported positive relationships between ethical disclosures and market returns. The reason for the negative effect could be due to several factors in the Nigerian context. First, in emerging markets like Nigeria characterized by weak institutional structures and information asymmetry, extensive voluntary ethical disclosures can sometimes be met with investor skepticism. Investors may view high disclosure levels as a defensive signaling strategy used by firms to manage reputation during times of internal governance issues and regulatory scrutiny. This is in line with Cormier et al. (2016) who noted that firms often increase ethical reporting to maintain legitimacy when facing governance challenges. However, this result is consistent with the findings of Engstfeld et al. (2021) which observed that market reactions to ethical disclosures vary significantly by firm size, and that smaller firms often face more scrutiny and negative market reactions when disclosing ethical compliance issues.

Furthermore, the result indicates that capital structure (CAPS) has a positive and insignificant relationship with share price as shown by the beta value of 26.6631 and probability value of 0.304). This suggests that leverage does not drive share price variations in the listed consumer goods section in Nigeria. In contrast, firm size (FSIZ) has a positive and significant effect on share price as evidenced by the beta value of 34.7254 and probability value of 0.000. This shows that larger consumer goods firms command higher market valuations.

5. CONCLUSIONS AND RECOMMENDATION

This study examined the effect of environmental and ethical disclosures on the market value of listed consumer goods firms in Nigeria using panel data from 2014 to 2025. The study concluded that environmental disclosure does not significantly influence the market value of listed consumer goods firms in Nigeria. This finding suggests that positive signals of environmental stewardship are offset by the expected costs of compliance and pollution control. Also the study concluded that ethical disclosure has no significant effect on market value. That is ethical disclosure is viewed skeptically by investors who perceive it as a defensive signaling strategy during times of macroeconomic stress. Based on the findings, the study recommended that the board of the listed consumer goods firms in Nigeria should avoid generic compliance-driven disclosures and instead focus on presenting clear non-financial relevant sustainability initiatives. Reporting should focus on areas that directly improve operational efficiency such as energy conservation, waste reduction, and resource efficiency which have positive links to firm value.

REFERENCES

1. Aboud, A., & Diab, A. (2018). The impact of social, environmental and corporate governance disclosures on firm value: Evidence from Egypt. *Journal of Accounting in Emerging Economies*, *8*(4), 442-458.
2. Akbas, H. E. (2014). Company characteristics and environmental disclosure: An empirical investigation on companies listed on Borsa Istanbul. *The Journal of Accounting and Finance*, *2*(2), 145–164.
3. Akinleye, G. T., & Ogundipe, F. B. (2024). Environmental Sustainability Disclosure and Market Performance of Listed Consumer Goods Firms in Nigeria. *Asian Journal of Economics, Business and Accounting*, *24*(10), 161-177.
4. Akinlo, O. O., & Iredele, O. O. (2014). Corporate environmental disclosures and market value of quoted companies in Nigeria. *Business and Management Review*, *5*(3), 171–184.
5. Al Amosh, H., & Khatib, S. F. A. (2024). Environmental, Social and Governance Performance Disclosure and Market Value: Evidence from Jordan. *Business Perspectives and Research*, *12*(4), 539-554.
6. Amiolemen, O. O., Uwuigbe, U., Uwuigbe, O. R., Osiregbemhe, I. S., & Opeyemi, A. (2018). Corporate Social Environmental Reporting and Stock Prices: An Analysis of Listed Firms in Nigeria. Investment Management and Financial Innovations, 15(3), 318-328. https://doi.org/https://doi.or g/10.21511/imfi.15(3).2018.26
7. Barney, B. J. (1991). The prescriptive limits and potential for applying strategic management theory. *Managerial and Decision Economics*, in press.
8. Borre, L., & Gelmini, L. (2024). Global corporate performance evaluation and sustainability reporting. *CORPORATE OWNERSHIP & CONTROL*, *21*(4), 129-136.
9. Chami, R., Cosimano, T. F., & Fullenkamp, C. (2002). Managing ethical risks: How investing in ethics adds value. *Journal of Banking and Finance*, *26*(9), 1697–1718.
10. Chan, N. (1996). A stakeholder theory perspective to corporate environmental disclosures. *Journal of Contemporary Business*, *3*(3), 29–33.
11. Charumathi, B., & Ramesh, L. (2020). Impact of voluntary disclosure on valuation of firms: evidence from Indian companies. *Vision*, *24*(2), 194-203.
12. Chouaibi, S., & Chouaibi, J. (2021). Social and ethical practices and firm value: the moderating effect of green innovation: evidence from international ESG data. *International Journal of Ethics and Systems*, *37*(3), 442-465.
13. Cormier, D., Gordon, I. M., & Magnan, M. (2016). Corporate ethical lapses: do markets and stakeholders care?. *Management Decision*, *54*(10), 2485-2506.
14. Deegan, C. (2002). The legitimising effect of social and environmental disclosures: A theoretical foundation. *Accounting, Auditing and Accountability Journal*, *15*(3), 282–311.
15. Deegan, C. (2007). *Financial accounting theory* (2nd ed.). McGraw-Hill.
16. Elayan, F. A., Li, J., Liu, Z. F., Meyer, T., & Felton, S. (2014). Ethical performance, financial performance and the quality of financial reporting. *Financial Performance and the Quality of Financial Reporting (November 29, 2013)*.
17. Emeka-Nwokeji, N., & Osisioma, B. C. (2019). Sustainability disclosures and market value of firms in emerging economy: evidence from Nigeria. *European Journal of Accounting, Auditing and Finance Research*, *7*(3), 1-19.
18. Engstfeld, L., Užík, M., & Block, S. (2021). Market or Morality-Follow an Unethical Action for the Management?. In *SHS Web of Conferences* (Vol. 92, p. 06007). EDP Sciences.
19. Etzioni, A. (1988). *The moral dimensions: Toward a new economics*. Macmillan.
20. Gerged, A. M., Beddewela, E., & Cowton, C. J. (2021). Is corporate environmental disclosure associated with firm value? A multicountry study of Gulf Cooperation Council firms. *Business Strategy and the Environment*, *30*(1), 185-203.
21. Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing and Accountability Journal*, *8*(2), 47–77.
22. Hart, O. (1995). Corporate governance: Some theory and implications. *The Economic Journal*, *105*(430), 678–689.
23. Hindley, T., & Buys, P. W. (2012). Integrated reporting compliance with the Global Reporting Initiative framework: An analysis of the South African mining industry. *International Business & Economics Research Journal*, *11*(11), 1249–1260.
24. Jiao, Y. (2011). Corporate disclosure, market valuation, and firm performance. *Financial Management*, *40*(3), 647-676.
25. Jing, Q., Lin, Z., Liu, M., & Hu, S. (2026). Beyond compliance: when does environmental disclosure become a value-adding strategy for firms?. *Applied Economics*, 1-18.
26. John, M. & Ukpong, L, U. (2025).Effect of Environmental Information Disclosure on Stock Price Reaction among the Listed Consumer Goods Firms in Nigeria. *International Journal of Research and Innovation in Social Science*, IX(XIV), 453-463, DOI:10.47772/IJRISS.2025.914MG0035
27. Kandpal, V., Jaswal, A., Santibanez Gonzalez, E. D., & Agarwal, N. (2024). Corporate social responsibility (CSR) and ESG reporting: Redefining business in the twenty-first century. In *Sustainable energy transition: Circular economy and sustainable financing for environmental, social and governance (ESG) practices* (pp. 239-272). Cham: Springer Nature Switzerland.

28. Konar, S., & Cohen, M. A. (2001). Does the market value environmental performance? *The Review of Economics and Statistics*, *83*(2), 281–289.
29. Kumar, P. (2025). Corporate disclosure and firm value: do audit quality and foreign listing matter?. *Journal of Accounting & Organizational Change*, *21*(2), 312-334.
30. Li, Y., Shen, G., & Yang, Y. (2025). The value of environmental information disclosure: evidence from China's carbon-reduction policy. *Applied Economics Letters*, *32*(17), 2401-2406.
31. Lo, S., & Sheu, H. (2007). Is corporate sustainability a value-increasing strategy for business? *Corporate Governance: An International Review*, *15*(2), 345–358.
32. Msomi, T. S., Aruwaji, M. A., & Msiza, D. C. (2025). The Impact of Environmental, Social, and Governance Disclosure on the Firm Value of Non-Financial Firms Listed in South Africa. *Risks*, *13*(12), 242.
33. Okanlawon, T., Oke, B., & Aladejebi, O. (2025). The Effect of Exchange Rate Fluctuations (Erf) On the Financial Performance of Listed Consumer Goods Companies In Nigeria. *UNILAG Journal of Business*, *11*(1), 107-121.
34. Okpala, O. P., & Iredele, O. O. (2018). Corporate social and environmental disclosures and market value of listed firms in Nigeria. *Copernican Journal of Finance & Accounting*, *7*(3), 9-28.
35. Okpala, O. P., & Iredele, O. O. (2018). Corporate social and environmental disclosures and market value of listed firms in Nigeria. *Copernican Journal of Finance & Accounting*, *7*(3), 9–28.
36. Olagunju, A., & Ajiboye, O. O. (2022). Environmental Accounting Disclosure and Market Value of Listed Non Financial Firms in Nigeria. *International Journal of Management, Accounting & Economics*, *9*(7).
37. Orshi, T. S., Yunusa, A., & Okpe, J. U. (2023). Value relevance of GRI economic and ethics/integrity disclosure among listed manufacturing firms in Nigeria: The role of ownership concentration. *FUDMA Journal of Accounting and Finance Research [FUJAFR]*, *1*(1), 96-113.
38. Oshiole, B, V (2024).Community Development Cost, Pollution Control Disclousure and Market Value of Listed Consumer and Industrial Goods Firms in Nigeria.International Journal of Research and Scientific Innovation ,XI(X), 797-821.
39. Pedron, A. P. B., Macagnan, C. B., Simon, D. S., & Vancin, D. F. (2021). Environmental disclosure effects on returns and market value: APB Pedron et al. *Environment, Development and Sustainability*, *23*(3), 4614-4633.
40. Qui, Y., Shaukat, A., & Tharyan, R. (2016). Environmental and social disclosure: Link with corporate financial performance. *The British Accounting Review*, *48*(1), 102–116.
41. Schadewitz, H., & Niskala, M. (2010). Communication via responsibility reporting and effects on firm value in Finland. *Corporate Responsibility and Environmental Management*, *17*(2), 83–93.
42. TradingView (2026). Champion Breweries PLC. Retrieved from https://www.tradingview.com/symbols/NSENG-CHAMPION/#:~:text=CHAMPION%20stock%20hasn't%20changed%20in%20a%20week%2C,stocks%20reaching%20their%20highest%20and%20lowest%20prices.
43. TradingView(2026) International Breweries PLC.Retrieved from https://www.tradingview.com/symbols/NSENG-INTBREW/forecast-price-target/
44. TradingView(2026).Nestle Nigeria Plc. Retrieved from https://www.tradingview.com/symbols/NSENG-NESTLE/
45. Walley, N., & Whitehead, B. (1994). It's not easy to be green. *Harvard Business Review*, *72*(3), 46–52.
46. Zhang, J., & Yang, Y. (2023). Can environmental disclosure improve price efficiency? The perspective of price delay. *Finance Research Letters*, *52*, 103556.

STATA OUTPUT

xtset id year, yearly

Panel variable: id (strongly balanced)
Time variable: year, 2014 to 2025
Delta: 1 year

summarize sp evdi etdi caps fsiz

Variable	Obs	Mean	Std. dev.	Min	Max
sp	191	105.2015	328.521	.46	1530.8
evdi	192	.1973063	.265281	0	.75
etdi	192	.4549375	.3483537	0	1
caps	188	.5865436	.1633932	.043	.995
fsiz	192	7.626317	.7836811	5.5066	8.6836

```
. pwcorr sp evdi etdi caps fsiz, sig star(5)

             |       sp     evdi     etdi     caps     fsiz
-------------+------------------------------------------------
          sp |   1.0000
             |
             |
        evdi |   0.0533   1.0000
             |   0.4641
             |
        etdi |   0.1444*  0.2254*  1.0000
             |   0.0463   0.0017
             |
        caps |   0.3011* -0.0493   0.0178   1.0000
             |   0.0000   0.5020   0.8085
             |
        fsiz |   0.2377*  0.5395*  0.3615*  0.1513*  1.0000
             |   0.0009   0.0000   0.0000   0.0382
             |

.
. regress sp evdi etdi caps fsiz

      Source |       SS           df       MS      Number of obs   =       188
-------------+----------------------------------   F(4, 183)       =      7.30
       Model |  2817035.68         4   704258.92   Prob > F        =    0.0000
    Residual |  17665211.8       183  96531.2122   R-squared       =    0.1375
-------------+----------------------------------   Adj R-squared   =    0.1187
       Total |  20482247.5       187  109530.735   Root MSE        =    310.69

------------------------------------------------------------------------------
          sp | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
        evdi |  -64.2557    103.436    -0.62   0.535    -268.3361    139.8247
        etdi |  83.04457   69.99941     1.19   0.237    -55.06509    221.1542
        caps |  543.1698   142.5078     3.81   0.000     262.0001    824.3394
        fsiz |  81.98867   36.65844     2.24   0.027     9.661138    154.3162
       _cons |  -862.6331   258.5529    -3.34   0.001    -1372.761   -352.5052
------------------------------------------------------------------------------
. estat hettest

Breusch–Pagan/Cook–Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of sp

H0: Constant variance

    chi2(1) = 145.74
Prob > chi2 = 0.0000

. estat vif

    Variable |       VIF       1/VIF
-------------+----------------------
        fsiz |      1.61    0.622285
```

```
        evdi |      1.44    0.695890
        etdi |      1.15    0.872383
        caps |      1.05    0.952096
-------------+----------------------
   Mean VIF |      1.31

. preduct r
command preduct is unrecognized
r(199);

. predict r
(option xb assumed; fitted values)
(4 missing values generated)

. swilk r

                  Shapiro–Wilk W test for normal data

   Variable |       Obs       W        V        z       Prob>z
-------------+--------------------------------------------------------
          r |       188    0.97196     3.964     3.159    0.00079

. xtreg sp evdi etdi caps fsiz, fe

Fixed-effects (within) regression               Number of obs      =       188
Group variable: id                              Number of groups   =        16

R-squared:                                      Obs per group:
     Within  = 0.0380                                         min =        11
     Between = 0.0910                                         avg =      11.8
     Overall = 0.0828                                         max =        12

                                                F(4,168)           =      1.66
corr(u_i, Xb) = 0.1949                          Prob > F           =    0.1620

------------------------------------------------------------------------------
          sp | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
        evdi |   23.29915   33.07217     0.70   0.482    -41.99144    88.58973
        etdi |  -28.13608   22.25424    -1.26   0.208    -72.07007    15.79792
        caps |    89.3083   46.30917     1.93   0.055    -2.114581    180.7312
        fsiz |   33.99091   30.81784     1.10   0.272    -26.84921    94.83102
       _cons |  -196.9611   228.8092    -0.86   0.391    -648.6728    254.7506
-------------+----------------------------------------------------------------
     sigma_u |  322.58843
     sigma_e |  68.574179
         rho |  .95676562   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(15, 168) = 239.24                     Prob > F = 0.0000

. est store f

. xttest2
```

Correlation matrix of residuals:

	__e1	__e2	__e3	__e4	__e5	__e6	__e7	__e8	__e9
__e1	1988.449								
__e2	-483.2494	602.7522							
__e3	496.0008	-30.97196	382.4384						
__e4	2395.379	-608.7901	505.08	3124.668					
__e5	6566.481	-1871.962	1143.85	8303.74	23312.94				
__e6	-1018.358	-138.134	-87.52173	-1250.639	-3354.894	1301.105			
__e7	3998.268	391.7827	772.7811	4855.566	12564.44	-4129.386	15369.3		
__e8	1036.585	21.16119	50.70293	1214.161	3461.634	-1231.025	4118.177	1282.598	
__e9	1177.985	-289.3031	247.7848	1372.628	4039.762	-613.3592	2347.398	673.2601	771.1398
__e10	-21181.24	-1851.645	1596.021	-26572.11	-83433.47	24056.34	-71170.24	-23249.99	-15655.55
__e11	6293.201	-119.09	977.0972	7832.168	21467.72	-5616.392	19713.81	5554.753	3918.193
__e12	1704.199	-505.8123	247.4084	2148.59	6090.068	-938.2466	3541.082	1022.291	1067.671
__e13	453.7664	-324.131	79.41185	519.3647	651.2374	-885.2419	1223.719	549.6459	-51.35569
__e14	1265.854	-306.9923	35.55292	1511.992	4635.606	-1078.101	3118.031	1109.163	858.9251
__e15	255.437	-278.0793	367.3328	224.652	404.4516	459.9038	-391.4652	-295.0622	122.2798
__e16	-879.8618	-183.4108	-248.2228	-1113.984	-2919.038	695.3371	-2841.866	-632.6218	-541.152

	__e10	__e11	__e12	__e13	__e14	__e15	__e16
__e10	667532.6						
__e11	-115744.1	28688.12					
__e12	-22474.12	5868.571	1638.178				
__e13	647.9888	1141.78	88.16374	4940.399			
__e14	-25778.17	5316.298	1270.358	731.2345	1388.542		
__e15	13846.2	-733.0378	136.1372	-817.7168	-360.7233	989.2162	
__e16	16376.75	-3975.615	-742.1344	476.1824	-508.7357	37.91538	803.2467

	__e1	__e2	__e3	__e4	__e5	__e6	__e7	__e8	__e9	__e10	__e11	__e12
__e1	1.0000											
__e2	-0.4414	1.0000										
__e3	0.5688	-0.0645	1.0000									
__e4	0.9610	-0.4436	0.4620	1.0000								
__e5	0.9644	-0.4994	0.3831	0.9729	1.0000							
__e6	-0.6331	-0.1560	-0.1241	-0.6203	-0.6091	1.0000						
__e7	0.7232	0.1287	0.3187	0.7007	0.6638	-0.9234	1.0000					
__e8	0.6491	0.0241	0.0724	0.6065	0.6330	-0.9529	0.9275	1.0000				
__e9	0.9513	-0.4243	0.4563	0.8843	0.9528	-0.6123	0.6819	0.6770	1.0000			
__e10	-0.5814	-0.0923	0.0999	-0.5818	-0.6688	0.8163	-0.7026	-0.7946	-0.6900	1.0000		
__e11	0.8332	-0.0286	0.2950	0.8272	0.8301	-0.9193	0.9388	0.9157	0.8330	-0.8364	1.0000	
__e12	0.9442	-0.5090	0.3126	0.9497	0.9855	-0.6427	0.7057	0.7053	0.9499	-0.6796	0.8561	1.0000
__e13	0.1448	-0.1878	0.0578	0.1322	0.0607	-0.3492	0.1404	0.2184	-0.0263	0.0113	0.0959	0.0310
__e14	0.7618	-0.3356	0.0488	0.7259	0.8148	-0.8021	0.6750	0.8311	0.8301	-0.8467	0.8423	0.8423
__e15	0.1821	-0.3601	0.5972	0.1278	0.0842	0.4054	-0.1004	-0.2620	0.1400	0.5388	-0.1376	0.1069
__e16	-0.6962	-0.2636	-0.4479	-0.7032	-0.6746	0.6802	-0.8088	-0.6233	-0.6876	0.7072	-0.8282	-0.6470

	__e13	__e14	__e15	__e16
__e13	1.0000			
__e14	0.2792	1.0000		
__e15	-0.3699	-0.3078	1.0000	
__e16	0.2390	-0.4817	0.0425	1.0000

```
Breusch-Pagan LM test of independence: chi2(120) =   494.367, Pr = 0.0000
Based on 11 complete observations over panel units

. xttest3

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (16)  =     339623.77
Prob > chi2 =         0.0000


. xtserial sp evdi etdi caps fsiz

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
   F(  1,      15) =   4695.338
         Prob > F =      0.0000

. xtreg sp evdi etdi caps fsiz, re

Random-effects GLS regression                   Number of obs     =       188
Group variable: id                              Number of groups  =        16

R-squared:                                      Obs per group:
     Within  = 0.0379                                         min =        11
     Between = 0.0914                                         avg =      11.8
     Overall = 0.0837                                         max =        12

                                                Wald chi2(4)      =      7.42
corr(u_i, X) = 0 (assumed)                      Prob > chi2       =     0.1155

------------------------------------------------------------------------------
          sp | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
        evdi |   22.22184   32.85936     0.68   0.499    -42.18132    86.62499
        etdi |  -28.05403   22.07453    -1.27   0.204    -71.31931    15.21125
        caps |   91.78972   45.99428     2.00   0.046     1.642582    181.9369
        fsiz |   37.96629    29.7069     1.28   0.201    -20.25816    96.19074
       _cons |  -230.1334   236.0149    -0.98   0.330     -692.714    232.4473
-------------+----------------------------------------------------------------
     sigma_u |  339.57482
     sigma_e |  68.574179
         rho |  .96081758   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. est store r

. hausman f r

                ---- Coefficients ----
             |      (b)          (B)          (b-B)     sqrt(diag(V_b-V_B))
             |       f           r         Difference       Std. err.
```

```
-------------+----------------------------------------------------------------
        evdi |   23.29915    22.22184      1.07731      3.745783
        etdi |  -28.13608   -28.05403     -.0820489      2.822498
        caps |    89.3083    91.78972     -2.481425      5.391203
        fsiz |   33.99091    37.96629     -3.975385      8.199948
------------------------------------------------------------------------------
                     b = Consistent under H0 and Ha; obtained from xtreg.
          B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic

    chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
            =   0.85
Prob > chi2 = 0.9314

. xtpcse sp evdi etdi caps fsiz, correlation(psar1)

Number of gaps in sample = 4
note: computations for rho restarted at each gap.
note: estimates of rho outside [-1,1] bounded to be in the range [-1,1].

Prais–Winsten regression, correlated panels corrected standard errors (PCSEs)

Group variable:   id                      Number of obs     =       188
Time variable:    year                    Number of groups  =        16
Panels:           correlated (unbalanced) Obs per group:
Autocorrelation:  panel-specific AR(1)                      min =      11
Sigma computed by casewise selection                        avg =   11.75
                                                            max =      12
Estimated covariances      =       136    R-squared         =    0.1661
Estimated autocorrelations =        16    Wald chi2(4)      =     27.20
Estimated coefficients     =         5    Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
          sp | Coefficient  std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
        evdi |   1.770988   20.96937     0.08   0.933    -39.32823    42.87021
        etdi |  -38.73188   9.452739    -4.10   0.000    -57.25891   -20.20485
        caps |    26.6631   25.91641     1.03   0.304    -24.13213    77.45832
        fsiz |   34.72537   9.872474     3.52   0.000     15.37567    54.07506
       _cons |  -220.4712   71.31121    -3.09   0.002    -360.2386    -80.7038
------------------------------------------------------------------------------
        rhos =  .9734811  .9596767  .9835207  .9606046 -.1030867 ...         1
------------------------------------------------------------------------------
```