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ESG PERFORMANCE, TAX AVOIDANCE, AND DIGITAL TRANSFORMATION IN EXPLAINING STOCK PRICE VOLATILITY: EVIDENCE FROM INDONESIAN ENERGY FIRMS

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Abstract

This study examines the effects of ESG performance, tax avoidance, proxied by the effective tax rate (ETR), and digital transformation on stock price volatility among energy sector companies listed on the Indonesia Stock Exchange during 2022–2024. Using a quantitative approach, panel data regression, and purposive sampling, the study obtained 135 firm-year observations. ESG data were sourced from Bloomberg, while financial and stock market data were collected from annual reports, sustainability reports, and Yahoo Finance. Model selection was conducted using the Chow, Hausman, and Lagrange Multiplier tests, resulting in the Fixed Effect Model. The results show that ESG performance positively and significantly affects stock price volatility, suggesting that stronger ESG performance may increase market sensitivity. ETR negatively and significantly affects volatility, indicating that greater tax compliance reduces market uncertainty. Digital transformation positively and significantly affects volatility because digital initiatives create growth expectations and implementation risks. These findings enrich energy-sector volatility literature.

Keywords: ESG Performance; Tax Avoidance; Digital Transformation; Stock Price Volatility; Energy Sector.

Abstrak

Penelitian ini menguji pengaruh kinerja ESG, penghindaran pajak yang diproksikan dengan tarif pajak efektif (ETR), dan transformasi digital terhadap volatilitas harga saham perusahaan sektor energi yang terdaftar di Bursa Efek Indonesia selama 2022–2024. Penelitian menggunakan pendekatan kuantitatif, regresi data panel, dan teknik purposive sampling sehingga memperoleh 135 observasi perusahaan-tahun. Data ESG bersumber dari Bloomberg, sedangkan data keuangan dan pasar saham diperoleh dari laporan tahunan, laporan keberlanjutan, dan Yahoo Finance. Pemilihan model dilakukan melalui uji Chow, Hausman, dan Lagrange Multiplier serta menghasilkan Fixed Effect Model. Hasil penelitian menunjukkan bahwa kinerja ESG berpengaruh positif dan signifikan terhadap volatilitas harga saham, yang mengindikasikan peningkatan sensitivitas pasar. ETR berpengaruh negatif dan signifikan terhadap volatilitas, sehingga kepatuhan pajak yang lebih tinggi dapat mengurangi ketidakpastian pasar. Transformasi digital berpengaruh positif dan signifikan terhadap volatilitas karena menciptakan ekspektasi pertumbuhan sekaligus risiko implementasi. Temuan ini memperkaya literatur mengenai volatilitas harga saham sektor energi.

Kata Kunci: Kinerja ESG; Penghindaran Pajak; Transformasi Digital; Volatilitas Harga Saham; Sektor Energi.



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INTRODUCTION

Over the last few years, the company's plan has sort of shifted, and it feels like now they don't only look at how well things go financially but also it gets judged by how it tends to the environment, how it handles social responsibility and its good governance. Because of the increasing global pressure around the climate crisis, social inequality, along with the ongoing demands for transparency, businesses are starting to weave Environmental Social and Governance, those ESG principles into their plans. This shift, changes also what investors decide. They are more and more factoring sustainability in while assessing investment risks, so it's not just numbers anymore.

Stocks are a precarious investment, because their prices could shift derived from a bunch of economic factors and company decisions, honestly. But at the same time they can also reward you with returns through dividend payments and capital gains. So, since there is this vagueness going on, investors really must pick investment approaches that lean toward producing the most money, while also maintaining their portfolio steadier. One of the finest ways to invest, in practice, is to go for high dividend stocks. These could bring you consistent income, plus better opportunities for your investments to grow in value as time goes.

Stock prices in the capital market they can be really volatile, so basically there is a risk in the capital market too. It kind of shows that investors are not fully certain about the company's future, and also about its overall stability. Besides the classic financial things, like revenues and margins, there are also non-financial signals that can move volatility, for example ESG performance, tax policies, also digital transformation efforts. The energy sector was chosen, somewhat since it has a tactical role on the Indonesian economy, but also because it faces strong sustainability pressures, environmental rules, and technological transformation at the same time. Energy firms are tightly linked with carbon emissions, ESG disclosure, along with the worldwide shift reaching cleaner energy. So the sector becomes quite sensitive to how investors react as well as what the market expects. Also, energy companies usually need large scale investment, and complicated operational structures. Because of that, tax policies and digital transformation matter even more when it comes to shaping stock price movements, and not just in a small way.

Environmental rules, the pressures to pivot toward cleaner energy, and the massive investments into new technology, all of that seems to really nudge the energy sector in noticeable ways. So, the market is more apt to react to these kinds of signals, compared with what happens in other sectors. But, even with that idea, the earlier empirical findings are kind of mixed, like inconsistent outcomes really show up. For example, some papers report that ESG disclosure makes stock prices more responsive to fresh information, while others find the opposite, that disclosure plus a solid reputation can actually reduce price volatility. Tax avoidance, too, can be interpreted in two directions, either it's a stabilizer for cash flow, or it turns into reputational trouble and adds regulatory uncertainty. Digital transformation also behaves in a split way: in the long run it tends to make operations more efficient, yet in the short term it may cause headaches because of implementation risks and costs. As for the market reaction when sustainability signals, fiscal policy, and

digitalization come together, it's still not fully understood, especially in newer markets such as Indonesia, where the evidence does not really line up.

The goal of this research is to look into how ESG Performances, tax reduction as shown through tax avoidance, as well as digital transformation affect the stock price volatility of energy sector firms across 2022–2024. In this study tax avoidance is handled as an independent variable and stock price volatility becomes the main calculation tool, which is different from what Mechrgui & Theiri (2024) did. Their work points to tax payment as a moderating factor on the link between ESG and stock return volatility, and they also frame it in an international setting. Here, the focus is on Indonesia's energy sector after the pandemic, a time that's been shaped by fast digitalization and stronger ESG demands, besides digital transformation is inserted into a joint model that blends tax policy with ESG.

LITERATURE REVIEW

Signal Theory

Spence (1973) says Signal Theory works like that companies really could cut down information disproportion by sending along pertinent as well as also believable information to investors. So, on the capital market setting, when the company puts out a positive signal, it can reduce that uncertainty and then lower the stock price volatility. But if the signal is negative, that can kinda nudge the market toward more speculation and it might even make stock price swings bigger, (Xu et al., 2022). Because of that, the signal quality matters a lot, and the consistency of what they communicate is also a key issue for keeping stock prices steady.

ESG Performance is kinda seen as one of those tactical indicators that shows a company's dedication to sustainability, plus long-term risk management (Fatemi et al., 2018). When firms have big ESG Performance, they are usually viewed as more stable, and less risky entities, so they can reduce stock price volatility (Broadstock et al., 2021). There's also tax avoidance, which works like a kind of fiscal signal, if the ETR value is reasonable it suggests tax compliance, but if tax avoidance becomes abnormal then it sends a negative signal and can raise market vagueness (Richardson et al., 2015).

Agency Theory

Derived from Hendrastuti & Harahap (2023) agency theory is a kind of conceptual framework, it talks about how the principal, like shareholders, relates to the agent, such as managers, who get the mandate to handle the management part. The way tax avoidance practices in the ETR proxies are discussed can be seen through agency theory as well. This view points to a conflict of interest between the people in charge as the agent and the owners of the company as the principal. The conflict happens because both sides pursue their own welfare, in their own preferred way. Within the agency theory setup, management basically provides that authority for the agents to make certain choices, and decisions as needed.

In the context of tax avoidance, these decisions are not really apart from the policies that the company leadership set, because they have the power to decide where the company's policies go (Sjahril & Yasa, 2020). Rizky & Puspitasari (2020) also say that the traits of company leaders could be seen as two kinds, risk taker and

risk averse. A risk taker usually acts more dauntless when it comes to business choices even though the risks are pretty high, and they also have this urge to widen their authority. Meanwhile, the executives who are risk averse tend to steer away from risk, they are more careful, and they are less likely to be brave when making choices that could bring vagueness to the company.

Stock Price Volatility

Stock price volatility is basically a way to look at how unstable, or a bit jumpy, stock prices are during a certain period, and in a lot of cases it also gives a hint about the investment risk level (Cahyawati & Miftah, 2022). When volatility is high, price movements become more like something you can't easily guess, and they might bring the chance for major gains but also major losses, which really aligns with the idea of big risk big return (Wijaya & Machdar, 2022; Wati & Puspitaningtyas, 2023). Sun et al. (2024) and Hartikasari et al. (2024) further add that stock price volatility is formed by many inside company factors along with outside company factors. For example, digital transformation and environmental policies could push volatility upward, because the firm usually needs heavier spending and may face higher operating expenses; but, solid ESG performance can lower volatility, since it backs up clearer disclosure transparency and a steadier, more stable operating vibe. Meanwhile, tax avoidance tends to increase volatility since it can trigger reputational threat, and it makes tax rules feel uncertain too. Also, high financial leverage usually means more financial stress so the stock price fluctuates more, whereas things like the market-to-book ratio, dividend yield, profitability measured by ROA, also the big company size are generally linked with lower stock price volatility.

Volatility is often calculated through standard deviation of stock prices, basically, it shows how much the prices kind of bounce around their mean value. But the choice of investment instruments really hinges on what the investor is trying to achieve and how much risk they can stomach. So, conservative investors usually go for steadier shares, while aggressive ones are more into high-volatility stocks, aiming at the chance of better returns. In that sense, getting a grasp on volatility becomes a crucial part of building the proper investment approach (Nadya, 2023).

ESG

ESG is kind of an route to gauge a firm's performance and responsibility if we look at it from a sustainability perspective, it covers environmental, social, and governance pieces (Zhao et al., 2023). In practice, the ESG framework is often utilized to judge how far a company can handle its operational footprints and still build long-term, durable value. As Siahaan et al. (2025) mention, work on ESG keeps moving fast, and the measurement styles are pretty different, for instance the Thomson ESG Performance, Refinitiv-Eikon, Bloomberg, and several other ESG factors. Firms that score high on ESG performances are usually viewed as more translucent, also they're often linked with better governance, mostly because they openly publish sustainability-related data. This openness may reduce the inclination toward earnings management. Still, there is another stance that says strong ESG performances might work like a glossy sustainability image, basically steering attention away from weaker, less ethical accounting routines. Conceptually ESG kind

a bundles environmental stuff in it (emission control, also ecological effects), then the social side as well, like how a firm relates to workers and the surrounding community, and after that governance too, for example openness and ethical compliance. (Lin, 2024; Siahaan et al., 2025). So, in general, mixing these three segments is supposed to steer how investors read risk, and, it might even influence stock price stability.

Tax Avoidance

Tax avoidance is basically a tax management strategy, used by companies to try and lower their overall tax burden legally (Widati et al., 2024). In applying it, people often link it with fiscal efficiency, however, it can also bring reputational risk and regulatory uncertainty along with it, so its not a completely clean win.

In many studies, tax avoidance is calculated through the Effective Tax Rate (ETR), meaning the ratio between the company's income tax expense and its pre-tax profit. The ETR gives a sort of snapshot of how much tax is actually being paid relative to the earnings, so it tends to mirror how aggressive, or how compliant, the company appears to be.

For investors, the degree of tax avoidance then becomes a key signal, because it helps them judge the earnings quality and also the fiscal risk exposure of the firm. As a result, tax policies can shape how risky the company is perceived to be, which then affects stock price volatility, sometimes more than expected.

Digital Transformation

Digital transformation is basically an integrative process inside organizations, meant to boost performance by bringing digital technology into pretty much every operational activity (Diana, 2023). In other words, it's not only about "new tools", but also about how information technology, communication, computing, and connectivity work together to reshape the organization's overall characteristics. When organizations tap into the newest solutions, like mobile devices, social media, or even connected devices, the idea is to upgrade the customer experience, open room for inventive business models, and at the same time make day to day operations more efficient (Bimo Dwi Pasa et al., 2024). In a corporate setting, digital transformation then turns into the adoption of more advanced digital technologies that allow tangible advancements across manufacturing, business processes, also the information systems that hold everything. What drives the whole effort is primarily to cut down operational expenses while also increasing corporate social responsibility. So, the company can still align with stakeholder interests and in the end, maximize the overall company value (Ningsih et al., 2024).

Hypothesis

Some earlier work has tried to figure out what steers stock price volatility, from perspectives like sustainability, taxation, and digitization, but the findings seem kinda mixed, or at least not fully clear enough, so there still is a gap for future investigation later. Hasanah et al. (2024) claimed the ESG's own a negative and statistically significant effect toward stock price volatility. Basically, the thought is that when a firm shows stronger ESG performance, it often looks more open and steadier in the long run, so investors end up feeling less uneasy. As a result, the stock

price movements become calmer, more stable even, though maybe not always in a straight line. Meanwhile Hutama and Budhidharma (2022) said that ESG disclosure does not significantly alter stock price volatility. Their point was that investors on Indonesia remain lean more toward short-term financial results than on sustainability information. Using signaling theory, it can also be argued that powerful ESG performance reduces information asymmetry and limits investor uncertainty, which then supports smoother stock price behavior. So, in this line of reasoning, the ensuing hypothesis is put forward:

H1: ESG Performance negatively affects stock price volatility.

Concerning tax avoidance Krapl et al. (2020) noted that tax avoidance bring a positive effect toward stock price volatility, especially when firms take on extreme tax avoidance behaviors that make cash flow firmness feel less stable and raise tax compliance risk. In contrast, Warastri and Suryaningrum (2022) reported that tax avoidance does not show a significant impact toward stock return volatility, since the tax tactics used stay inside the permitted legal zone, and so investors don't really become worried. So, these two outcomes look different, and they indicate that the connection between tax avoidance and stock price volatility remain needs more real world evidence. Therefore, the next hypothesis is set up as follows:

H2: Tax Avoidance proxied by the Effective Tax Rate (ETR) negatively affects stock price volatility.

In the context of digital transformation, Sun et al. (2024) said that digital transformation, really does bring a positive effect toward stock price volatility, since digital initiatives typically demand solid investment and also bring in implementation uncertainty, or at least that's the idea. So, this also seems to set off more intense market reactions, and then, as a consequence, stock price fluctuations become higher, in a kind of ripple way. On the other hand, Santosa and Salma (2023) found that digitalization does not meaningfully alter firm value. This means those digital actions may not have fully reshaped what investors think, or how the market actually responds yet. Because the results stay mixed, it becomes important to conduct additional studies about the effect of digital transformation toward stock price volatility. Thus, the next hypothesis is put forward:

H3: Digital transformation positively affects stock price volatility.

RESEARCH METHODOLOGY

This study uses a quantitative approach, and it kind of has a causal research design to see how ESG Performance, tax avoidance and digital transformation, really affect stock price volatility. The investigation is centered in energy sector firms that are written in the Indonesia Stock Exchange (IDX), over 2022–2024. In terms of data, the study mostly depends on secondary data from multiple places. ESG Performances were taken from the Bloomberg database, while the stock price data came from Yahoo Finance. For the parts about tax avoidance and digital transformation, the information was pulled from the companies' annual reports as well as their sustainability reports. Overall, the data collection was done with documentation techniques, plus a sort of literature review of related materials.

The population is basically all energy sector companies that are listed on the IDX, and at the start there were 91 firms in total. For the sampling, the approach was

purposive sampling, based on a few set criteria, like (1) the company must be consistently listed on the IDX across 2022-2024, (2) the firm has to publish the annual report during the whole observation period, (3) the income tax expense information must be available, and (4) the company should report a positive profit before tax. From those requirements, 45 companies were chosen as the sample of the research. Since the study uses a three year observation span, that gave 135 firm-year observations, and in the end it created a balanced panel dataset.

The data analysis was done with EViews 13 software, more or less, nothingspecial. First, the analytical steps started with descriptive statistics to show the basic features of the data, you know. After that, panel data regression models were created utilizing Common Effect Model (CEM), Fixed Effect Model (FEM), as well as Random Effect Model (REM). For picking which model fits finest, the study relied on the Chow test, the Hausman test, as well as the Lagrange Multiplier test, so basically model selection was not random. Next came the classical assumption tests, then panel regression analysis was carried out and hypothesis testing followed. The goal was to examine how the independent variables affect stock price volatility besides also bringing leverage and firm size as control variables, in other words to keep things balanced.

Tabel 1. Variable Measurement

Variables	Measurement	Source
Stock Price Volatility	SPV _{i,t} is the volatility of the stock price from company i in year t, which measures the size of the price changes of company i over a period t. Hi,t is the maximum price of the stock from company i in year t and Li,t is the minimum price of the stock of company i in year t.	(Angelina et al., 2023; Baskin, 1989)
ESG Performance	ESG disclosure score sourced from the Bloomberg database, which rates ESG disclosure performance by 3 components of environmental, social and governance disclosure. The score can be from 0 until 100.	(Safriani & Utomo, 2020)
Tax Avoidance	Tax Avoidance measured as Effective Tax Rate (ETR) which is income tax expense / pre tax income. A smaller ETR translates to a bigger level of tax avoidance.	(Aliawinata & Dharma, 2025; Febriyanto, 2022; Hanlon & Heitzman, 2010)
Digital Transformation	Assessed on the basis of a dummy variable created from 5 keywords: mobile internet, Internet of Things (IoT), big data, cloud computing and artificial intelligence (AI). If a keyword is found a value of 1 is assigned to the keyword; otherwise, a value of 0 is assigned. The overall score is then splitted by 5 to get the digital transformation index.	(Ningsih & Ilona, 2024)
Leverage	Calculated utilizing the Debt to Equity Ratio (DER), calculated as total debt divided by shareholders' equity.	(Pristanti et al., 2020)
Firm Size	Measured using the natural logarithm of total assets.	(Mechrgui & Theiri, 2024; Nurlaely & Dewi, 2023)

RESULT AND DISCUSSIONS**Data Description**

This study looks at how ESG Performance, tax avoidance as well as digital transformation may impact stock price volatility, with leverage plus firm size used as the control parts. The analysis actually relies to secondary data taken from energy sector companies that are written in the Indonesia Stock Exchange , IDX for short, on 2022 to 2024. The data came from annual reports, sustainability reports, IDX releases, and also sources like Yahoo Finance, as well as Bloomberg. With purposive sampling, 45 companies ended up meeting the requirements, and this produced 135 firm year observations on those 3 years

Tabel 2. Sample Selection Results

No.	Sample Criteria	Total
1	Energy sector companies listed on the IDX	91
2	Companies not consistently listed during 2022-2024	(9)
3	Companies not publishing annual reports during 2022-2024	(12)
4	Companies without income tax expense data during 2022-2024	(24)
5	Companies with non-positive pre-tax income during 2022-2024	(1)
Total Sample		45
Total Observations (3 years)		135

Source: Indonesia Stock Exchange (www.idx.com), processed by the author.

Descriptive Statistics

A descriptive statistic analysis was done for essentially whole the variables on the study , involving the work with minimum values, maximum values, average levels, as well as standard deviations. You can see this kind of analysis gives a first kind of look at how the data is spread out , for both the dependent variables and the independent ones. In other words, it helps show overall tendencies, the way dispersion seems to behave, plus the variability level enclosed the panel dataset.

Tabel 3. Descriptive Statistics Results

Variabel	N	Minimum	Maximum	Mean	Std. Dev.
SPV	135	0.004375	0.148033	0.038239	0.028601
ESG	135	0.000000	81.00552	12.08636	22.66258
ETR	135	-0.815792	-0.005414	-	0.161034
				0.233226	
TD	135	0.000000	0.800000	0.146667	0.195776
DER	135	0.058699	10.79066	1.137151	1.562407
SIZE	135	26.17541	34.10926	29.71127	1.638171

Source: Processed using EViews 13.

As can be seen from the descriptive statistic analysis in Table 3, the number of observations on this study is 135 (whole numbers). The whole variables involved on the model vary on their minimum, maximum, mean and standard deviation values, which helps to reflect the characteristics of panel data used to examine. A more thorough telling of each variable is given just below:

- a. The minimum value of Stock Price Volatility, SPV, is 0.004375, the maximum is 0.148033 and the mean is 0.038239 with a standard deviation of 0.028601. So on average, the companies on the energy sector don't experience that much volatility, but a small portion does have more extreme movements.
- b. ESG Performance (ESG) scales from 0.000000 to 81.00552, with an average value of 12.08636 and a standard deviation of 22.66258. The significant spread indicates that there is a significant range of ESG performance among energy companies.
- c. Tax Avoidance (ETR) reveals a minimum value of -0.815792 and a maximum value of -0.005414, with a mean of -0.233226 and a standard deviation of 0.161034. The negative values in all the years are due to fluctuations in the company tax strategy and financial situation of sampled companies.
- d. The minimum value for Digital Transformation (TD) is 0.000000; the maximum value is 0.800000; the mean is 0.146667; the standard deviation is 0.195776. The results show that the digital transformation adoption is still fairly low and is not homogeneously adopted across companies.
- e. Leverage (DER) scales from 0.058699 to 10.79066, with an average of 1.137151 and a standard deviation of 1.562407. The big scale indicates that there are significant gaps on capital structure and debt utilization of firms.
- f. Firm Size (SIZE) own a minimum value of 26.17541 and a maximum value of 34.10926, with a mean of 29.71127 and a standard deviation of 1.638171. The fairly small variation reflect that the companies on the sample are samely alike on the size category.

Panel Data Regression Analysis

Tabel 4. Multiple Linear Regression Results FEM

<i>Variable</i>	<i>Coefficient</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	-0.004795	-0.095890	0.9238
ESG	0.000227	2.001170	0.0486
ETR	-0.013624	-2.766332	0.0070
TD	0.058934	5.310598	0.0000
DER	-0.015736	-6.116365	0.0000
SIZE	0.001742	1.019647	0.3108

Source: Processed using EViews 13.

From the estimation outcomes in the panel data regression utilizing EViews

13, 3 different model setups were checked out: the Common Effect Model CEM, the Fixed Effect Model FEM, as well as the Random Effect Model REM. After that, the model selection steps were done via the Chow test, the Hausman test, also the Lagrange Multiplier test, then the Fixed Effect Model FEM came out as the most suitable one for describing the ties amidst the variables used in this research. So, for the rest of the discussion, the analysis relies the FEM estimation results shown below.

Derived from these results, the panel regression equation could be written as below:

$$SPV = -0.004795 + 0.000227ESG - 0.013624ETR + 0.058934TD - 0.015736DER + 0.001742SIZE + \varepsilon$$

The regression results could be elaborated as below:

- a. This constant value is -0.004795, meaning that if whole other independent and control variables are 0, then the estimated baseline level of Stock Price Volatility SPV is -0.004795.
- b. In the model estimation, the regression coefficient of ESG (ESG) is positive, which is 0.000227.
- c. Tax Avoidance (ETR) own a coefficient of -0.013624, stipulating a negative effect toward SPV. Stock price volatility increases with more aggressive tax avoidance.
- d. The coefficient of digital transformation (TD) is 0.058934, which is positive and reveals that there is a relationship between the two. The bigger the digitization level, the more volatile the stock price, appears to be the trend.
- e. The coefficient of leverage (DER) is -0.015736 which means it is negatively related to SPV. An addition on leverage is linked with a lessen toward stock price volatility.
- f. The coefficient value of Firm Size (SIZE) is 0.001742, which shows a positive correlation with SPV. Investors might find that volatility in stock prices is somewhat higher among larger firms, but this may not be statistically significant and should be interpreted with care when making conclusions about it.

Hypothesis Testing

Tabel 5. Results of the Coefficient of Determination Test (R^2)

<i>Adjusted R-squared</i>	0.750359
Source: Processed using EViews 13.	

Derived from Table 5, the Adjusted R squared value 0.750359 kind of stipulates about 75.03 percent of the shift in Stock Price Volatility could be pinned on ESG Performance, Tax Avoidance, Digital Transformation, leverage and firm size. The rest 24.97 percent is still being molded by other things that are not in the model. So, overall, it almost sounds like the regression arrangement has pretty solid explanatory strength, even if a bit of nuance is missing or sort of left out.

The F test is used to check if the independent and control variables, together, has a noticeable influence toward the dependent variable, kinda jointly. The outcomes are described in the following way:

Tabel 6. F Test Results

F-statistic	9.219815
Prob (F-statistic)	0.000000

Source: Processed using EViews 13.

From Table 6, the probability figure of 0.000000 is smaller than 0.05, so it looks like all independent together with control variables, can affect the Stock Price Volatility at the same time. That means the regression setup is basically suitable for the next stages of analysis, and we can move forward.

The t test is utilized to see if each independent variable on its own, bring a notable influence toward the dependent variable. The outcomes are written down like this below,

Tabel 7. t Test Result

Variable	Predicted Direction	t-hitung	Sig Two Tailed	Sig OneTailed	Conclusion
C	-	-0.095890	0.9238	0.4619	
ESG	Negative	2.001170	0.0486	0.0243	H1 rejected
ETR	Negative	-2.766332	0.0070	0.0035	H2 accepted
TD	Positive	5.310598	0.0000	0.0000	H3 accepted
DER	Negative	-6.116365	0.0000	0.0000	H4 accepted
SIZE	Positive	1.019647	0.3108	0.1154	H5 rejected

Source: Processed using EViews 13.

Derived from the t test results, the outcomes could be elaborated as follows:

- ESG Performance shows a positive as well as statistically significant effect toward stock price volatility. the one tailed significance value of 0.0243 is below the 0.05 threshold, and the t value of 2.001170 sort of confirms that relationship is positive. this outcome suggests that stronger ESG Performances are connected with higher stock price volatility, even if it's kinda counterintuitive. Because the direction found in the empirical evidence clashes with the expected negative relationship, **hypothesis 1 is rejected**.
- Tax avoidance when substituted using the Effective Tax Rate (ETR) reveals a negative and significant effect toward stock price volatility. The outcome kinda stipulates that bigger ETR values, which are more like a signal of stronger tax compliance and also lower tax avoidance, appear tied to reduced stock price volatility, for sure. The one tailed significance value of 0.0035 is smaller than 0.05, and the t value of -2.766332 further supports this negative relation. So, in simple terms, this outcome means that a bigger effective tax rate, basically reflecting better tax compliance, goes together with lessen stock price volatility. Hence, **hypothesis 2 is accepted**.
- Digital Transformation seems to have a positive and statistically significant effect toward stock price volatility. The significance value 0.0000, and the t value of 5.310598, both point to a rather powerful positive relationship. So, basically when the digital transformation efforts are bigger, the stock price

volatility tends to go higher too, in other words it is linked with more fluctuation. Then, **hypothesis 3 is accepted.**

- d) Leverage which a control variable own a negative and statistically significant effect toward stock price volatility. An significance value of 0.0000 and a t value of -6.116365 suggest that a bigger leverage is correlated with smaller volatility of the stock price.
- e) There is no statistically significant relationship between Firm Size and the stock price volatility. The significance value is exceed 0.05, so firm size is not enough statistically to affect the volatility of stocks in this model.

The outcomes stipulate that ESG Performance own a positive and significant effect toward stock price volatility. This outcome recommends that when ESG Performance is higher, stock prices tend to fluctuate more among energy sector companies, with wider swings, maybe because investors react more strongly than expected. This outcome actually contradicts what Hasanah et al. (2024) reported, where ESG was said to reduce stock price volatility since stronger ESG practices are viewed as more translucent and sustainable, so investor vagueness supposedly goes down. Yet, the result does match Wahyudyatmika and Astuti (2024), who opined that ESG disclosure might expand market sensitivity, since investors comprehend sustainability information like a kind of signal for upcoming practical shifts, operational remapping, also even extra corporate expenses.

From the signaling theory angle, ESG disclosure basically transmits information about a company's long-run sustainability pledge, and also hints at what its future business might look like. For energy sector firms, ESG actions are frequently tied to things like environmental transition costs, extra spending on renewable energy, and more demanding sustainability rules. That mix can, in turn, lead to sharper investor reactions, and even a bit of speculative attention. So, the market could read ESG agendas not only as favorable cues of sustainability principles but also as a sign of tactic for vagueness, plus operational shift risks. In other words, this result suggests that in emerging markets such as Indonesia, ESG practices may not immediately make stock prices settle down, because investors are still getting used to sustainability-based investment views, in a kind of gradual way.

The results also reveal that Tax Avoidance, substituted by the Effective Tax Rate (ETR), bring a negative and significant effect toward stock price volatility. The authors' discovery suggests that steadier tax compliance, and lessen tax avoidance, is linked with less volatility of stock prices. Aggressive tax avoidance tends to increase firm risk, which in turn increases stock return volatility - in a way, the result confirms with Guenther et al. (2017) and Krapl et al. (2020), who have claimed that aggressive tax avoidance agendas expand firm risk and volatility in stock returns due to the uncertainty of future tax liabilities and potential regulatory action. However, this conclusion contradicts that of Warastri and Suryaningrum (2022) that tax avoidance does not significantly impact the business risk, since the practice of tax avoidance is still prevalent in legal limits.

This study sort of recommends that investors on the Indonesian energy sector usually respond negatively to aggressive tax agendas, mostly because of worries about reputational risk, regulatory attention, and that annoying uncertainty about what the future cash flows will look like. In the spirit of signaling theory, tax

compliance, which shows up through higher ETR values, can be read as a kind of reassuring message about careful financial management and open corporate governance. So investors get less uncertainty, and stock prices tend to stay more firm. Besides, lower ETR values, meaning a more aggressive tax avoidance posture, can set off negative market views and can also make stock prices fluctuate more.

Moreover, Digital Transformation seems to positively and significantly alter stock price volatility, although the direction is pretty clear. This outcome goes along with what Sun et al. (2024) reported, namely that digital transformation pushes up volatility, because the digital initiatives call for a rather hefty investment, and at the same time they bring high implementation uncertainty. It also matches Zhang et al. (2023), who suggested that digital transformation can raise the vagueness about future innovation results and corporate performance. Still, the present outcome is not the same as Santosa and Salma (2023), who detected that corporate digitalization does not meaningfully alter firm value, since on some firms the digital adoption are limited, also investors perceptions never really get fully altered.

The positive relationship observed on this study suggests that digital transformation in energy companies is remain seen by investors as sort of a great risk tactical process, and it's not really treated as a smooth path. In the energy sector, firms often need large technological investments, plus infrastructure modernization, and some operational adjustments during the digital rollout. Even if digital transformation can, in the long run, support efficiency and competitiveness, the switch itself may at the same time raise uncertainty about implementation costs, technological adaptation, and what future profitability will actually look like. If we look through the signaling theory lens, digital transformation works like a signal of breakthrough and strategic competitiveness. But in emerging markets, investors might respond with more intensity to the risk elements and unknowns tied to the digital transition, so stock price volatility can go up. Overall, the results highlight that ESG performance, tax policy, and digital transformation act as meaningful strategic signals that influence how investors form their views in the capital market. Yet specifically in Indonesia's energy sector, these signals appear to make the market more sensitive and can lead to stronger stock price fluctuations, largely because sustainability implementation, fiscal policy management, and technological adaptation are still in a transitional stage in emerging market conditions.

CONCLUSION

This study tries to see what happens when ESG Performance, Tax Avoidance (measured using the Effective Tax Rate, ETR) and Digital Transformation are tied to stock price volatility, while Leverage (DER) and Firm Size are put as control variables. By utilizing panel data regression on energy sector companies that are written in the Indonesia Stock Exchange, across 2022–2024, the results show that ESG Performance gives a positive and significant influence toward stock price volatility. In other words, the higher the ESG Performance, the more the market seems to react sensitively, and investor reactions may become stronger, especially in the energy sector, where sustainability themes, environmental pressure, as well as transition risks are pretty pertinent. The analysis also indicates that Tax Avoidance substituted by ETR shows a negative and significant impact toward stock

price volatility. This suggests that better tax compliance and a lessen level of aggressive tax behavior are linked with more stable stock prices and less worry from investors. Then, Digital Transformation is also detected to be positive and significant for stock price volatility, meaning that digital efforts can bring expansion chances, but at the same time they carry execution risks, so the market responds harder and stock prices swing more.

Based on the overall result, it is noted that ESG Performance, tax policy, and digital transformation have been emerging as vital practical signals that impact the capital market's perception of the energy sector, particularly in Indonesia. For investors in emerging markets, the results indicate that the uncertainty effect and the transitional aspect of these developments is still affecting how they react to sustainability practices, fiscal policies and technological change. This study adds to the literature a bit by putting ESG Performance, tax avoidance, and digital transformation together inside one empirical framework, to explain stock price volatility in the realm of an ongoing market economy.

Although this study has contributed, it has also got certain limitations. The observation period is of a fairly short period and only includes companies from the energy sector which could limit generalizability of the outcomes across other settings. Thus, further studies were recommended, such as longer time horizons for observations, inclusion of additional industrial sectors, and the use of alternative proxies to measure tax avoidance and DT. Further studies might also introduce other factors, like macroeconomic factors, stock liquidity, corporate governance quality, or even moderating and mediating effects, to better understand the true factors that affect stock price volatility.

The results of this study give tactical takeaways for some parties, not just one side really. For investors, the output suggests that ESG Performance, tax compliance, and digital transformation have to be treated like meaningful signals when judging investment risk, and also when thinking about stock price movements. For corporate management, the outcomes highlight that sustainability strategies, tax policies, as well as digital transformation initiatives should be handled with extra care. Not because it is “nice”, but so market uncertainty stays lower, and so investor confidence does not wobble. As for regulators and policymakers, this research can work as a kind of reference point, especially for improving ESG disclosure rules, strengthening tax governance, and guiding digital transformation policies. The aim is a more transparent, steadier capital market atmosphere overall.

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